![CoolMiniorNot!]

THE ULTIMATE MINIATURE
PAINTING GUIDE

Beautiful Faces
Non-Metallic Metal
Object Source Lighting
Advanced Sculpting
Perfect Photographs

400 pages!

ILLUSTRATED TIPS AND TRICKS BY AWARD WINNING ARTISTS

CoolMiniOrNot Presents

THE ULTIMATE MINIATURE PAINTING GUIDE

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Introduction

CoolMiniOrNot is proud to present a selection of articles from our archives, which represent the gamut of the entire miniature painting hobby.

Within the 400 pages of this book you will find articles covering almost every aspect of miniature painting and modeling, with numerous step by step guides fully illustrated with photographs.

Contributors include international award winning painters who have pioneered awesome new techniques like NMM ("Non-metallic metal") and OSL ("Object Source Lighting"). Let them tell you, in their own words, how they paint their little metal men.

Read on, and I hope you find this book a valuable resource.

Eldar Exarch with OSL by Victoria Lamb

Ng Chern Ann

Editor

2007

Note
Authors of these articles can be found lurking at CoolMiniOrNot (http://www.coolminiornot.com). Screen names are listed below real names, so if you have a question, pop down to the site and drop them a personal message. If that doesn't produce answers, try the Forums (http://www.coolminiornot.com/forums)

THE BASICS

Miniature preparation, assembly and painting 101

If you're completely new to miniature painting, this is a good place to start. If you're familiar with basic concepts like drybrushing, highlighting and miniature assembly, skip ahead to Chapter 2.

Paint description
by paintpot

Paints

Well, to be able to add color to your miniatures, you are going to need paint. You don't need a large collection of colors, but the more variety you have, the better. Many manufacturers today bring out many different types of water based paints in pots or sprays, ranging from your basic colors, all the way through to metallic paints. So your choices can be endless when it comes to personalizing your own figures.

Basic Paints

To get you started in the hobby of painting your war gaming miniatures, I would suggest one of each color of the rainbow, as well as black and white. This way you can mix different colors to get a desired one, if you don't already have it. On top of these I would also suggest a couple of metallic paints, such as gold and silver. These two will come in handy when it comes to painting those weapons, armor and jewelry. Once you have got your basic colors, then it is a good idea to maybe get some of the different shades that GW bring out. Take red for example. You have the choice between Blood red, Blood Angel red and Crimson Gore. These are all different shades of the one color.

Inks

Inks are a watery paint with a strong pigment, similar to ink found in pens. Why use them you ask? Well, it is all part of the process of painting your miniatures. Inks are usually the darkest shade of any particular color. They are mostly used in the procedure of 'shading' your miniatures. They create the effect of shadows and dark nooks and crannies on a miniature. Such places are fold lines on faces, or where two objects meet on a miniature, like a hand holding a weapon. So to be able to create the look of 'depth' to you model, inks are ideal, although you can achieve the same effect with watering down your existing paints. The only problem with this is that you have to get the right consistency time and time again, where as the inks are ready to use. Just open and go. I will show how I use them in the shading section.

Glazes

GW made about half a dozen different glazes that are used to bring out the color in your miniatures. They are no longer a supported line of product but if you have them, they can be very useful. If, for example, you had painted a red cloak, and it wasn't 'bold' enough, by applying a red glaze, the true colors of the cloak would stand out. They are also good for toning down your colors. If you had painted the same red cloak, but the highlights were too bright, you could apply the glaze to drop the brightness of each shade. Although glazes are not a necessity item that should be on your list, they can add that special touch to your miniature masterpiece.

Basic tools
by paintpot

Paint Tools

There are many tools of the painting trade. But they can be whittled down to the bare necessities to be able to supply you with a good range of painting implements. I think that the basic ones are:

- Working area

- Light Source

- Newspaper

- Brushes

- Sharp Craft / Hobby Knife

- Needle Files

- Water Receptacle

- Mixing Palette

- Old Paint Pots or Cork Pieces

Working Area

To be able to paint effectively and with minimal 'stress', a large, clean working area is ideal. It can range from many different things, such as a desk in your bedroom to the dining room table. You should be within easy reach of all your painting materials, and most important, you need to be comfortable. You will not get good results if you are constantly having breaks to stretch your back muscles from bad posture. Just make sure that your working area is around the level of the bottom of your rib cage. It works for me. If you can get your hands on one, an adjustable height chair can be the best thing since sliced bread. Once you have set it to a desired height, you won't need to constantly change your posture.

Light Source

The next important item on the list is your light source. If you can place your table near a window that lets in a lot of sunlight, then this is the best. But, if you are like me, and paint around the clock, then the sun isn't going to always be there for you. So a desk lamp is going to be needed. Light that is produced from ceiling globes just doesn't cut it. There are many types of lamps on the market. The best type to get are the ones that have moveable parts so that you can move the lamp where needed. The lamp that I have clamps onto the side of my desk, and is made up of arms and springs. I can place the light where and when I want to, so I can't complain, really. The idea of the light source is to be able to see what you are doing, obviously, but it will be no good if the head of the lamp is in your way. The best place to position the head is about 2-3" away from your forehead. This is mainly so you don't look like you have been to Hawaii for a holiday. This way the light will be shining directly onto what you are trying to paint. Any other position and you will only cloud your miniature in shadows (you may as well paint in the dark).

Newspaper or any surface covering

To protect your work area from paint and water spillages, some type of covering will be needed. As I constantly buy the local paper, I have an abundance of paper protection, not to mention some reading while I wait for the paint to dry. But you can also use an old table cloth, folded a few times to be able to soak up any moisture, butcher's paper, or if your really desperate, mum's favorite party dress (just kidding!!!). You should always keep your paints and washing water on the paper, just in case you knock them over. Better to be safe than sorry. A good trick is to have a wad of paper that you are working over, say 20 sheets. That way, when the top few

become to congested with goop, you can just slide them out, and use the next few layers. Just save a few papers from the recycling bin, so that you don't run out.

Brushes

Now for the interesting stuff. Brushes. What do I use, I hear you ask? Well, I think it comes down to your own personal taste and methods. Brushes come in all different shapes and sizes, so the choice can get a bit hectic. I prefer round brushes, but I know that other people prefer flat ones for specific tasks. But I seem to get away with it anyway. The main sizes that I think you should look out for are 3/0, 5/0 and 10/0. The higher the first digit, the smaller the brush. 3/0 are good, large brushes for painting your base and undercoats. 5/0 sized brushes are good for putting paint on relatively large areas, like Space Marine armor and large clothing areas. They can be a bit more precise than the 3/0's. Finally, the 10/0 is a very good fine detail brush, and you should use them for just that. The most common use for my 10/0 is painting eyes on miniatures. They can get the pupils just right (so long as my hand wants to play steady for me). You can also use them for painting intricate patterns and designs that you invent yourself, such as chapter and Craftworld badges, icons, text, whatever you like. Just make sure you've been off of the coffee for at least 24 hours.

To maintain a good life for your brushes, there are a few things that you should remember. Never immerse the brush so that the bristle clamp gets paint on it. If you do, over time the base of the bristles will become clogged and cause them to spread. You want to keep them forming a point. Keep your brushes upright in an empty jar or cup when you are not using them, so that they are not in contact with another surface. If they are, the bristles will be bent and out of shape the next time that you go to use them. When cleaning your brushes, make sure it is done thoroughly. Most of all, don't run the brush head through your fingers to wipe away excess water. Use a tissue, or paper towel of

some kind. Place the bristles on their side and drag them 'back', across the tissue, giving a slight twirl as you do so. That way the bristles will form back into a point and you won't need to touch them. Just stand them back up in your jar or cup. Most hobby stores supply these brushes.

Sharp Craft/Hobby Knife

To be able to remove miniatures and vehicle parts from their sprues, you will need this device.

> **WARNING**
>
> Never cut towards yourself, or towards another person. Direct the blade away from your body and downwards, and make sure that you control the cut. *KEEP YOUR FINGERS OUT OF THE WAY!*

When removing models in this way, always make the last cut in a place that will not be seen when the model is complete. So if, for example, I was to remove a Space Marine from a sprue, I would leave the tabs at the base of the model until last. As the model may tend to move around after cutting several tabs, the last cut can be a bit messy, and may scar the model. Leaving the last cut at the base, it can be done without having to worry about the 'look' of the model, as it will be under the base when complete.

Needle Files

These aren't a neccesity, but make the process of cleaning mould lines and flash (bits of lead that just don't belong on the model) a whole lot easier. Needle Files come in all shapes and sizes, just like brushes, and you can usually find one to fit into that nasty hole to clean it up. Again, most hobby stores should sell them, individually or in packs of varied shapes. They can be worth every penny. I know mine are. I show what Needle Files are used for in the **Preparation** section. Below are a few different types of Needle Files and a miniature for comparative size.

Water Receptacle

To be able to clean your brushes from paint, you will need a clean glass or cup of water. Just make sure that the water IS clean. If you leave it too dirty for too long, you will find that the disgusting color of it may enter your paint, in some horrible fashion. Yechhh!

Mixing Palette

Some times you may want to paint your miniature a certain color that you just don't have.

This is where the palette comes into the picture. An old bread and butter plate or an old, clean tile from a demolished bathroom or kitchen can be ideal. All you need to do is transfer some of the paint from your pots to the palette, and stir. Just make sure that you clean your brush between pots. The best thing about a palette, rather than the newspaper, is that the paint will stay wet for a longer period. NOTE: Try and keep the palette out of direct light from your desklamp, other wise it will be dried up before you get to use it.

Old Paint Pots or Cork Pieces

What ever you do, don't throw away empty pots of paint. They are ideal for mounting your miniatures on while you paint them. Just stick them on the top with some Blue-tac, or other poster mounting product. That way you can keep your grubby mitts off of your miniature while you are painting it. Until you have emptied your first pot of paint, corks from bottle tops, or craft stores do the same job. They are just a little bit lighter than a pot, so be careful when you put your miniature down so it doesn't fall over and chip your fantastic paintjob.

Painting preparation
by paintpot

Before you should even start to think about actually painting your miniatures, some care in the 'preparation' should be used. A few things need to be looked at when cleaning up your models, especially if they are multi part kits.

Plastic Miniatures

Removal

I have come to realize how easy it is to damage plastic miniatures when removing them from their sprue from my early days of modeling. Since then I attack a sprue with a modeling knife in a particular fashion. Firstly I look at the miniature to be removed and find where I need to make the cuts. By this I mean what cuts I should make first. The solution is simple. The first cuts should be at places where important parts of the figure meet the sprue. Such places maybe the top of a head, a weapon, or something that I know I want to be a clean cut. The reason that you should do this is because the miniature will remain stable as possible while you cut these parts, but as you get to the last few, the miniature is almost free of the sprue and can become unstable. So by this stage the last cuts to be made should be the least important area of the miniature, such as the bottom of the tab (the bit that slides into the base). If I cut too much off by accident, it doesn't really matter, as this part of the miniature people won't see.

Cleaning

I prefer to keep using the hobby knife for this job, rather than needle files, but either will do. The only thing that you will need to clean from plastic miniatures is the mold line. Mold lines are thin lines of plastic that are left behind when the miniatures are made. They are quite easily found. If your miniature has a mould line, you will see it running the outside perimeter. It will usually start from the outside of one foot, continue over the top of the figure, and down to the other foot. If the model is in a pose with it's legs apart, there maybe a mould line around the inside perimeter of this also.

Note

The utmost care should be taken when removing miniatures from a sprue. A sharp hobby knife is a must, so that the plastic is actually cut, and not torn. The sprue should be placed on a level, flat surface, with some type of protection, such as a wad of newspaper. All cuts should be made in a downward motion, away from the body. Fingers should remain clear from the blade. Do not force the knife in one hard motion, but push gently. You will find that the plastic will cut like butter in this way, and the risk of breaking miniatures is eliminated.

So how do I clean plastic mould lines? Easy. By using my trusty modeling knife, I drag the blade along the line, lightly, so as to scratch it off. You will need a sharp knife for this also, so make sure you scrape away from your fingers and body. After several passes, depending on the thickness of the line, the area will now become flat, and smooth. Voila, your plastic miniature is now ready to put in it's base.

Mold line
This Skaven has a line running the length of its head.

Metal Miniatures

Cleaning
A little bit more attention needs to be paid to metal miniatures. They may still have mould lines, like plastics do, but to remove them I would suggest Needle Files. As they come in different shapes and sizes, there is no part of any miniature that they won't be able to clean up. The most important thing with files, is to be watching what you are filing. This may sound a bit silly, but I have seen modelers take off more than what they were supposed to.

As well as mould lines, metal miniatures may also have 'Flash' on them. Flash is the name given to small pieces of metal that have escaped the moulding process (due to high pressure), and are barely clinging to the model. The most common place to find these are on the front and back of the feet and any other appendages or weapons that end at a small area, like a marine raising a sword, there could very well be flash on the tip of the sword. This Bolt Pistol shows that unwanted flash must be removed.

To remove flash all you need to do is trim it off with your hobby knife. Again, common sense should prevail. Place the miniature on a flat, level surface and cut in a downward motion, away from the body, keeping your fingers out of the way. You may feel uncomfortable cutting so close to the miniature, so just cut off most of it, and remove the rest with a needle file.

Multi-part Kits

Cleaning
Multi part kits form the excitement when it comes to war game modeling. GW bring out a huge range of MP Kits, and their contents greatly vary. They range from your typical trooper with multi posable arms right up to the Imperial Basilisk and Eldar Grav Tank. The only common thing between them all is that they are either made from plastic, metal or some of both. The cleaning methods for plastic and metal miniatures above can be applied to what you will get in your kit. But the main emphasis is on mould lines. You will need to look at each individual piece to find where the mold line will most probably be. If they are left behind, they will not give the justice that your finished figure should deserve.

Assembly
Once your kit has been cleaned to your satisfaction, there are a few more steps that you should follow. The first one has to do with plastics. The first thing I do with my large plastic parts is wash then in luke warm water with a very small amount of detergent, and then rinse in clean water. This will wash away any chemical films that are left behind from the pressurized

injection process, and let your paint retain a smooth finish when it is applied. If they are left unwashed, and are painted, blemishes can appear in the paint work, making it look slightly unattractive (mind you, any Chaos players may like to leave this effect?)

So now all your pieces are ready for assembly. But before gluing anything, I would recommend that you prepare yourself for a couple of steps. Two things need to be looked at. Gaps and Pinning. Firstly you should determine whether any of the pieces will need pinning for extra strength. Sometimes the glue alone isn't strong enough to take the weight of larger pieces. To do this you will need two things. A Pin Vice with small drill bits and some sturdy wire, like the stuff coat hangers are made of. If you want to pin two pieces of a model together you will need to drill a hole into each of them, making sure that they line up together, with the model's pieces in the right position. Then cut a piece of wire ever so slightly smaller in diameter than the holes (you want a snug but not impossible fit). It should be the length of the two holes combined. Take the wire and glue it into one of the holes. You should have about half the length of the wire sticking out. When this is dry, glue the rest of the pin into the other hole, making sure that you have glue on the surface of the pieces that will come together. Hold it together so both pieces are in the right position and wait for it to dry. Voila, one pinned model. It isn't as difficult as it may seem. The tricky part is getting everything to line up properly. Holes, pin and model.

Another thing that you will need to be aware of is that all the pieces fit snuggly together. Some MP kits have problems coming together neatly, and parts can have gaping holes where it should be shut tight. The large vehicle kits, like tanks and bikes, should fit together without to much of a problem, and your standard troopers shouldn't either. But the kits that I find cause the most problems are large metal ones, such as The Avatar, The GUCO and Orion. When assembling these particular type kits, first see if the pieces fit together, without leaving any gaps. If they do fit, no worries, but if they don't you might like to consider a brand of filler. Such things as air drying modeling clay and two part epoxy fillers are quite a common tool for this type of work. It's just a matter of gluing your pieces together, following the instructions of the filler and filling the gaps. You don't need to be a sculptor to do this, just patient. The gaps shouldn't be too big (hopefully), and they will just require some smoothing over when they are full.

Priming

Priming a figure (also known as *undercoating*)is particular important for two reasons:

1. It gives your paint something to adhere to, which may be a problem for some water based paints on plastic miniatures.

2. It sets the overall "tone" and feel of your final work, depending on the choice of color used for your undercoat.

Primers typically come in 2 colors, white and black, although it is possible to find grey and other undercoats of muted colors.

<div style="background:gray">

Choice of primer color

</div>

Your choice of primer color depends largely on your style. If you prefer brightly colored figures, a white primer will be easier to work with as most paints are slightly translucent, allowing the white undercoat to show through. IF you prefer highly contrasted or more brooding figures, a black undercoat will save you time and effort, crevices or armor edges will be convincingly dark without much effort on your part. Experiment and see which you prefer.

Spray Primers

If you start by giving your models a good undercoat, the rest of your painting time is going to be well spent. An unevenly applied undercoat will cause your final result to look lumpy.

A spray primer must be shaken *thoroughly* before application, until the ball bearings within the can feel like they have a reasonable amount of free motion (and are not impeded by clumps of coagulated paint). Then, spray the miniature evenly with very thin coats, allowing each coat to thoroughly dry before applying the next one (usually just a few minutes). Do not be concerned if the primer color isn't "true" during the first application (e.g. your white primer looks a bit grey on the figure). Just spray it again.

Things to watch out for:

1. Clumps, specks or other dust

   This is usually an indication that your primer wasn't shaken well enough, you are spraying in particularly cold or dry conditions causing the primer to clump up, or the primer is past it's shelf life. Wipe off the figure and try again before the primer has a chance to set.

2. Runny drip marks

   You've used too much primer, or the primer wasn't shaken well enough (too much solvent, not enough paint). As above, wipe the figure down and try again.

Below are two pictures of a Space Marine. The one on the left has an undercoat that is not unifom/solid. You can see the blemishes in it. When colors are put on top of this the blemishes may show through. The one on the right however is unform/solid and any color put on top of it will be solid also.

Basic Painting

by paintpot

Here comes the fun part. Before you start actually putting your brushes to the figures, here are a couple of things to keep in mind:

1. Do not dip your brush all the way into the paint pot. Make sure only the tip of the paint brush is loaded with paint, or your brush will have too much paint. If things are going too slow, use a bigger brush.

2. Keep your paints generally thin. They should have the consistency of milk. If the paint is too thick coming from the pot, dilute it a little with water.

Now that your preparations are complete, it's time to start painting the figure. For most basic figures, a few steps are followed:

- Base colors

- Shading

- Highlighting and/or Drybrushing

Base Colors

So now you are ready to apply the first lot of colors to your miniature. Your base colors are the primary colors that you want your figure to be painted in. Again, you need to make sure that your paint application is smooth, solid and uniform and most essentially, neat. The more you get colors overlapping onto the wrong areas, the more you'll have to clean up by painting over again, and this can get very messy. So if you have applied a good undercoat, then you shouldn't have too much trouble with getting good base colors.

What colors should you use? Well, whatever the paint scheme is that I am using at the time, I make sure that each is a mid-tone of what I want

the end result to be. Why a midtone? Because it will then prepare your model for the shading and highlighting stages of the painting scheme.

So with the Space Marine above, I have chosen Ultramarines Blue and Sunburst Yellow as two different base colors. So when I want to add depth to the figure, I can then add Blue Wash (see Shading for more information) to the helmet and Orange Wash to the chest eagle. From there I can use lighter tones of blue and yellow to highlight up.

Shading

This is the first step I take after applying the base color. What shading does is add to the look of depth to your miniatures. As the word suggests, shading adds darker areas to your model, in places that would seem to have shadows or darkened areas. Such places might be folds in skin or joins between armor plates. There are many places to apply shading on models, each with their own individuality.

Rather than paint the shades on with solid colors, I prefer to use GW's wide range of washes. A wash is simply a color that has been watered down, so that it runs into the cracks and crevices of your figure easily.

If we look back at the Space Marine that we painted back in The Basics article, we will see that we have a helmet to work on, which I would give a shade of Blue Wash. Washes should be applied evenly, and the miniature should not be 'drowned' in it. After a bit of practice you will soon find how much wash you will need to put on certain sized areas. But remember that washes are watered down

paint, so as soon as it is applied to a miniature, it is going to run, and you don't want it to run on parts of a miniature that you don't want it to.

For practice sake, I would start with a minimal amount of wash on the brush and applying it to a model, going back and forth, adding more wash until you know when you have enough.

Anyway, back to the Space Marine. I would apply the Blue Wash to the helmet, and make sure that some of it rests up against the chest eagle. Dark lines like this help separate one item from another, and make both pieces stand out. So here are two pictures, one without the wash and one with. You can see that the one with has now become darker in color, but we'll fix this when the wash has dried in the Highlighting stage. Places of note that should definitely have wash in them are where the face mask meets the outer helm, the eye sockets, around the ear piece and neckline, as well as where the neck guard meets the helmet, and along each side of the rib on top of the helmet.

So as you can see, the shaded helmet is quite a bit darker in color, which brings us to the next step

Highlighting
We've added shading to the base color, which is all painted over the top of a good, solid undercoat. So now we can add what is called the highlights. A highlight is basically the opposite of a shade. We now want to be able to enhance the look of depth to the model we are painting.

A highlight is a similar process to that of Drybrushing, but you are actually painting the brighter tones onto the figure, rather than dragging a brush across the surface. So continuing with our Space Marine, we now need to highlight up. The first color I would use is the original base color, Ultramarines Blue. The reason is because the Blue Wash that we added previously, darkened our original color, so below you can see where I have put the Ultramarines Blue paint on the helmet.

Base Color   Shading

1st Highlight

You can see the differences between the three stages. When I applied the first highlight, it is similar in painting the base color, but what you aim to do is leave the wash in the cracks, and highlight up from it. The next two images show a second highlight.

1st Highlight   2nd Highlight

The second highlight was a mix of Ultramarines Blue and Skull white with a drop of water to keep the paint as smooth as possible. The area that I needed to put the highlight were the front half of the face mask, the rim above the eye, the front half of the rib on top of the helm, around the edges of the ear piece and the ridge of the neck guard. But in comparison to the first highlight, the second was done on smaller areas, to give the impression of depth.

I would probably apply one last highlight, right on the edges of the helmet areas that I have been painting already. The trick with the last highlight is to put the paint on the brush, wipe off the excess, and use the side of the bristles to drag along the edge of the plates. That way you are putting on a fine line of paint. The mix I used for the last highlight was Ultramarines Blue and more Skull White than the highlight before.

2nd Highlight   Last Highlight

So as you can see, just buy adding Skull White to you base color, and painting less of the same areas each time, you get a real look of depth on your miniature.

Drybrushing

This is probably one of the simplest techniques that you can use to create a three dimensional look on your miniatures. But be warned, you are going to need to set aside a brush for this method, as Drybrushing will deteriorate the structure of the bristles. Old brushes that no longer whole their point are ideal for this purpose.

drybrushing can be applied to any area of a miniature that requires a highlight. So how is it done?

Well, to start with, you should have already applied your base coats to your model. Drybrushing is going to pick out the raised area of the miniature. So what you will need to do is choose a lighter tone of your base color. Once you have decided on that, <u>follow these simple steps</u>

1. Dip your brush into the paint.

2. With a clean piece of tissue, wipe off as much of the excess paint as possible, so there is only a trace left on the bristles.

3. Carefully drag the brush over the area to be highlighted, so the paint on the brush will come to rest on these raised areas.

Take some care as to where you want the bristles of the brush to go. You don't want to be drybrushing something with orange, and accidentally get it on something that is green. You'll only have to patch it up again later. Once your first highlight is dry, you can even go up to another lighter tone, and do the same process again, but applying the brush in a lighter fashion, to only pick out the top most areas.

Here you can see that this Minotaur has a very hairy back. I decided to paint the hair black, and then drybrush it using a lighter tone. I used a mix of Chaos Black and Elf Grey, as Elf Grey was too bright to be painted on by itself. After this is dry I would then go on to use pure Elf Grey, with a lighter hand.
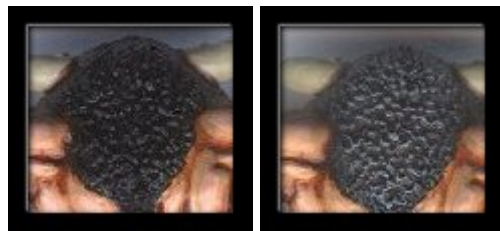
Painting metal
by paintpot

Before I go into how I paint metal, there I few things that I would like to let you know.

You should really have two separate brushes for painting metals. One for detail and base colors, like a 3/0 and one for drybrushing. These paints have metal flecks running through them, and can get into your normal colors if you use your normal paint brushes between pots.

Note

Always rinse your metal brushes separately (use another receptacle) from your normal ones. The flakes from metallic paint will contaminate your other brushes if you rinse together, transferring to areas of the figure you do not intend.

So, how do I paint metal? Well I use this method for large areas only, as I have another method for smaller ones. You will be able to see this on the 'Kwik Tips' page soon. Firstly, if I am painting large metal areas I prefer to start with a Chaos Black undercoat. Metallic paints can have problems with getting smooth and solid tone if applied over a white undercoat. Using this large axe below, I will show you the steps I use.

Chaos Black

The base coat that I apply to the undercoat is called Boltgun Metal. It is a very dark metallic, and you may find it difficult to see it in the following picture. Just look for the shine and you know it's there. This coat I make sure is uniform and as solid as possible, as this is going to supply the axe with dark tones in the nooks and crannies.

Boltgun Metal

Once the Boltgun metal is completely dry, I then use the drybrushing technique to apply all the highlights. The first highlight is done with Chainmail Silver, and is applied thoroughly to the axe head, but leaving the Boltgun metal in the corners of it.

Chainmail Silver

Again, once the Chainmail Silver is completely dry, I then apply one more drybrush with Mythril Silver, and apply them to the outer edges of the axe. Such places are the blade, the hook tip and

the clamp that holds it to the shaft. You can tell the difference with them next to each other.

Chainmail Silver

Mithril Silver

The last and final step would be to put some Armor Wash around the two studs that are holding the axe head to the shaft. This makes them more defined and helps them to look as separate pieces of the axe.

Armor Wash

So that's it. Pretty simple if you follow the steps. This technique is great if you use it on the Bulkheads that come with a lot of GW's terrain, such as Necromunda scenery, the Bastion, the Firebase and the Gorkamorka Fort to name just a few.

Painting skin and eyes
by paintpot

I start painting skin with a base color of Bronzed Flesh over the top of a white undercoat. I will use this Pit Fighter as an example.

When the base color has dried, I then apply a coat of Flesh Wash (what else should it be used for?). I make sure that the wash settles in the 'valleys' of the muscles, and in the folds of the skin, like the eye area, around the nose, mouth and ears. I also make sure that the wash sits alongside other objects that lay right next to the skin, such as the shoulder straps, and chainmail gloves. Here is what my wash coat ends up looking like.

Once the wash has dried completely, I then go back to the Bronzed Flesh and paint the first highlight. In the picture below you can see that I have left the wash in the appropriate places. So, basically, any area that is raised gets repainted. You can see on the face how I have picked out the forehead, eyebrows, cheeks, ears, nose and chin line.

It's at this stage that I can start to see the image come alive. The last step is one more highlight. For this I use Elf Flesh, for it's lighter tone, rather than mixing Skull White into Bronzed Flesh. I have again picked out the same places on the model, but with less area, such as the point of the nose, the highest point on the cheeks and the lips. I have also put some Amour Wash (for it's black tone) in the mouth. As the pigment is not as strong as Black Wash, I can still see where the teeth are without having to strain my eyes.

As the flesh is now finished I can concentrate on the teeth and eyes. As this is a Pit Fighter, I decided to give him metal teeth. So I used Chainmail Silver to pick them out. But for normal teeth you might like to use Bleached Bone or Skull White. As for the eyes, you really need a steady hand a fine pointed brush. Starting with Chaos Black, I fill the eyeball area, trying not to get any on the top and bottom eyelids.

After the Chaos Black has dried, I then apply Skull White to the center of the black area. I prefer to have the white touching the bottom eyelid, and this in turn leaves a black area above. This will help reduce the effect of the model looking like it is staring, rather than being angry.

The last and final trick is to put in the pupils. Using Chaos Black again, I apply the paint so that the top and bottom of the dot are touching the top and bottom of the eye whites. This helps to stop the staring appearance.

All that needs to be done now is to cleanup the surrounding areas where I have got flesh colors on parts that I didn't want.

Basing
by Lloyd Bem

"Steelcult"

Anyone who plays Warhammer or 40k has at one time or another read the articles included by GW in the books about working on your minis. In those articles, they talk about basing by simply spreading some white glue/pva on the base of the mini, a quick dip in flock or sand, and viola a gaming ready base. To me, after putting in hours or days on a figure, what you get by this process is, well, unprintable. The sand or flock is two thin, and the base shows through. I use a similar method however, with one change - multiple layers.

First step is to gather together your basing materials - for gaming figures I use primarily sand, flock, small rocks, and static grass. The sand I use was custom delivered to my location by airmail about 2 years ago

Any sand of a reasonably fine texture will do, whether you get it from your garden or a hobby store (or provided for by Mother Nature!)

So, we've got the sand and glue together, and the next step is to slather a thick layer of glue on the base, being sure that it gets in and around the feet of the miniature.

Once you do that, dip the mini in the sand and let it stay there for a few moments. Carefully lift the mini out of the sand, and set it aside, leaving the excess sand on the base. The trick here is to let the mini dry, then dump the excess sand back into your sand container. Then, just as when shampooing, repeat the above steps, until you are satisfied with the look of your base.

Alternatively, you can make an emulsion of sand and glue; just mix the sand and glue together until you get a slurry that is just spreadable.

Apply it thoroughly to the base, making sure you fill the cracks on the base as well.

Once everything is dry, you should have something that looks like this.

The layers are what give the base a more natural appearance in my opinion, and at this point you can leave the sand in its natural color, or conversely wash it to give it some color. I usually wash the sand several times prior to adding either static grass or flock, depending on the color I am shooting for - both of the following miniatures have been done using the above process, with the difference in color in their bases resulting from a different total number of washes - the monk got four washes to the base, while the gunner got only two.

[Editor's note: You can also paint the sand using the drybrushing technique, which will create a brighter, more illustrated look]

Decals
by paintpot

Decals, or Transfers, are a good means to spicing up the look of your models. Whether it be a squad marking, runic emblem or even kill scratches. As it is a bit hard for me to scan myself applying decals to a model, you'll have to go without pictures for this page. Sorry. But I'll try and describe the way that I do them as best as I can.

Decals are usually left as one of the last things that are added to my models. So the first and foremost thing I look at before applying a decal is where it is going to go. I find it best to work this out before I have even started painting, as then I will know that the paint should be a smooth an uniform as possible in this location. If you start to get lumps in your paint work they are going to be visible when lying underneath the decal, causing it to push up, and maybe even distort the position of it (mind you, your painting should be smooth anyways). Decals are best placed on large flat areas that aren't going to cause it to crease.

The next thing to do is to have a glass of clean water ready to put the decal in, to remove it from the paper backing. One tip I can give you is to put one or two drops of dishwashing liquid into the water and give it a slight stir. This will help the decals slide off of the paper; especially from those decal sheets you've had lying around your house for a long time. Just don't put in too much, otherwise you'll be up to your ears in bubbles.

Then, cut out the decal, using a sharp hobby knife. If it is blunt, you risk tearing the sheet and possibly the decals. Make sure your cutting surface is protected adequately enough so as not to score it. A wad of news paper does it for me. I usually cut around the decal in a square or rectangle shape, keeping well clear of all the decals. Please do this carefully, so as not to slip

and cut yourself. Just apply moderate pressure, and guide the knife carefully. You should come off injury free.

Once it is cut out, I then use a pair of tweezers to hold onto the edge of the paper (not the actual decal) and immerse it in the water. After a one minute wait, the decal is usually ready to be applied to the miniature. Place the decal, still with the paper backing, onto a flat surface and use an old brush (which has also got water on it) to check and see if the decal is completely sliding around on the paper backing. If it isn't, just put it back in to the water with the tweezers for a few more seconds.

Never try to force a decal off of the paper. You risk damaging it. Just make sure that the decals slides freely on the paper backing. Then I put a wet brush onto the surface where the decal is going to go, just to make sure that it is wet also. This helps sliding it from the paper backing to the figure. Just make sure that you have got the miniature in a good position to be able to put the decal on in the appropriate place. Then with the tweezers holding the decal in one hand and my brush in the other I continue forth.

I rest a corner of the backing paper onto the area where the decal is going to go (this should be a wet surface as previously mentioned). Then with the brush tip I push the decal along the paper, off onto the wet surface of the figure. Now you can put down the tweezers and pick up the figure. The reason I wet the surface is because it also helps in sliding the decal around until it is in the desired position. So I use the brush to do this. A poke here, a prod there and I get the decal where I want it. Then I use a piece of absorbent tissue paper and careful use the corner of it (for accuracy) to soak away any excess water. Once all the water is pulled away, I then use the flat surface of the tissue paper and

carefully apply it the surface of the decal and give a slight push or squeeze. This will pull out any water that is still sitting under the decal. Voila. One decal complete.

As most decals seem to have a glossy surface, this can be eliminated by your final coat of matt varnish.

Joint Pinning
by Nigel Barnard

"jester"

[Editor's note: "Pinning" refers to adding a small piece of wire or pin to strengthen a join between two parts, e.g. an arm and a shoulder, or a wing and a dragon's body.]

One of the things I ALWAYS do is pin joints when dealing with resin or metal, as these materials just don't bond like styrene plastic does. If you miss this step, you paint a beautiful model, a slight knock later and the arm falls off. Not good!

I'm sure all you hobbyists have seen and used the technique where you put red paint on a short pin and push the parts together to mark the other side, yes?

Anyway I always found this to be time consuming and not always very accurate, so over time I developed my own way of marking joins to be pinned.

I've detailed it below, it's quick & easy. The photo shows this technique being used on a large joint, to make life easier; but it'll work just as well on small joints like arms and heads.

1. Obviously you'll need a hole drilled in one piece first.

2. Next roll tiny ball of "blue-tak"; work this round and round till it's very sticky.

3. Apply a special non-stick liquid release agent (that's spit to you and me) on and all around the hole.

4. Gently apply the tack ball to the hole; if you're careful the surface tension of the spit will hold it in place, if not you'll just have to hold the piece with the tack on top
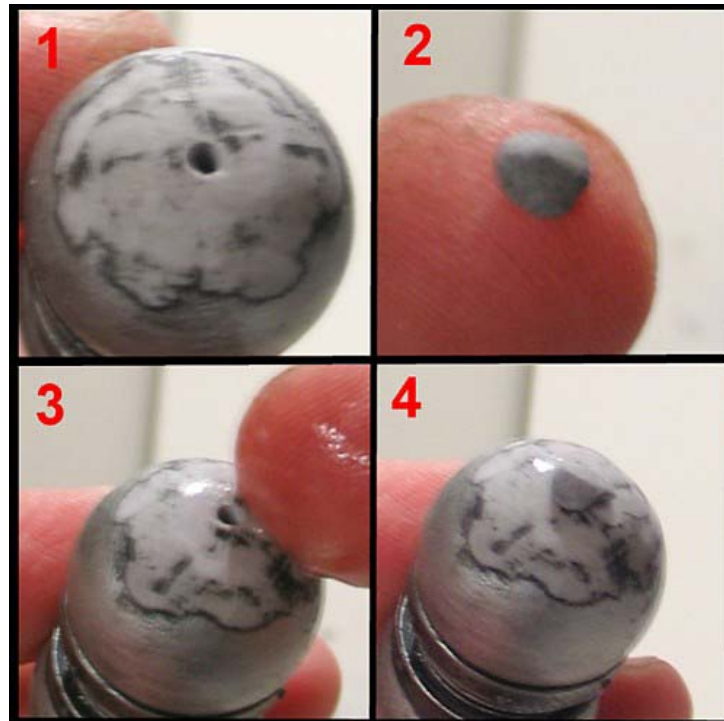
5. Carefully push your two pieces together and press joint very firmly.

6. As you pull the join apart you'll see that the tack has stuck to the other part, leaving a squidge of tack with a little knob sticking out where the opposing hole is; whilst your spit has stopped it sticking to the first one.

7. Use your pin-vice with a tiny drill bit to push though the middle of this little knob and drill into the second part; just go a little way in just to mark it, you can then peel off the tack and any swarf material and bin it.

8. Now you have a guide hole, you can drill out the hole to match the size of your pin; **just remember to drill in the same direction as the hole in the first part** and you'll get a perfect pinned join every time!
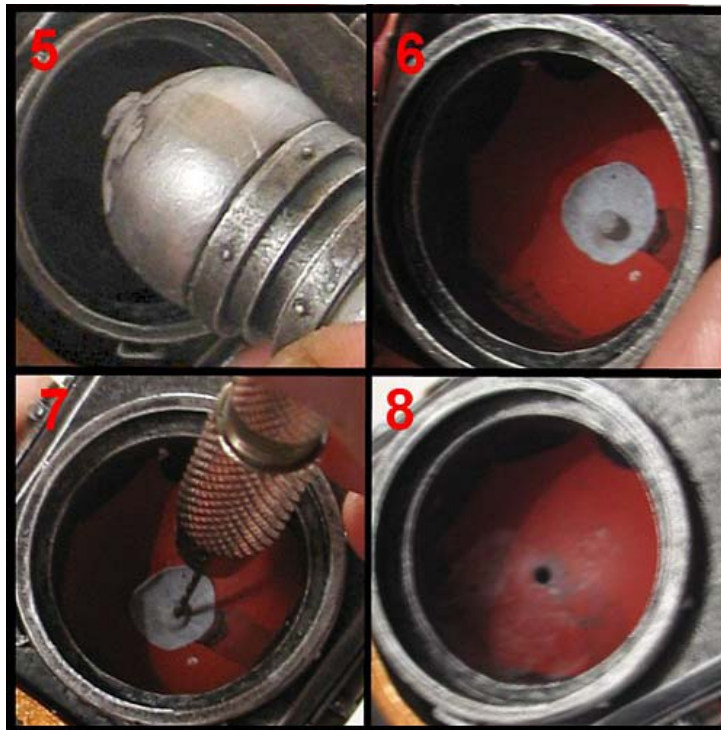
Basic conversions
by Cyril, translation by Alexis

The hardest part of converting is actually trying it out. Once you get going, it's hard to stop tinkering around, making your figures unique.

You can start with a simple / minor conversion, such as weapon or head swap. For example, the subject chosen here is a Urban Mammoth (I-Kore) Gael Standard bearer.
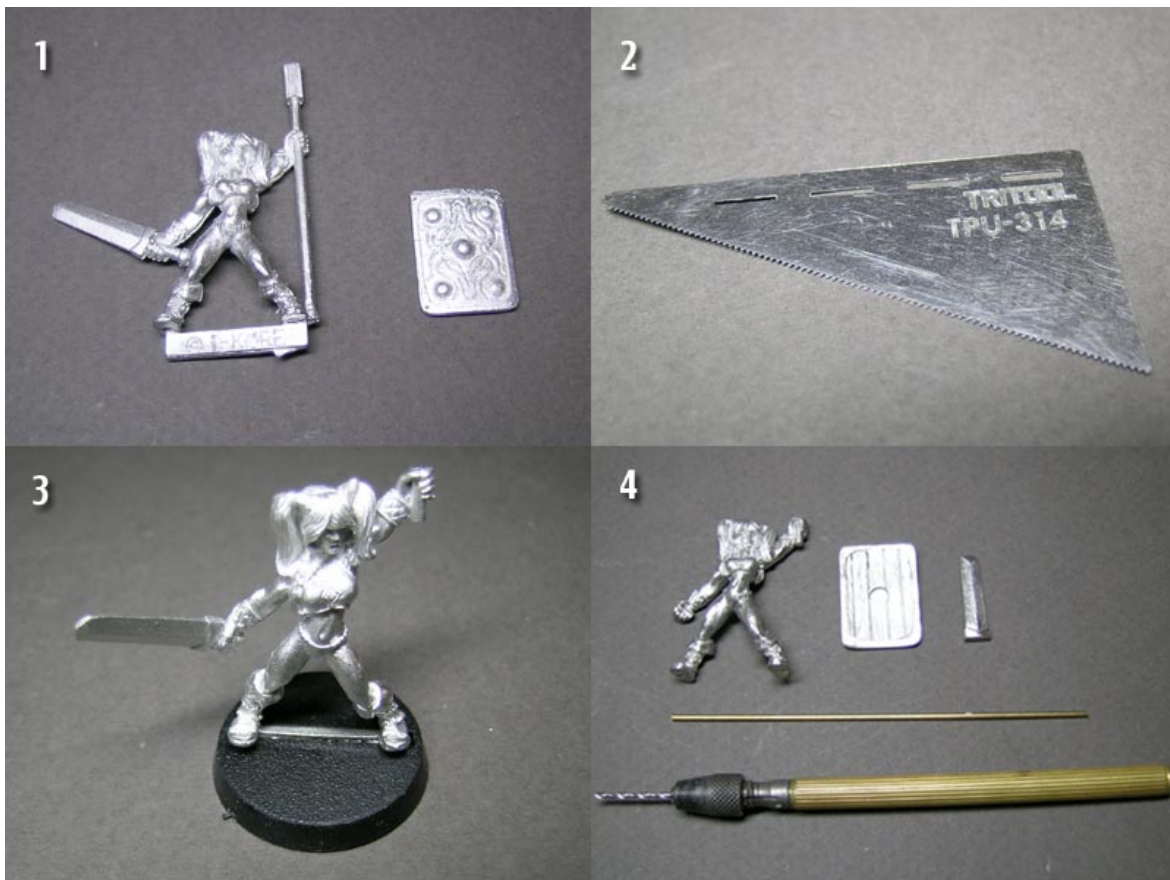
1. the mini: Put aside the banner pole, which won't serve this time, and take a shield taken from a blister of warriors. I'm planning on to change the sword's hand and to fix the shield on the hand which originally held the sword.

2. In order to properly cut the mini, I use small photo-etched saws, like those used for plane scale models... They are very slim, hard nevertheless remaining flexible...

3. After having withdrawn the pommel, I slightly twisted the arm, putting it out of the main body line, in order to have a little more dynamic pose. I cut the pole of the banner just over and under the hand. I carefully cut out the sword (easily done here) and start cleaning of the mini from the mold lines.

4. Now, the various parts are ready. To reinforce glue, I'll pin the junctions with brass rod (0,8mm).
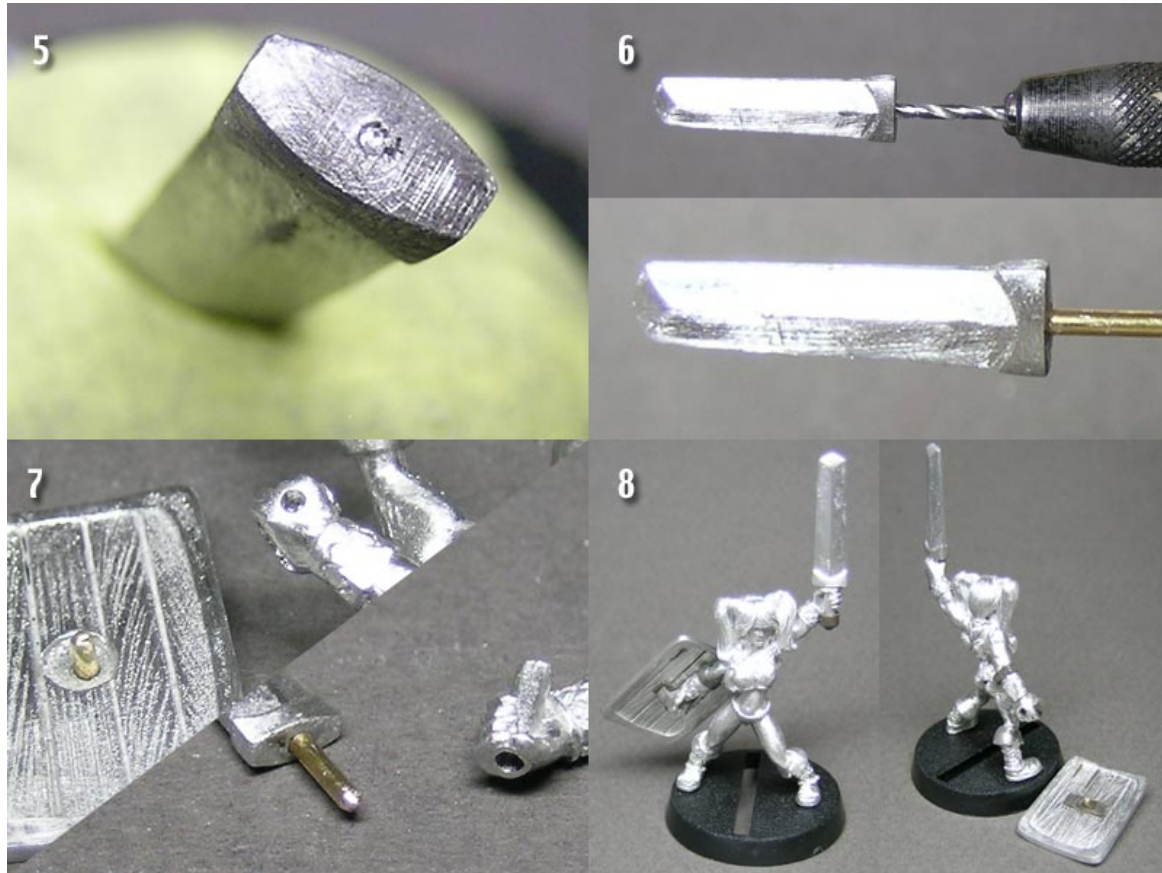
5. For safety reasons, and to have something as clean as possible, I usually make a mark with a hobby knife or drill where I'll the holes out with a hand pin.

6. Drill gently, controlling the depth and cleaning the drill of the swarfs. Once done, glue the rod with cyanocrylate (crazy glue) or epoxy.

7. Proceed the same way for the shield, and make the corresponding holes in the hands

8. The sword is stuck in place, and a new pommel is sculpted using a bit of Greenstuff. The shield is removable, to facilitate the painting. The inner details of the shield are made in several times, here with brown stuff.

The mini is now ready for priming!

ADVANCED TECHNIQUES

General painting techniques, tips and tricks

Collected here are general tips, tricks, suggestions and methods from some of the best artists around the world. Try something new or find out how some masters of the art do what they do.

Instant color schemes!

by Jennifer Haley

"haley"

If your wife/girlfriend/mother won't be seen in public with you in clothes you picked out yourself...well, this page is for you. A basic understanding of color theory is a great asset to your painting. A good comprehensive site http://www.handprint.com/HP/WCL/color4.html. It has color wheels and palettes, explains why there are no true primary colors (in contradiction to what the third grade art teacher told us), and has some interesting information on the history of color theory. But...

I've done some work for you already.

Two-Color Complements, Basic

These colors fall opposite each other on a color wheel and strongly contrast each other. Rough GW color equivalents would be: Red Gore/Snot Green, Enchanted Blue/Blazing Orange, Bad Moon Yellow/Liche Purple.

If your army is painted in green and white, then reddish details would really stand out. Gold trim on a purple robe will jump out more than silver.

Two-Color Complements, Muted

These are darker, grayer, less saturated variants. Closest GW equivalents: Scab Red/Dark Angels Green, Storm Blue/Bubonic Brown, Scorpion Green/Warlock Purple.

If your Wood Elves are painted in dark green and blues, you could use a russet brown for leather details instead of black, or dark red gems.

Two-Color Complements, Pastel

These are produced by adding white. Paint your army pink or lavender at your own risk.

Three-Color Complements, Basic

These are colors spaced evenly (well, sort of) around the color wheel. Red, yellow, and blue are primaries, orange, green and violet are secondaries. I've included a sample highlight color on each swatch.

A tri-color palette is recommended for most miniatures.

Three-Color Complements, Muted

These are schemes I work with frequently. They provide a nice balance that lets details stand out without making the figure appear garish. A fighter in dark blue garments might have gold or bronze weapons with red details.

Three-Color Complements, Pastel

Easter! Jellybeans! Sweetness and light!

You don't really want to know about tertiary complements, do you? Well, you'll just have to wait. I'll be adding material on how to deal with browns, grays, and those tricky skin colors.

Painting faces

by Jennifer Haley

"haley"

A Sultry Redhead in Six Easy Steps!

For this step-by-step guide I'm using one of Rackham's Keltoi female warriors. The better the sculpting of the face, the easier it is to paint, and these are very well done, with pronounced features that lend themselves to highlighting and detailing.

I'm going to be painting her as a redhead, with auburn hair and pale skin. This shows roughly the colors used. They didn't scan very well; I adjusted to show the actual color as best as I could. All colors are Armory paints.

After priming, the flesh areas have been basecoated with skin color 1 darkened with a tiny amount of hair color 1, thinned to the consistency of cream. The eye sockets and mouth are defined with brown ink (I use GW) on a fine brush.

In this shot I have smoothed out the flesh with a solid, though thin, layer of color 1. This is the time to clean up around the eye socket, leaving a fine line of dark brown around the eyeball. I also leave this shadow color to form the eyebrows.

I have also begun to layer on highlights with color 1 mixed with color 2. Areas that are hit by light, and thus should be painted a lighter color, are the cheekbones, the point of the chin, the bridge of the nose, the forehead, and the cleft of the upper lip. The sides of the nose, the area beneath the cheekbone, and the space beneath the lower lip remain in shadow. I am not really blending, but by keeping my paint thin and translucent, and the 'jump' between color transitions low, the result appears smooth to the eye. I have also painted the eyeball, using a stroke of white on a very fine brush.

Here I have added the final highlight of color 3, almost pure white, to the bridge of the nose, the high point of the zygomatic arch, and the forehead over the arches of the eyebrows. I have also painted the lower lip and defined a cupid's bow on the upper lip, using color 1, and filled in the eye beneath the brow with the beginning flesh color.
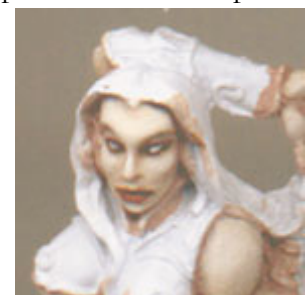
The lower lip has been highlighted with color 2, with a dab of color 3 in the center. The outer edges of the underbrow area have been shaded with a lighter color as well. Pupils have been added with a blue size 005 Micron pen (though they don't look aligned here

due to the angle of the scan, they are; make sure they point in the same direction!)

Her hair has been basecoated with color 1, again applied thinly. Her eyebrows have been defined with the same color on a fine brush.

The hair has been painted with color 2 on a fine brush, leaving the darker color in the recesses to define the strands of hair. It has then been highlighted with color 3, as have the arches of her eyebrows.

Final highlighting has been added to the top of the head and the ends of the hair strands with color 4. I may lighten them further after finishing her armor, but as I'm likely to get a smudge on them that will need repair at some point, I'm not picky about it now.
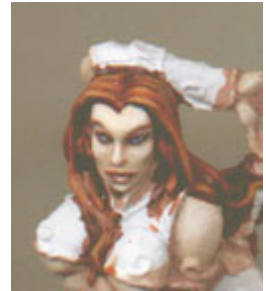
And the finished figure. The rest of the body was painted with the same techniques and colors of the face. Tattoos were added with a blue Pigma Micron pen and, when dry, softened with a layer of the flesh highlight shades.

Faces with Expressions

by Mike Dodds

"Dragonsreach"

Discussions

The key to most miniatures, and what can make or break a paintjob, is the face. Over the last few years, the quality of sculptures has been changing dramatically and this is most evident in the expressiveness of the faces. To provide some examples here are some close ups of faces from a number of my recently painted miniatures.

All of these faces have a sculpted expression, which is what is making the difference in the miniature. Steve Buddle's sculpture of the Amazon for Coolminiornot's Competition (extreme right) is a very fine example of a face that could be painted in a number of ways. I ended up painting it looking somewhat fierce, as both the angle of the head and the body posture has a somewhat challenging demeanor.

We are used to looking at the faces of our Family, Friends and Colleagues and recognise all their different facial postures, but what differentiates the living face from that of the miniature is exactly the same thing we see in photographs. They are both frozen permanently in time. We are used to seeing, but not noticing, the minute changes in a persons face as they talk, breathe and go about their daily routine.

The miniatures we are now seeing, from sculptors such as Steve Buddle, Werner Klocke, Juan Diaz etc., show faces in varying emotional states. So this article is about how I go about emphasizing the sculpture to reflect those emotional states. (There are a wealth of other sculptors, to whom I apologize for not mentioning at this time.)

The Technical Bit:

In order to look at how we paint faces we must first look at its construction. Firstly the skull is an ovoid bone structure that we all should be familiar with, due to the regularity with which it occurs on miniatures.

On top of the skull, but under the skin is a series of thin muscle groups, the largest of which is the Massitar between the jaw and the cheekbone. Each set of these muscles is capable of pulling the sectors of the face into various directions, which provides us with the means to create our expressions. (Don't try to tell me you haven't stood in front of a mirror and pulled faces at yourself.)

To better demonstrate this, next time you are in the bathroom, look in the mirror and try several exercises. First, smile broadly, and then mouth the word "Charge". Try expressing Fear and Anger, Frown and Squint as if you are trying to make something out at a distance. In all of these exercises you will see how the facial shape changes considerably. In Fear the eyes widen dramatically, sometimes becoming circular instead of the normal oval shape. (And if someone in your family comes in during these exercises you can see what you look like when embarrassed as well!)

In the case of miniatures the face is a fixed expression, usually (but not always) one of a limited range of expressions Fear, Anger, Aggression, or Repose (The neutral expression the face relaxes into). Some miniatures are also sculpted with the intent of showing the face shouting. The following sketches I have done should give an indication of alternate facial shapes for Pain, Anger, Aggression & Fear.

Pain   Anger   Agression   Fear

As you can see from the sketches the facial shapes change according to the emotions being expressed. · Pain the eyes and cheeks tighten, the teeth and jaw clench. · Anger the forehead furrows and the crease between the eyes becomes more pronounced, often the lips become tighter and the mouth can be open displaying the teeth in a threatening manner. · Aggression, the expression tightens the mouth, the skin around the eyes also becomes tighter, and the forehead furrows and the nasal creases become deeper. · Fear, the eyes widen, the

eyebrows raise and the mouth opens much more widely than in any other expression.

These facial expressions are only a rough example and there are other factors, which affect the shape of the facial expression. Illness, Stress and Fatigue will alter the face. If you look at photographs of soldiers in the trenches during World War One you will see a marked difference to a normal unstressed face. The eye sockets are darker usually with heavily defined circles of shadow. Cheekbones are more pronounced and the cheeks themselves are hollowed. All these are symptoms of the immense pressure and terrible conditions they were facing and fighting under.

The Painty Bit

To define how highlights affect the face, I will work from the eyes out. The eyes themselves are normally in a mild shadow. The jaw line and lower cheeks will have a lighter appearance. Next in lightness are the upper sections of the cheekbones the upper, lower lip and chin. Followed by the Forehead, Eyebrow ridge and then the Nose.

With the definition of the highlighted areas, I need to draw your attention to where shadow toned areas occur; which are below the jaw line around the throat, the nasal crease to the sides of the mouth, below the bottom lip, below the nasal tip and the nostrils. In specific expressions the forehead wrinkles and shadow tones are present between the forehead and the eyebrow ridges. In very strong emotional displays the eyes also tend to have increased shadows due to the effect of the furrowing of the forehead.

When we look at people's faces we see the transitions between highlights, shadows and creases as very smooth. But for the miniature world, especially those miniatures around 25/28mm, the highlights and shadows have to be dramatically differentiated in order to seem realistic. To demonstrate I have the following three pictures, one without alteration, the second

with increased highlights/shadows and the third reduced in size to scale around 28mm.
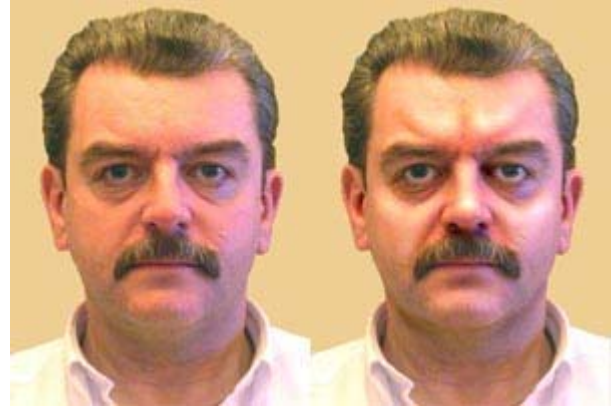
 I have adjusted the second picture to show the areas of the face that have the greatest highlights and shadow tones. At this size, the picture looks as if I had war paint on my face. However, as you can see from the greatly reduced picture there is not a lot of contrast, and the effective definition of the face is not as strong.

In essence, how we paint the face of a miniature is by bringing those areas that would be natural highlights up to a greater level of brightness, and the shadow tones taken down to a stronger depth than we would see naturally. In order to define the face in 28mm scale, the levels of contrast need to be quite strong to compensate for the small scale. Consequently, in order to define the expressions the painting needs to be exaggerated to make the effect work. Where on an actual face the shadows are smooth and blend into the rest of the tonality, on a 28mm figure the staging of the colors needs to be stronger and with fewer stages between basecoat and highlights.

Examples

The first example I will use to demonstrate this is the Ursakar Creed face, sculpted as a strong grim and determined face. Given that this is a tough face and needs to be depicted as such, the

paintjob is aimed at showing a pronounced stage variation.

In this instance I used all GW paints, starting with Dark Flesh as a thin basecoat to which I then mixed in Dwarf Flesh for the next stage.

This was followed by Dwarf Flesh on it's own as the next level. Then I mixed in a small quantity of Elf Flesh as the main highlight.

On the Key Highlights I used thinned Pallid Flesh to emphasise the tip and the bridge of his nose, between his eyes and the solidity of his chin with an inverted "Y" shape. (I use the term Key Highlights to define certain points, which help to emphasise the structure of a face.)

Overall, this has worked well, showing that the face has a strong character. Uncannily it also has a slight resemblance to the British Actor Harry Andrews (Ice Cold in Alex). The basecoat has given the initial tone that sets the skin color and acts as the shadow tone, most noticeably in this example around the mouth, nasal creases and eye sockets. The prime color has been used to define the shape and characteristics of the face, the first stage of the cheekbones, jaw line, nose, upper lip, eyebrow ridges and the raised portions of the forehead furrows.

Successive levels of highlighting on the raised areas of the face are smaller and less dense (using very thinned paint) in order to focus on the overall effect. The final Key Highlights were

used to define and emphasise the brightest places on the face.

One thing that is noticeable on miniatures is the definition of the female face. In the majority of cases these are

sculpted as finer and thinner than the male face, more the shape of an almond. A fine example of this is Steve Buddle's Amazon, (Sculpted for the Coolminiornot competition) which shows great bone structure, and does not have the heavily defined features of the Ursakar Creed miniature.

So for this miniature I had to make the paint define the face rather than rely on the sculpture. Once again I used Dark Flesh as a basecoat, mixing in Dwarf Flesh for the primary color highlight layer. I worked up the highlights by adding more Dwarf Flesh and then Elf Flesh to get the final highlights. As you can see in the picture that in order to define the eyebrow ridges, I worked downwards in a "V" shape leaving a central line on the face, that helped to indicate that the forehead was furrowed. The result has given the face a very determined and somewhat fierce expression.

In this last example, the face is of a Chaos Warrior, and in order to show the furious aspect of this character I painted the face with an exaggerated contrast.

The basecoat was Citadel Tanned Flesh with a first highlight coat of Dwarf Flesh painted directly over the majority of the face. I added Elf Flesh to the Dwarf Flesh and highlighted the raised portions of the face.

I picked out and highlighted the Grey horns before continuing with the flesh tones of the face. Then using a fine brush (a Winsor & Newton Series 7 / 000) I applied a very thin wash of Dark Flesh to the creases only, to enhance the contrast. Once this shading tone was dry, I reapplied the Dwarf Flesh/ Elf Flesh mix over the raised areas.

The rest of the highlights were then picked up using Elf Flesh on it's own, then mixed with Pallid Flesh. Then further highlights of pure

Pallid Flesh and finally a small amount of Skull White added to the Pallid Flesh for the Key Highlights.

Demonstrations

Here are two 54mm Scale Heads (Inquisitor size) from Verlinden pack 1598 (courtesy of Historex-

Agents) Over the next few photographs I am going to demonstrate how the expressions of the faces can be painted to (I hope) their best advantage. Both of these heads have been given a brushed on prime coat of Citadel Scorched Brown.

Head **A** has a rather dour expression while head **B** has a completely stupid grin on his face. (And it does remind me all to well of one of my former scouts!).

Head A:

All the paints used in this demonstration were from Games Workshops Citadel color range Firstly the eyes were painted in with an off white color and any over painting tidied up.

Then the face was given a basecoat of thinned Citadel Tanned Flesh. (In fact twice for coverage).

Gradually, by adding more Dwarf Flesh to the paint mixture, the Cheekbones, forehead, upper lips and chin had the color lightened.

A first coat of mixed Tanned Flesh and Dwarf Flesh was applied to most of the face omitting the heavy creases around the mouth and eyebrows

At this stage pure Dwarf flesh was painted over the Cheekbones, Forehead, Nose, Upper lips and the Chin. The Ridges around the Crows feet were also picked up with this layer of paint.

A mix of Tanned Flesh and Dark Flesh (2:1 ratio) thinned to a very fine wash was applied to the indented creases above the mouth, at the corners of the mouth, the crease below the nostrils, the crows' feet and the creases of the top eyelid as well as to suggest the hollows of the cheeks.

Dwarf flesh was then thinned to a wash and used to tone down the depth of the shadows around the mouth and below the eyes.

Dwarf Flesh mixed with a small amount of Elf Flesh was thinned and used to highlight the Forehead ridge, above the eyebrows, the Ridges of the crows feet, the top of the cheek bones, the raised sections of the creases above the mouth, the Upper lips and the Chin.

More Elf Flesh was added to the mix and again smaller highlights were added to the same areas and including the tip of the Nose and wings of the Nostrils.

Elf Flesh on it's own was used, as again smaller highlights were applied to the same areas.

Thinned Elf Flesh and Pallid Flesh were mixed and used to add even smaller highlights to the same areas.

A final thin highlight of Pallid Flesh was applied, to the Tip of the Nose, Wings of the nostrils, Crows feet, Upper lip edges and the top of the chin.

The final touches for the faces were to paint the bottom lip with Tanned Flesh and put in the pupils. Tanned Flesh was used to define the bottom lip, as this is a close to reality as can be done to match the face. (What I didn't want was to go too red and make the face look it was wearing lipstick.) A coat of Matt Varnish was painted on to give a little protection.

Head B:

As with Head A the eyes, and in this case the teeth, have been picked out with a little off white.

For the initial basecoat a mix of 50-50 Tanned Flesh and Dwarf Flesh was thinned and painted on. As can be seen the initial coat was somewhat thin, so a second coat was applied.

The second application of the basecoat

A thinned wash of Tanned Flesh was applied over the whole face

The basecoat color was reapplied to smooth out the transitions

Thinned Dwarf Flesh formed the next highlight stage, picking up the forehead, nose, cheeks, upper lip, chin and part of the jaw line where the Massitar muscle connects to the lower jaw.

Elf Flesh Was added to the Dwarf flesh and further highlights added to the forehead, nose, cheeks, upper lip, chin and jaw line.

This oblique angle shows how the facial highlights are progressing with the application of the Elf Flesh/Dwarf Flesh mix.

Further Elf Flesh was added to the mix and thinned with water then lightly painted over the forehead, nose, cheeks, upper lip, chin and part of the jaw line.

Thinned Elf Flesh was painted on as the next highlight layer.

Finally A little Pallid flesh was added to the Elf Flesh and thinned with water to pick out the final highlights on the tip of the nose, Crows feet ridges, the ridge on the forehead and on the upper lip. The bottom lip and the underside of the upper lip were given picked out with Tanned Flesh.

And here are the two faces side by side showing the differing expressions and how the slight variation of the colors has worked to define the differences. Head A has somewhat of a dour expression and was worked up from a darker base color, with heavy shadows left to develop the expression. Head B has a smiling expression and has therefore been given a lighter base color, which has reduced the shadows, enhancing the joviality of the face.

	"Strong" faces	"Light" faces	"Pale" Faces
Basecoat	Tanned Flesh	Dwarf Flesh	Bronzed flesh
Ist Coat	Mix Tanned & Dwarf Flesh	Mix Dwarf Flesh & Elf Flesh	Mix Bronzed Flesh & Elf Flesh
2nd Coat	Increase Dwarf Flesh to Mix	Increase Elf Flesh to Mix	Increase Elf Flesh to Mix
Toning wash thinned 1:30 with water.	Either Tanned Flesh or Dwarf Flesh	Either Tanned Flesh or Dwarf Flesh	Either Dwarf Flesh or Bronzed Flesh
Lifting coat	Same as 2nd coat	Same as 2nd coat	Same as 2nd coat
Highlight	Dwarf Flesh	Elf Flesh	Elf Flesh
2nd Highlight	Mix Dwarf Flesh & Elf Flesh	Mix Elf Flesh & Pallid Flesh	Mix Elf Flesh & Pallid Flesh
3rd Highlight	Add more Elf Flesh to mix	Add more Pallid Flesh to mix	Add more Pallid Flesh to mix
4th Highlight	Elf Flesh	Pallid Flesh	Pallid Flesh
5th Highlight	Mix Elf Flesh & Pallid Flesh		

3 Step and 9 Step Rust

by Justin McCoy

"misterjustin"

Think about rust placement before you apply it. Remember that rust will rub off of edges, will be heavier in cracks and crevaces, and that a sword completely covered in rust is likely to a'splode during use. Here I've used this effect on the posts -- note that it's heavier near the ground where there would be more moisture.

Here are two methods for painting rust, one quick and another more involved.
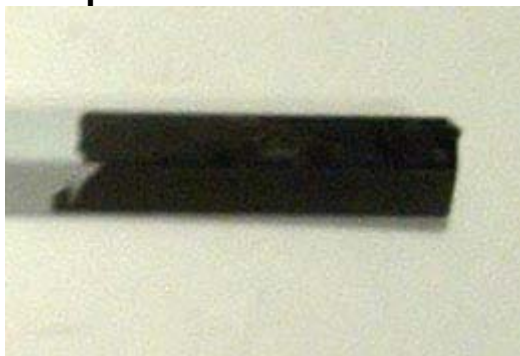
3 Step Rust

1. Basecoat Black

2. Drybrush dark metal

3. Dab with GW "Fiery Orange" or similar - the brighter the orange the better. I recommend using a brush you don't care much about; dabbing can be tough on brushes.

9 Step Rust

1. Basecoat black

2. Drybrush GW "Tin Bitz"

3. Lightly Drybrush GW "Boltgun Metal"

4. Dab with GW "Scorched Brown" -- I recommend using a brush you don't care much about; dabbing can be tough on brushes.

5. Layer GW "Dark Flesh" on top of brown

6. Layer GW "Fiery Orange" in dabs

7. Ink w/ dark brown - W&N "Burnt Sienna" used here

8. Dab another layer GW "Fiery Orange" in dabs sparingly

9. Touch up edges with GW "Mithril Silver"

EXAMPLE

Here is the technique applied to a work in progress. Remember that rust will rub off of edges, such as the sword handle in this example. It will also be heavier in the cracks and seams, near moisture, such as the ground, and that a sword completely covered in rust is likely to a'splode when it hits something.

Realistic Rust Effects
by tinweasel

[Editor's note: This method is a little extreme and may be hazardous to your health. Use at your own risk]

Here's a tutorial on painting, or more correctly, "using" realistic-looking rust effects in applying weathering to a miniature. For the sake of efficiency, I'll be using WIP shots of a Privateer Press Cryx Deathripper, which I was intending from the outset to weather and corrode but who marks my first attempt at these kinds of effects on a wholesale level. What follows here, then, is me feeling my way blindly along and the final end result - which I think turned out having the desired effect of a very corroded, oxidized appearance.

Now for the materials

On the left is Ye Olde Bottle o' Rust Mixture and on the right is an example of the rust mixture, some PVA glue, my general thinner mixture (including dry time extender!) - with several coats of the stuff left to stew for a day or so.

Call me crazy (or suddenly inspired) but the essential heart of this "natural" weathering technique is the Rust Mixture itself. This was a recipe I learned many, many, many years ago in chemistry class - it does involve some harmful chemicals, an ongoing chemical reaction, and possible adverse affects to skin, clothing, and any oxidixable metal. Consider yourself warned!

The Rust Mixture is as follows:

1 part liquid bleach

3 parts household strength white vinegar

1 suitably-sized clean chunk of extra-fine (#0000) grade steel wool

I used a standard empty Vallejo dropper paint bottle with the steel wool placed inside prior to pouring the mixture of the two chemicals in. While not an intense chemical reaction, it does produce a somewhat significant amount of gas as a by-product over time.

I found out the hard way about leaving the screw-top off the dropper bottle until the reaction subsided completely (roughly 2-3 days, perhaps more) as when I first opened it, I was spattered with overflowing Rust Mixture. Being made up of actual oxidized metal, the Rust Mixture has a tendency to settle - prior to using it as a paint make sure the bottle is well-shaken.

Another word of warning - although I couldn't swear to it, I believe the vinegar/bleach/oxidized metal caused a slight chemical burn on my thumb during an accidental overflow. While I am by no means a chemistry major, I believe the bleach and vinegar as potential caustic agents would cease to be a problem once all their bonding reactions were completed on the steel wool. Likewise, given that vinegar is a mild acid and (I believe) bleach is a mild base, things should eventually subside once all chemical reactions between them and the steel wool have taken their course (again roughly 2-3 days, perhaps more.)

While I can't say this is the ideal mixture for painting, as it takes some getting used to, I can safely say it's likely the most **authentic** rust mixture I've seen used on any miniature figures thus far, given that it is **genuine** rust in a bottle!

Here is the test subject - one gently used Cryx Deathripper figure. A coat of Testor's Dull Cote was applied shortly after this picture was taken, and the subsequent pictures have a noticeably more subdued appearance to the metals and armor plates - all rusting aside, of course!

This picture shows the dried results after several thinned-down washes of the Rust Mixture at 1:10 Mixture/thinner consistency were applied to the crevices and underside areas of the figure where corrosion would realistically collect, and have been allowed to flow and pool naturally through gravity and surface tension. One thing of interest I found is that my Rust Mixture reacts negatively with Liquitex Slow-Dri Blending Fluid Medium and becomes somewhat "chunky" on the palette. Of course, this also worked in favor of the figure, as it gave the appearance of significant collected rust ingrained into the upper crevices.

This picture shows the dried results after several thinned-down 1:1 washes of the Rust Mixture and GW Bestial Brown at 1:10 paint/thinner

consistency were applied and again allowed to flow and pool naturally via gravity and surface tension. While obviously realistic, the standalone dried Rust Mixture had more of a "yellowy" tint to it, and I felt that the overall appearance of the corrosion needed a hint more of orange and brown shades to it.

This final "rusting process" picture shows the results after careful lining-in with 1:8 GW Brown Ink/thinner. I felt that the deepest shading in the crevices between the trim and ceramic armor, and between adjoining metal sections (like the rivets/studs on the legs) needed slightly more definition. I also applied some general washes of Tamiya Smoke in certain areas, such as the holes/venting in the cowl over the skull and the "vent holes" on the metal plating of the Deathripper's legs.

Here is the finished figure, with slight touching up of the metal areas on sharp edges and in parts of the "cowl" where I felt the weathering had overwhelmed the base metal appearance. The swamp base was painted in colors to complement the rust and weathering effects.

NMM made easy

by Ang Keat Hong

"CanopicDoll"

[Editor's Note: NMM stands for *Non-Metallic Metal*, a method of simulating a metallic effect without actually using metallic paints]

The recipe for steel, metal NNM is often given as basecoat with grey. Then add white and blend smoothly up to almost pure white. Finally, add a spot of pure white at the highest point.

However, there it is often not explained as to how to actually go about doing it. Also, I find just blending grey to white do not give good realistic NNM. There was an article posted previously showing a katana and the actual colors being reflected. Although it is very informative, I find it very hard to apply to actual painting on minis with that amount of different shade, especially on more complicated surfaces.

In this demonstration, I will be using a slightly curved sword, but the same technique can be applied to a curved or straight blade. I start by priming the blade white. After priming, I paint the area with VMC Dark Seagreen 163.

Next we have to determine where the light is coming from; how is it going to be reflected off the blade and the brightest spot?

There are various ways of doing this. I'll name it as **"I"** and **"Z"**. The 1st method is to paint a letter "I" on the brightest spot and the latter a "Z".

I often use the 1st method on a curved surface eg. rings and barrel hoops(pic below). The 2nd method is often used for flat surfaces.
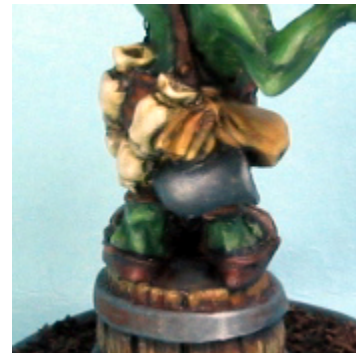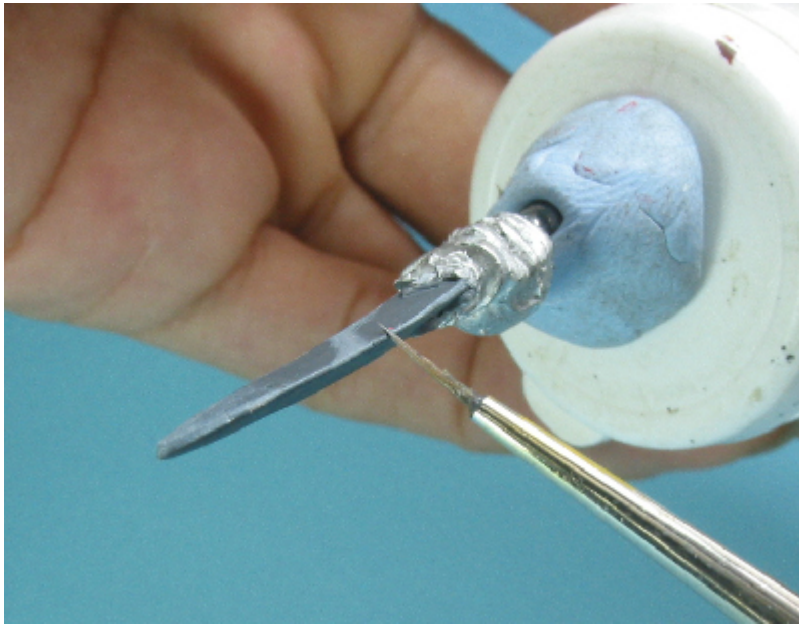
For this sword, I'll be using the "Z" method. I start by mixing 50/50 VMC Dark Seagreen/white. Thin it down to milk like and paint a "Z" on the spot where you want the brightest part to be. Drag the brush along the edges also.

Next take out some white and mix in some of that 50/50 paint. Water this down again. This will be almost white. again repeat the above procedures but this time a smaller "Z" within that "Z" you painted before.
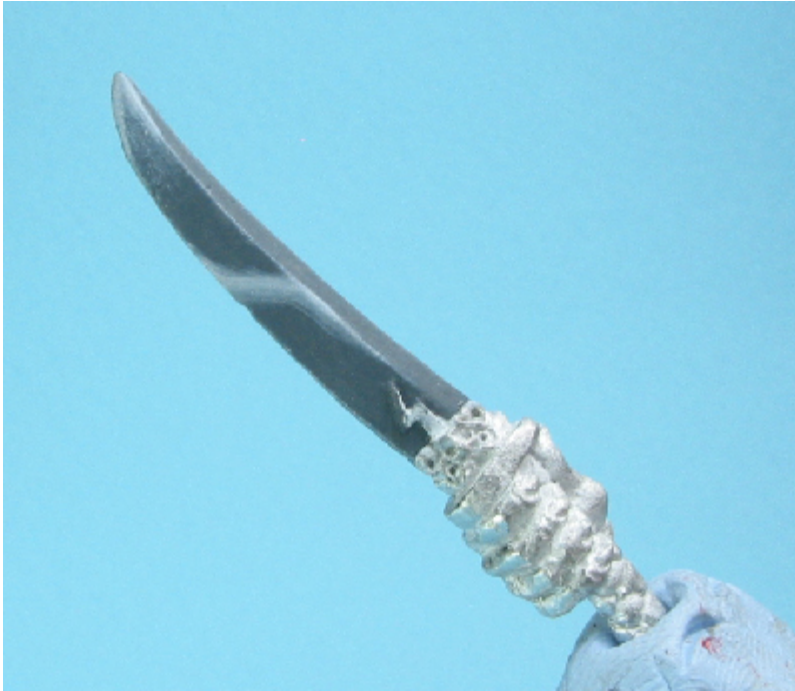
Finally, water down some white and with a clean fast stroke paint a white / in the middle. You can actually stop here but if you want to take it further then continue reading this tutorial.

We can see that simply by using grey and white, the result is not realistic enough and the blending looks harsh. This is what I found out after some experiments. Water down some Citadel color (Hedious Blue) and glaze it between the grey and the 1st "/" you painted. I find that this color will blend more smoothly into the grey and white.

From here, water down some Dark Seagrey and paint in the areas where the darkest areas are. In this case we can paint in the shadow just by painting over the area with the base color. You can then add rust and dents to further enhance the look but I will not touch on those since there are very good articles explaining how to do those. I hope this is helpful to those who are eager to start doing some NNM and those who are still experimenting. With some practice, this can be done in 20-30 minites, maybe less. I'm doing a rush job here so the blending isn't that smooth.

Here are some of the examples which I used this method.
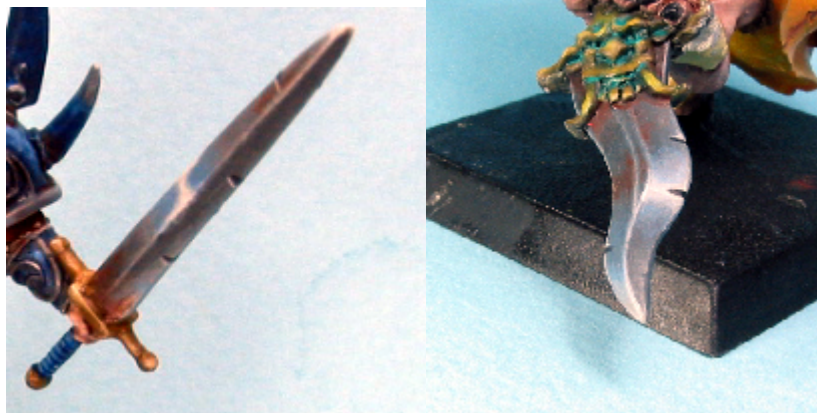
Painting Metallics
by Peter Bell

"Avicenna"

True Metallics or 'Metallic metallics using metallic paints'

This is my tutorial on how to paint plate armor using metallic paints. Anti-NMM if you like... *grins*

1. OK, stage one. Nice and easy - Add water to GW's Chainmail paint and block in all of the metallic areas. Do not worry about blacklining or drybrushing with this technique as the depth is created by the use of layered ink washes.

2. Mix up Black and Brown ink in approximately 70:30, black:brown ratio, and dilute to taste (aka add water). Wash this all over the metallic areas blocked out in stage one. You need to load the brush quite heavily with this ink mix to allow it to flow over the armor. However, do not allow the ink to pool as you will get 'tide marks' where the ink dries.

3. Layer more and more of this ink wash over the armor plates, building up darker areas where they overlap or where you would expect shadows to fall. Again, it is important to keep these layers thin to prevent pooling. Finally, wash black ink between plates for greater definition.

4. Edge the plates with chainmail to increase the contrast between the shadows and highlights. This makes the armor shine. Depending on 'who' is wearing the armor, this is where you can really define the quality of the metal. This example is an Orc from Reaper's Warlord line and so I have kept it quite dark and rather dirty.

5. To bring the colors together, I would wash over a very thin coat of the brown/black inkwash over all the armor again. This is also the stage where I would add particular 'weathering' streaks of neat black and brown ink to create the look or worn and badly kept armor. I then very finely edged the armor one final time with chainmail.

There we go, metallic steel done properly, without any grey paint in sight! *winks*

Sky-Earth NMM
by Jan Skýpala

"Honza"

Painters have recently adopted NMM-technique of painting metal surfaces. Instead of painting them with metallic colors, they paint them with normal colors, using transitions of shades to imply the impression of metallic surface. Hopefully you know many examples of NMM, just to remind you, look at anything painted by Rackham painters (for Confrontation game), or stuff painted by Bobby Wong, Jen Haley, Matt Verzani, Vaitalla and others.

Leonato's sword by Bobby Wong

The basic idea is the thing that highly polished metal reflects surrounding reality..

First small distraction: if metal was to reflect its surroundings, it should reflect the trees, the houses etc. While this would be great, miniatures are usually moving along battlefield and it would not look realistic if there would be a reflection of a house painted in place it should reflect a tree. So forget about trees, forget about houses, forget about reflecting other models that appear on the battlefield etc. We have to reflect abstract surroundings.

If you look to classical fantasy paintings, e.g. Boris Vallejo or Chris Achilleos, the metal reflects only hills on horizon. And this is what we are going to reflect on the metal on the miniature. Let's get even simpler, minis do not have large areas, so probably hills would not look good, so let's just reflect plain horizon. This will be enough and will do excellent job for our purposes.

If you do not have a painting by one of the painters mentioned above, just look at the front cover of 6th edition Warhammer rulebook. The horizon reflection is painted there as well.

Extract from Warhammer 6th edition rulebook

The light outdoors
So let's get back to the theory of light. As I said, the NMM painted these days reflect the light like there was most of the light coming from top and there is a transition to the darkest shade, which is in the bottom. In reality, it is different.

There is the sun, all right. The brightest thing is above you. But that's all! Around sun, there is the

Sun
Sky
Ground
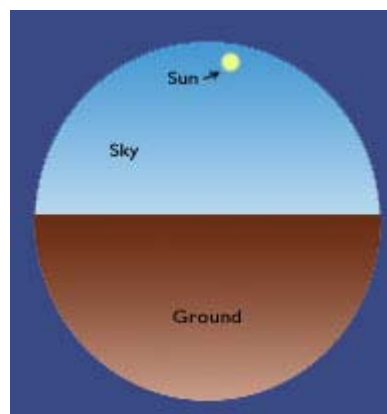
darkest blue sky you can find. And the darkest blue passes into lightest blue, which is on the horizon.

The horizon, on the other hand, is the darkest thing of them all. And then it passes to the lightest ground, which is just at the place we stay.

Why is it so?

OK, I probably convinced you, but you might want to know, why is it so. That's because of the way the light goes.

The sun is the brightest thing, because the light goes directly from it to you.

Now we look to the sky: The light has (at least) two points where it has to reflect, before it reaches your eye. It starts it's way from the sun, then it reflects from the earth ground, goes to the atmosphere, there reflects once more and reaches your eye.

Now why it is darkest above you, and lightest at horizon: above you, it is the shortest way to cosmos, and so the least amount of rays reflects in atmosphere and get to you. Near the horizon, this is the farthest point from the cosmos, the light has much longer way through atmosphere and much more rays reflects and get to your eye.

The ground is bit different: the light starts it's way in the sun again, then goes to the place that you see, reflects there and goes to your eye.

The amount of light that reaches your eye again depends on the distance, this time between the watched place and you. Horizon is very far, so there is the biggest chance that the light will not reach you, it will reflect in atmosphere into other direction. This is why the horizon is the darkest place. On the other hand, the light that reflects just below you has the shortest way to your eye (usually less than 2 meters).

Painting it on the mini

Razheem the Insensed

*I am the desert relentless,
unchained against you*

OK, so the metal should reflect that: there should be darkest line in the middle, which will pass into some mid-shade at the lowest point, and just above the horizon (the darkest line in the middle) there should be the lightest line, which then passes into about mid-shade above. And in the dark sky you can make a bright white dot (or even better small four-beam star/cross).

There are three types of metal: chrome, gold and silver.

Chrome reflects everything. The light does not change on the surface of the metal at all, it keeps both color and intensity. There are not many chrome metal things that fantasy/sci-fi minis carry, but if you want to do a chrome thing, then paint the sky blue, and the ground either brown or green.

Other metals do reflect the intensity of light, but substitute the color for its own. Gold reflects yellow/brown, silver reflects white/grey. So

when painting these metals, use the appropriate colors of the metal, but paint different shades, just as the light coming from surrounding area has.

The edges

Unless the edges point really below the miniature, they should be lighter than the areas

they separate. This is because the edges reflect light from much more space, not only one direction, and so much more light reflects from edge to your eye.

Especially the edges that are on the top should reflect the sun, so they should be nearly white. Also edges might reflect the horizon, another very light place.

Feathering

by Margo Grigoryan

"Margo"

[Editor's Note: A good example of feathering in use is the Blending Earthtones article by Rune Kappel in the Miniatures Step-by-Step chapter.]

Feathering is a fine painting technique that helps achieving a subtle transition of colors from light to dark and vice versa. The key is to make a visual blending of colors by applying a succession of "feathers" – semi-transparent layers to the miniature. Each subsequent layer should occupy a smaller area in comparison to the previous one. Feathering is not tricky to master and can give very nice results. First, you need to apply a moderately thick non-transparent layer of one color to the surface you are working with. You can also go with a few thinner layers – it is up to you. As a rule, this base color should be as dark as you would want the most shaded parts of the miniature to be. Let the base layer dry well.
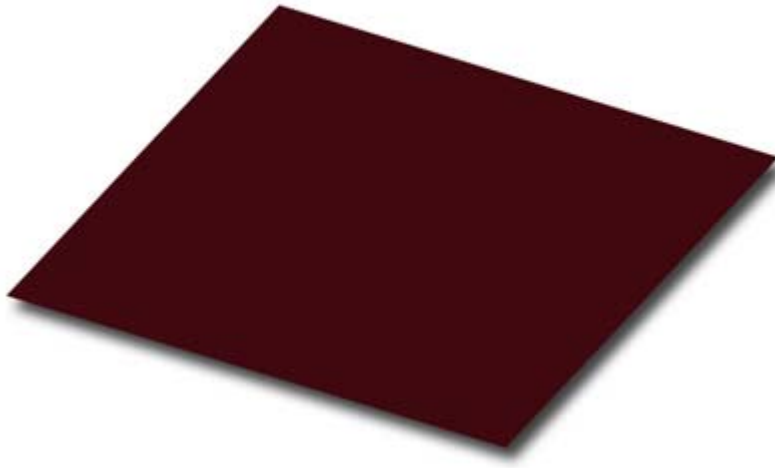
On a palette, thin down with water a lighter shade. For the best results, the dilution rate has to be at least 1:3 or even higher. Apply the thinned-down paint to the area where you want the highlight to be.
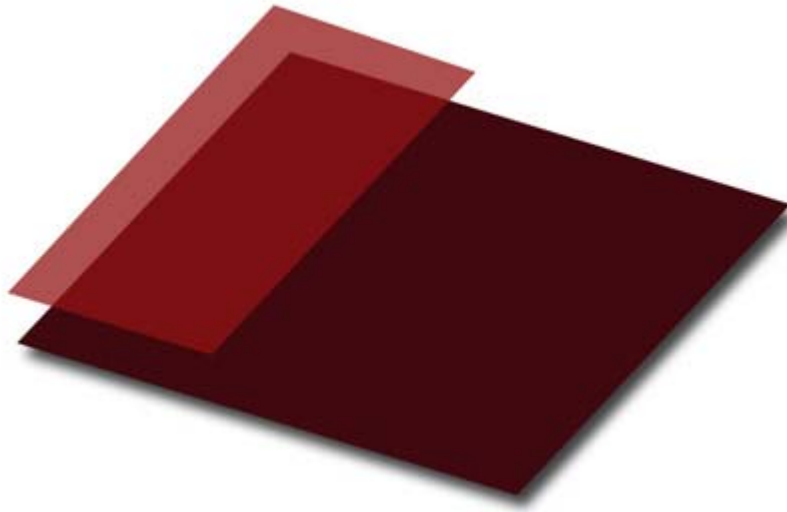
Now the trick is to spread some of the paint of the new layer onto the darker surface to make a smooth switch from a light color to the dark. What you need to do is quickly wash the brush, slightly wipe it just to leave it a little damp. This has to be done really fast – until the upper highlight layer is still wet. Then draw the brush into the highlight layer and with quick, light-as-a-feather, motions drag the still wet paint down to the dry surface of the previous layer. The dampness of the brush will dilute the paint on the miniature surface and eliminate the rough edge between the two layers, smoothly merging them into one another.
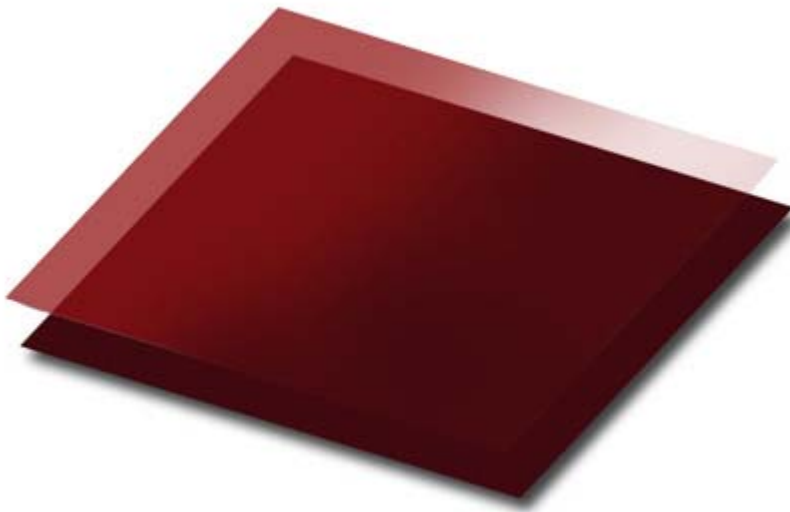
Feathering can be done on two levels: basic and more complex. On the basic level, you can have only one or a couple of layers to make a distinctive highlight. It will still give you a smooth transition, yet it will be not as fine as with many layers. The more complex way to do feathering is to use many layers – not less

than a dozen. This way you will be able to achieve a stronger contrast between the shaded and highlighted areas and a smoother transition of shades. It is crucial to let the previous layer dry before applying the next one – otherwise you'll end up doing wetblending
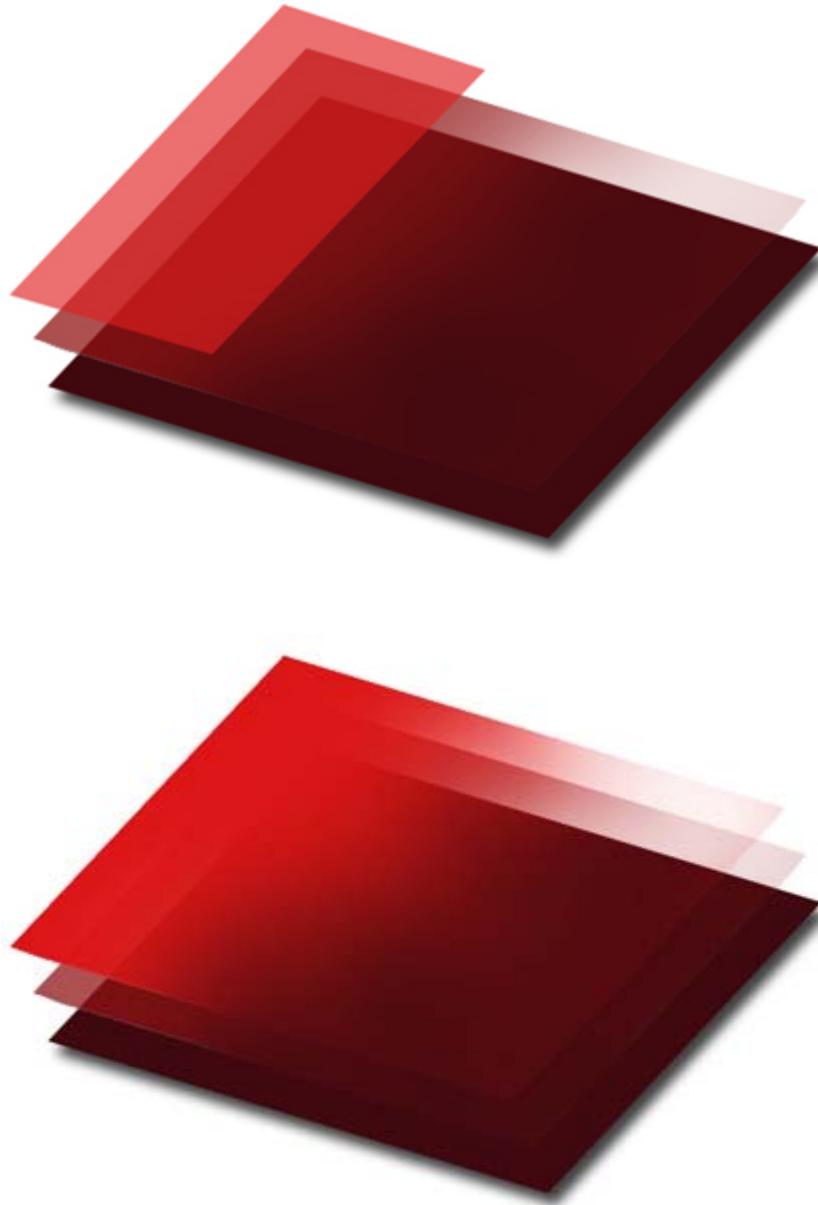
Feathering is easier to do than wetblending as there is no need to mix wet paints on the surface of the miniature, which a lot of people find difficult and sometimes impossible to do. Yet feathering helps achieve an even transition of colors absolutely identical to the outcome of wetblending, if applied correctly.

Another benefit of feathering is that it is very flexible in terms of making it work with other painting techniques. For example, you can easily combine feathering with wetblending.

Painting Gems
by Dirk Stiller

Basically painting a gemstone or any glass like or crystal structure on a miniature is to recreate the light effects and reflections of the gem stones material. As one is not truly able to paint the transparency of glass, the painter has to simulate the effect an imaginary light source has on the transparent gemstone. A good point to start is to take a look at one of those little glass stones often used as counters for collectible card games like vampire or magic.

The glass stone's colors divide into three areas. The largest area is the basic color of the stone. In my example I painted a green stone, so the basic color is a deep dark green, to simulate the depth of the glass stone. As this glass stone gets thinner to it edges the green gets lighter to simulate the lesser deepness of the material. In the lower area of the gemstone the light of our imaginary light source will gather and lighten up the material and the gemstones base. This is our second area. To simulate this I paint halfmoon shaped layers of lighter greens onto the lower area. Every layer is a bit smaller in shape and lighter in color. I use a wet on dry blending to make a transition from the darker green edges to the lightest center. Now the gemstone is almost finished. The last thing that is missing, and is most important for our gemstone-effect - and area No.3 - is the tiny spot that will show on the surface ot the gemstone as reflection from our imaginary light source.

basic layers of paint for the gemstone-effect

finished and blended gemstone

Michael Whelan's Gemstones !
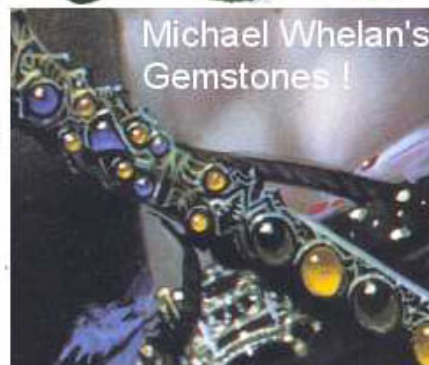
To accomplish this I paint a tiny white spot onto the upper area of the gemstone. Right there where the green of the gem is the darkest and deepest. This spot can have the shape of a kidney to make the gem's surface look even rounder and more raised. Though this may look better on a 2D gem then on a 3D miniature. Just experiment a bit with the size and position of the light spot. You can paint the gemstone in virtually every color you like. Even in black and white if you use only greys and black.

Complex Gems

by Glyn Evans

"Zaphod"

I was very inspired by the thread in the CoolMiniOrNot forums called "A challenge to all painters" I believe, where Goatman had started painting an entire figure as if she were a huge gem.

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Now the whole premise behind this is to make a very solid and opaque object APPEAR to be glass or gem like. It all comes down to the placement of the highlights and as it were, "lowlights" based upon a fixed light source. For this example, I have used a lightsource directly above and to the righ tof the lady, so that light will shine down evenly upon the objects and at a slight angle to enhance the curved shape of the totem. Because the substance reacts with light (or vice versa) in such a way as glass or a gem, I have done very bright and pinpoint highlights onupper surfaces, much like you would a normal gem. This is a DIRECT reflection of the light source. The lowlights as I dubbed them , are where the light has been refracted through the medium (in this case, glass or gem) and are somewhat diffused. This means they need to be wider, and less sharp obviously.

As light passes into the object, it is somewhat diffused. What you see as the "lowlight" on the bottom is really the light reflecting off of the inside of the object. Very similar to an entry and exit wound created by a bullet if you will 😊. The light hits the top part full force and leaves a nice sharp reflection. What remains travels through the object, dispersing slowly until it hits the other side, where it shines through in a much wider area and far less brightly. In the end of course, the totem looks like this:

The actual reflections painted along the bottom surfaces, would depend on several factors, including the actual opacity value of the substance, the color of the substance and perhaps the thickness at various parts of the object. Of course, thinner areas would have different levels of brightness than thicker areas.

Chipped Armor and Glowing Eyes
by Cyril, translation by Alexis

Undercoat with Tamiya Light Grey, then add GW's White Undercoat vertically, to make a zenithal light effect.

Make two washes of Codex Grey to deepen the shadows, preserving to the maximum the whitest parts.

Put a light glaze of Desert Yellow on the white parts... No need for it too be be perfectly covered or smooth, as it is just a colored filter.

Highlight with codex grey and white, going to pure white on the angles and edges. Be careful to work with a transparent paint, to keep the yellowish/sandy tone under the grey.

Shadows are then done with codex grey. Note that the helmet starts to have an interesting color...

The strongest shadows are then done with a 50/50 mixture of codex grey and black/bestial brown. The sandy color fitting well with the brownish shadows.

The frontal grid and the various small elements are painted with codex grey and black, then highlighted with white. Once done, add a glaze of Graveyard Earth, giving'em a nuance of brown and smoothing the transitions.

ADVANCED TECHNIQUES

the micro-painting work starts: with dark flesh and black, scratches are drawn on painting, mainly on the edges, then underlined with white, to create an effect of "trompe l'oeil". At this time, you may want to make small spots of dark flesh pure and bestial brown in the recesses and zones of shade.

As per popular request, I'll explain how to make an effect of green light around the eyes: Paint the eyes in dark angel green + black (just a point)

The dark angel green is lightened up with snot green, then scorpion green. Pass very thin glazes of snot green + scorpion green on the zone surrounding the eyes, then do the last ones with pure scorpion green.

The eye itself is highlighted with scorpion green, then white in the center, same thing being done for the edge under the eye.

It is a flashy effect which is really easy to make, provided it is done in the good order andwith an always diluted and transparent painting.

To summarize, this paint work is a bit less careful than my usual, especially due to the test of new combinations of colors and effects. I spent approximately 45 minutes on this helmet.

Painting Blood

by Allan Carrasco, translation by Arthur Muguet

"Allan C"

Who never painted blood on a weapon, on the ground, etc… ? The majority of the minis you can see on the net or in contests, show warriors whether it be from a fantasy world or from history. However it's not easy to give blood a good color that'll make it look as real as possible. Most often you end up with a red paint effect and not the hemoglobin effect you were seeking.

If you use paint you have to dilute it, I'd say about one part paint for 2 or 3 parts water. The realism is obtained not only by the color but also by the way the paint will be applied, and you have to think carefully before you start painting on the mini. How did the blood get there ? If it's a blade, as it been dunked in blood as for a ritual? Did it go through a body or hit it with the edge? You also have to think of the direction and the angle of the blow the most often the blood will go from a low point to a higher point on the blade. If it's on the ground, did the blood come from a wound ? or did it splatter on the ground? All those conditions are going to guide you in the way you're going to paint the blood.

Splatters

I choose a point from which to start the blood. I then paint lines more or less fine and irregulars in a same direction. When I get to were I want to stop my mark, I apply a bit more pressure on my brush will pulling it lightly in the same direction in order to deposit a drop. This way you get the impression the trail ends with drop. This is, of course, only possible with a juice, otherwise you'll get a very ugly pasted effect. Then You justx have to repeat the operation until you're satisfied. You can also darken more or less the color to get different shades of blood (a deeper blood is darker)

Bloodstains

Doing bloodstains is very simple. You just have to deposit a drop (small one, it's a good thing to work with a brush half empty) then to spread it in a vaguely circular form and let it dry… I then come back to work on the stain with some juices of the base color that I'm going to darken by adding black, With that I darken the edge of the stain (that is were the blood dries on a actual stain).

To Flood a weapon with Blood

A splatter of blood is made by a blow or by spilling a little bit of blood… but when I 'flood' the weapon and want to represent the red liquid in abundance I proceed in another fashion. When you use a weapon in battle the blood will be splattered on the weapon and then wiped off, and then splattered again… thus you'll find wiped out splatters, faded stains, dry marks and some brand new marks…. Well anyway something great to paint !!!! Here is how I proceed. The first step is to redden the blade with successive washes (I take the example of a blade but it's the same on all smooth surfaces) Once the area has been reddened I will apply a bit of all the technique mentioned earlier. Some splatters aren't ended by a drop or wiped out

with a drier brush , as if something had rubbed the blade. I will also apply some larger stains and less 'full', I try to obtain a couple of stains without any real content just at the border of a dried drop.. You can also play on the colors (more or less darker) to tone even more the stains and thus bring out the difference between old and new stains…. And of course it's the same with the splatters. I hope I was clear, it is difficult to express something that you feel brush in hand and with a clear vision of what you want.

Using paint

I think that it's really difficult and maybe impossible to obtain realistic blood with paint. But I think that if you want to keep on using paint the advice mentioned earlier will be very useful to you. That is that since the color will not be very realistic it is important that the realization be efficient. Color wise, the best is a mix of blood red and chaos black, the whole thing very diluted. Then once it's dry varnished to keep it's wet aspect, or with diluted varnish for a drier aspect.

Using Inks

Much better !! inks are made of brighter colors that unlike paint keep their shine once dry. Normally there is no need to dilute them for the usage that interests us. You have to choose a medium dark red, not to dark though I prefer to mix in some black myself if need be. Normally

there is no need to varnish the ink. To push the realism even further you can add a bit of white glue to the mix, when drying the glue will form some light cracks just like real blood would.

Using Real Blood

And finally what could be better then real blood ? No need for any type of varnish, white glue etc… I can imagine what you're thinking " that guy is crazy I shouldn't be reading stuff like that !!!!" But relax !!! I don't go around mutilating myself to have real blood on my minis. It is possible to buy some blood from a butcher. Blood can be mixed without any problem with paint and inks but it dries pretty quickly and can damage brushes once it dries and coagulate. The only problem with real blood is that you'll obtain dried blood, so if you want a fresh blood effect it's not easy. By adding some varnish in the blood it self you can have something a bit brighter upon drying, you can also make it brighter by applying a couple of red washes once it's dry. But I think the easiest solution if you want a fresh blood effect is to use only inks, but in the case of dried blood real blood is definitely better.

Creating Blood Splatters

by Ang Keat Hong

"CanopicDoll"

I found a way to create blood splatter effects using an empty Vallejo paint bottle. For this demonstration, I used GW's inks. One word of warning before you begin, clear your work area of part painted/finish models. Reason is it might get messy if you were to accidentally splash some inks all over when you shut the covers of those ink bottles.

Wash, clean & dry your empty bottle. Prepare a mix of the inks or whatever medium you are using to create the effect. Then squeeze the bottle and suck up some of those inks you have mixed.

After that, you can start testing out the color and intensity of the splatter you want to achieve. You can actually blow the inks around using the bottle.

Below you can see 2 different effects I created on the base and the final model itself. Have fun!

Unshaved beard

by Allan Carrasco, translation by Arthur Muguet

"Allan C"

To give some character to a mini you need to pay special attention to the face, pay extra attention when you do the eyes etc… an unshaved beard is a welcome addition in some cases, for example in the case of a soldier that can't shave.

Used colors and usable colors: codex grey, shadow grey, catachan green, skull white, chaos black, enchanted blue.

I finish the face entirely as I would if their wasn't a beard, I could at that point leave the face as it is. Here in the example the beard of the sergeant was painted by using some codex grey, chaos black and white. I applied a couple of glazes of codex grey. One the grey is well on I shade it by adding some chaos black, under the chin, the nose, cheekbone… I then highlight by adding

white to the grey on the parts that stand out, chin, jaw, upper lip.

In the example (Sergeant Karskin GW 28mm) I only use grey but it also possible to add some green tints or very light blue.

Blending earthtones and creating a mud effect
by Rune Kappel

"Kaple"

[Editor's note: Rune makes extensive use of *feathering* and a *wet palette,* instructions for use and construction can be found in the Advanced Techniques and Tools chapter of this book respectively]

In this tutorial I will try to show how I blend the robe of a warcrow miniature in a natural green color, and also how I make a mud-effect on the clothes. This is the same technique that has been used on Sir Broderick in my gallery. I apologize for the difference in the quality of the pictures - but it is extremely difficult to create the same light-conditions when taking pictures. I hope you find this tutorial useful.

1st stage
The mini has been cleaned for mould-lines and glued to the base.

2nd stage

The figure has been primed with GW's white spray. This was done lightly 3 times.

3rd stage

Finally some color.... This color is a 50/50 mix of GW's Dark Angels Green and The Vallejo Model Color Dark Green (#893). The color was thinned down with water and applied smoothly 3 times before it covered satisfyingly.

4ᵗʰ stage

First some picture-explanation: The color which have been cut out and put in the upper-left corner of the 'palette-picture' is the color used at this stage. So...the first highlight has been applied here. This was done by adding a little Vallejo Bonewhite (34) to the base-color + thinning it dramatically. Afterwards it was applied several times - because of the poor covering-ability, but this gives you a lot of control, 'cause you can see how the color slowly starts to change and build up. You can create a very smooth blend by using this technique carefully. It's called feathering.

5th stage

A little bit more bonewhite has been added, and blended further up on the raised areas of the folds.

6th stage

More highlights... as you can see the color is beginning to become noticeably lighter. The highlights are still 'feathered' on.

7th stage
More highlights

8th stage
The highlights are beginning to be applied only to a small area on the top of the folds.

9th stage

Final highlight. This is done using pure Bonewhite. At the last stages the highlights are applied to a very small area and sometimes tend to become too powerful, therefore a bit of retouching with the previously used color is sometimes necessary.

10th stage

Shading. This is done with a 50/50 mix of GW Chaos Black and the base color. Apply to the deep part of the folds. Again the color used is VERY thin so that you can slowly blend the color smoothly in to the basecolor.

11th stage

First layer of mud. This is created using, again, a VERY thin 50/50 mix of the base color and the Reaper color 'Oiled Leather' (18043). The color was applied carefully, and several times (poor covering ability), at the bottom of the robe.

12th stage

Second layer of mud. This was done with pure and very thinned Oiled leather. The color is applied further down the robe, to create the feeling that the mud-layer is thicker closer to the ground.

13th stage

Here the mud is highlighted with a 3/5 mix of Bonewhite and Oiled Leather. The color is kept at the top of the folds, and is retouched afterward with Oiled Leather to make the blend smoother. And that's it!

A small note: You can change the colors if you don't have those I've used, with these: GW's Bleached Bone Instead of Vallejo Bonewhite. A 3/4 mix of GW Snakebite Lather and Bestial Brown Instead of Reaper's Oiled Leather. And any dark green instead of my mix of GW Dark Angel Green and Vallejo Dark Green.

Painting Tyranid Carapace
by Tyson

"Menelker"

Finally here is the tutorial on painting Carapace that quite a few of you have been asking for, Enjoy.

Colors used
Feel free to use other colors to make your carapace, or even substitute a whole other color range in to make, say… blue Carapace.

A- Scorched Brown (Games Workshop)

B- Bestial Brown (GW)

C- Golden Brown (Delta Ceramcoat- the large paints you can get a Michaels Craft Stores)

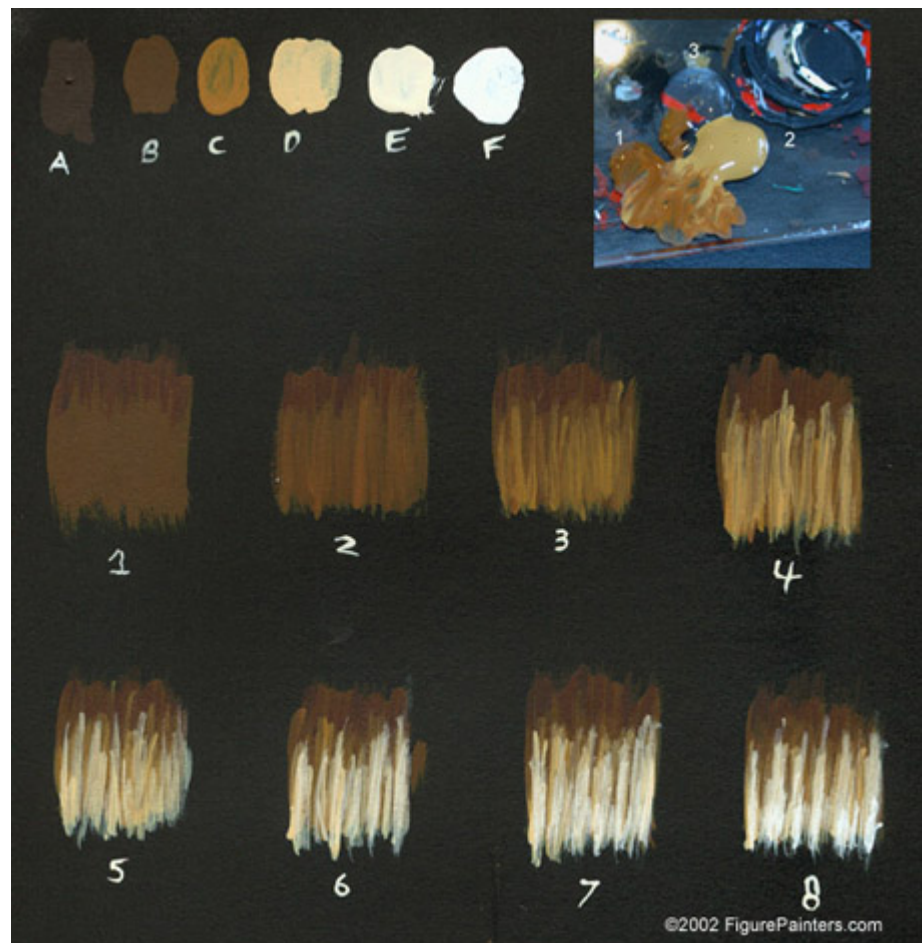**D**- Flesh (Coat d'arms paints)

E- Oyster White (Delta Ceramcoat)

F- White (Vallejo Paints)

There is no reason I chose one manufacture of another, it is just what I had.

I did use color "D" though because the GW Bleached Bone has too much yellow in it for me.

Also for all of these steps I use Floating Medium by Plaid (it is a clear blending medium used to thin down paints, MUCH better than water). See the little caption at the top of the painting steps picture. Color 1 and 2 are the two colors that I am mixing. Color 3 is the blending medium that I am mixing in to the two paints that I mixed to keep them smooth. This way I can put multiple layers of paint on a miniature without getting that chalky paint build up look.

Step 0- Prime the Mini black.

Step 1- Paint Mini with two thin coats of "B". Where the plates of the armor join put down small streaks of "A" that have been thinned down.

Step 2- Mix colors "B" and "C" (50/50 -Same technique as seen in the mixing caption). Lay the paint down in triangular patterns as seen in Example 2. They may overlap.
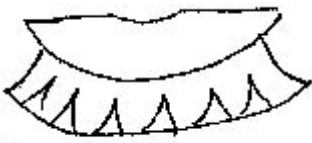
Example 2

Step 3- Lay down a thinned "C" in the same triangular pattern. Don't take this color up as far

Here are a few examples of complete Carapace.

as you did in step 2. Also make the "triangles" thinner than in step 2 too.

Step 4- Mix colors "C" and "D" and add the thinning medium (again the thinning medium is present in all steps. You should be tinning it down to a soupy mix.
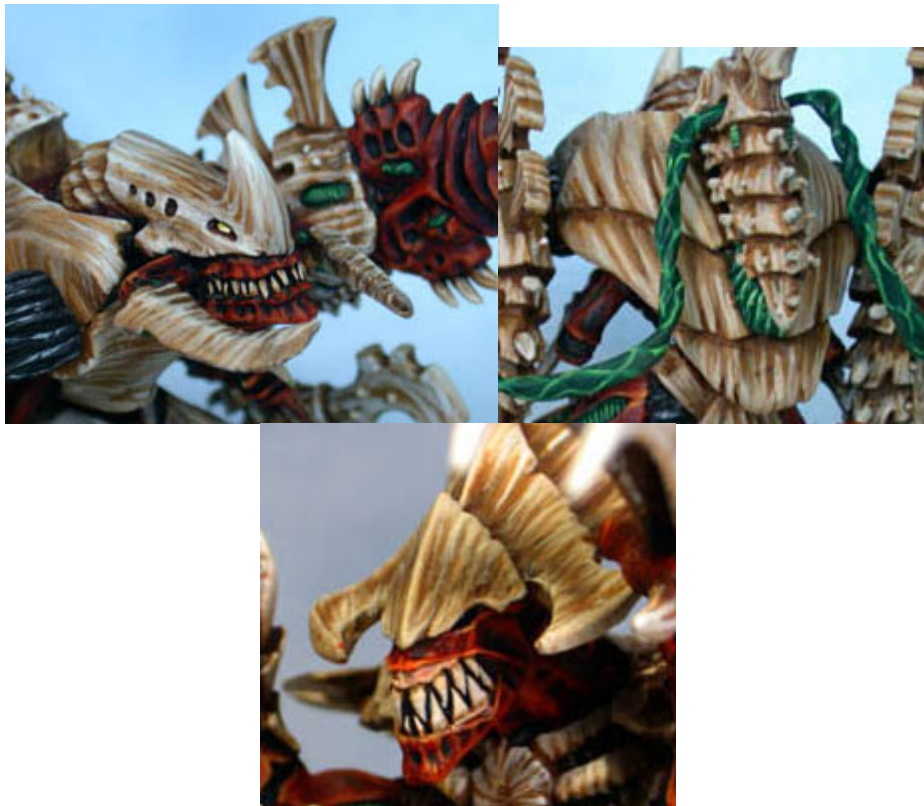
Step 5- Now apply a thinned "D" in smaller triangles than Step 4. Step 6- Mix colors "D" and "E" and thin and apply in smaller "Triangles" that don't go up as far.

Step 7- Apply a thinned "E" in very small streaks than maybe only go 1/3 of the way up.

Step 8- Apply a thinned "F" just to the very edge of the armor.

Step 9- Go take an Aspirin.

Painting wood grain on a smooth surface

by Mick Clark

"mickc22"

It's a good idea to have some reference material handy, either some good pics or an actual piece of timber. An old but excellent reference book is the Wood Workers Manual by Alert Jackson and David Day, published by Collins, ISBN: 0-00-411565-1

Right onto the painting....

Base Color

First of all you need to decide what wood you want to depict, pine, mahogany, oak, etc. I'm doing this on John Waynes rifle butt, so I had some ref. shots of that. It's quite dark so I basecoated with VMC 822 Germ.cam. black brown. Diluted 1:1

Applying the Grain

For the grain I chose VMC 877 Golden brown. I diluted it 4:1 so it would flow off the brush nicely. At this stage you only need to rough in the grain, you should see some definition by about the 4-5 coat. Keep applying until you are happy. I'm using a Kaple #3/0 brush for this part

Alterations

This is the time to make any changes, add knotts and define the pattern. I've switched to a Pro-art Connoissuer #0 for this part. The bristle are longer, almost like a liner brush, I always use it for painting thin lines. Go back to your base color and raise the dilution to about 2:1. Now go back over the dark areas you want to keep, and any light areas you want to change. Now you do have to be a bit neater here. You will probably need about 2-3 applications depending on your color choice.

Highlight

Next I highlighted with VMC 913 Yellow Ochre, diluted 3:1

Some depth

Now we start to give it some depth by applying a glaze. I used VMC 828 Woodgrain Glaze, diluted. 2:1

You can stop here if you like, went on a bit further with a second highlight

I then applied another glaze…

…finishing off with a coat of gloss varnish

That's it basically, there's a little bit of shine from the gloss, but you will see more depth to it IRL when you do it yourself. Don't forget the whole mini will be dullcoated when it's finished, so that full gloss will dull down somewhat.

Painting Lighting Effects (or Object Source Lighting)
by Victoria Lamb

"Victoria"

[Editor's Note: This method of painting is now commonly known as object source lighting, i.e. painting a miniature to represent a light source emanating from somewhere, either on the miniature itself or from some other context]

I have had a few requests to share my method of how I achieved the lighting effects on my Fire Dragon Exarch and The Rescue of Sister Joan. I am grateful for the feedback but have avoided the question because the technique is still quite experimental. I do not actually yet have a set in stone method of achieving it. In fact both these models used quite different techniques. I will share what I've learned so far and hope it inspires others to develop the technique further.

INSPIRATION
The idea for Joan came from looking at paintings by the Dutch masters such as Rembrandt. Some of these paintings feature candle lit figures and started me wondering if the same could be done in 3D. I also work in the theatre and have an appreciation of how much lighting can influence the dramatic impact of a scene.

THEORY
There are some important points to keep in mind when trying this effect. Light only travels in straight lines so only something that is in the direct path of the light source will reflect it. The closer to the source, the more intense the reflection. The reflection should never be brighter then the light source itself. For example look at this test model of a necron immortal.

-The green on the gun (light source) is the lightest ie. brightest green on the model.

-The planes of the model that are most oblique (facing towards) to the source will appear brightest. Eg. the tips of his chin and nose are brighter than his upper lip.

-The surfaces closest to the source will appear brighter. Eg. The left side of his chest shows a bright reflection while on the right side the reflection fades out.

-Only the planes that can trace a direct line to the source show the reflection. Eg. His chest is in line with the source but the tops of his head, shoulder plates and collar bone are not.

METHOD
The necron, Sister Joan and the Fire Dragon all followed these basic rules but the actual painting of each model used quite different techniques.

THE RESCUE OF SISTER JOAN

This was my first attempt at painting lit models. The scenery and figures were painted separately. I did not seriously attempt to paint reflected torchlight on the figures themselves. I simply shaded and highlighted them as normal while keeping a rough idea of where the light was coming from. I made sure that the surfaces closest to the light source were painted lighter and those in shadow were darker and heavily shaded. I did not add any orange "light" to the figures themselves. The dramatic lighting in this scene was mostly achieved with the stone scenery. I started by painting it as normal, just dry brushing with progressively lighter greys to create a normal stone effect. I then temporarily placed the witch hunter figure in position and stuck a pin in the stonework directly behind the flame of the torch. After removing the figure the pin served as a marker for the light source. Working outwards from the pin I dry brushed a large circular area of stone with a dark red, and the same in a large pool around the position of the witch hunter's feet. Orange was gradually added to the red and the process repeated in smaller circles finishing up with the brightest orange (but not as bright as the torch itself) directly behind the torch in the position marked by the pin.

FIRE DRAGON EXARCH

The challenge of this model was to achieve the lighting effect without the help of the scenery. To make it work all the reflected light would have to be painted onto the figure itself. I started by painting the model and finishing his armor in NMM greys. I then carefully painted orange ink onto the areas in line with the flame. Adding more and more ink to the surfaces closest to the source to create a more intense color. The same technique was applied to the base. The other parts of the model were painted and highlighted with the highlights directed towards the source as seen on the dragon skin.

NECRON IMMORTAL

The necron uses another technique again. The model was painted and highlighted in a NMM grey. Then dark angels green was painted on to all the surfaces reflecting the light. I continued highlighting, adding bilbous green to the dark angels and carefully picking out the surfaces closest to the source.

CONCLUSION

I have really only scratched the surface of this effect. You may have noticed that most of my "lit" models are grey. I find neutral or dark colors the easiest to light. I'm not sure how you would achieve for example a green light on a red surface. I have also used NMM because you can control the direction of the reflections. I'm not sure if it would be possible to light MM. There are other things that need further experimentation, lighting faces, furs, gems, etc. all present their own challenges. I strongly recommend looking at some 2D painting that feature painted light sources. Recently I have seen some examples of it done with larger scale military figures and flats too. I hope this information is helpful to other painters. Please feel free to contact me with any comments or questions. I will continue to experiment with lighting effects and would love to see other painters apply it and develop the idea further. It has a lot of potential can be quite eye catching if done well, after it was this effect that won me my sword.

Object Source Lighting Expanded
by Shawn Lux

"Shawn R.L."

I'm going to try to keep this simple by breaking it up into sequential blocks. I'm going to go from start to finish, simple to complex. Hopefully it will be such that you can stop wherever you want and still have something nice. Some of this can be a little confusing.

Be patient, this isn't the easiest thing to learn depending on how far you want to go. This is a subject that has literally endless variations possible. Some of these things are like riding a bike I can tell you and show what to do, but there is some that you simply will have to learn from doing. I don't say these things to be discouraging but to be realistic with you.

What I will tell-show you, take it and play with it, see what happens, go with that seemingly weird idea that occurs to you. Trial and error (or success!) can lead you to some fantastic things. If you are new to OSL start with a really simple mini.

I am going to start assuming the light is warm white (think incandescent-light bulb).

1. Paint your piece black. Using a bit of imagination, here is a real simple way to quickly decide where the light will go. Imagine the source of light is not a light but a hand grenade. Now, instead of exploding and sending forth hot death, it is filled with paint. When it explodes, where will the paint go, or not go?? One side of the nose and not the other, the top of a wrinkle in the cloths will block the bottom of the wrinkle next to it and so on. Another way is to hold the piece up in front of you (holding the piece so that the primary light source (PSL) is closest to me and the mini is DIRECTLY behind it). Now, sighting FROM the PSL, sight to where the light will come in contact the piece If I sight FROM the PSL TO the mini.


As you look at the mini from this angle, you are seeing EXACTLY where the light is supposed to be. If I sight from the PSL to the mini but there is an ax in the way then the part of the mini that I am not able to see because the ax is in the way is NOT going to have light. Paint the areas viewed from the PSL white.

If the boundary where the light ends (going from the light area to dark, day to night) is on something round, head, arm, hull, etc... blend to the dark side. Don't have a sharp transition to night. I will call that in-between area the evening area. The lit side will be day and the dark side night.

If the light hit's something small and flat, blade, book, board, etc... then the light will simply be day, no transition.

Blend between light and dark
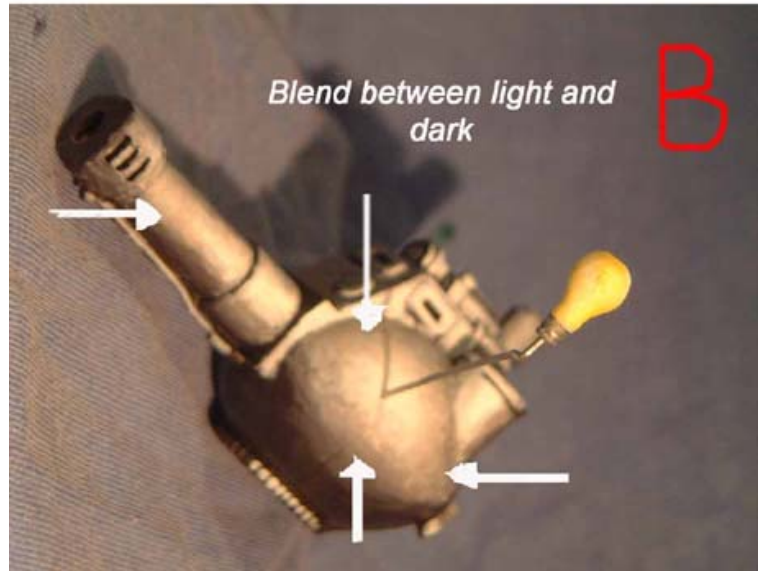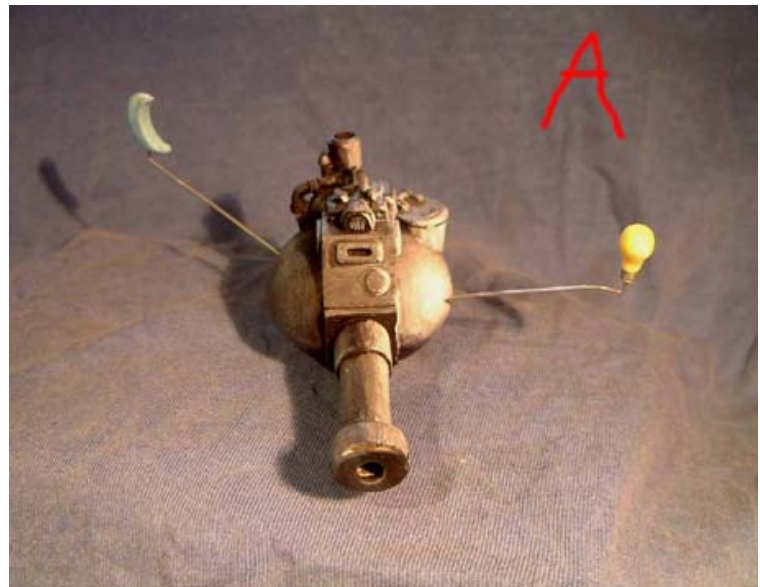
2. With a medium to dark bluish-grey, dry brush the night side and the evening side

Try to have it a little lighter to the top of the piece and darker as you go down.You want to have every thing on the night and evening areas drybrushed so the stand out a bit. As you would normally 'shade' around objects on any mini shade around those same areas with black.

same brightness

evening area, almost no high-
lighting
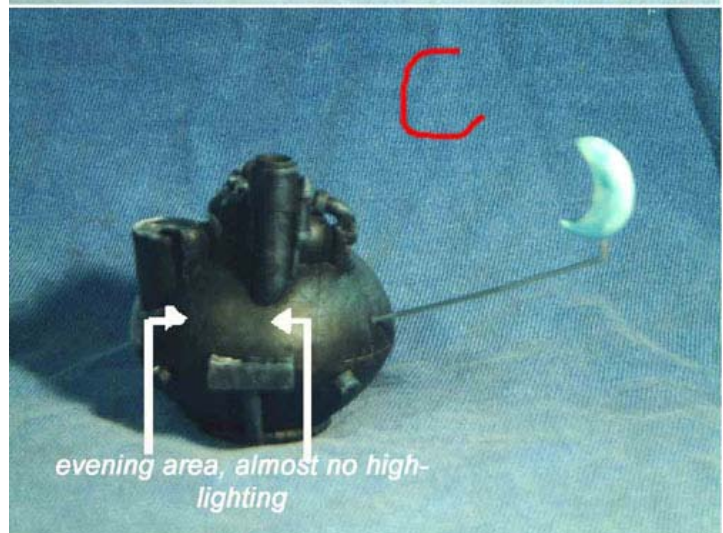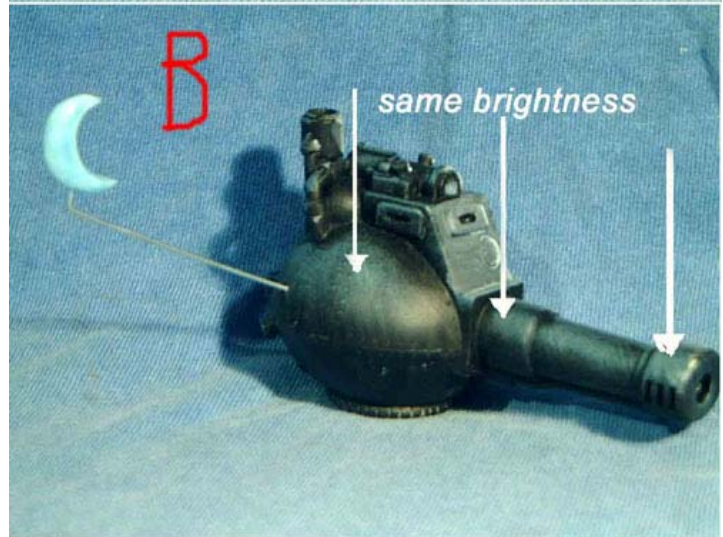
3. Now, on the day side, paint the colors that would normally be there. If the part of the mini is green then paint it green, red, then red.

Again, in the evening areas, if the area is on a curved surface, blend between the the day side and the night.
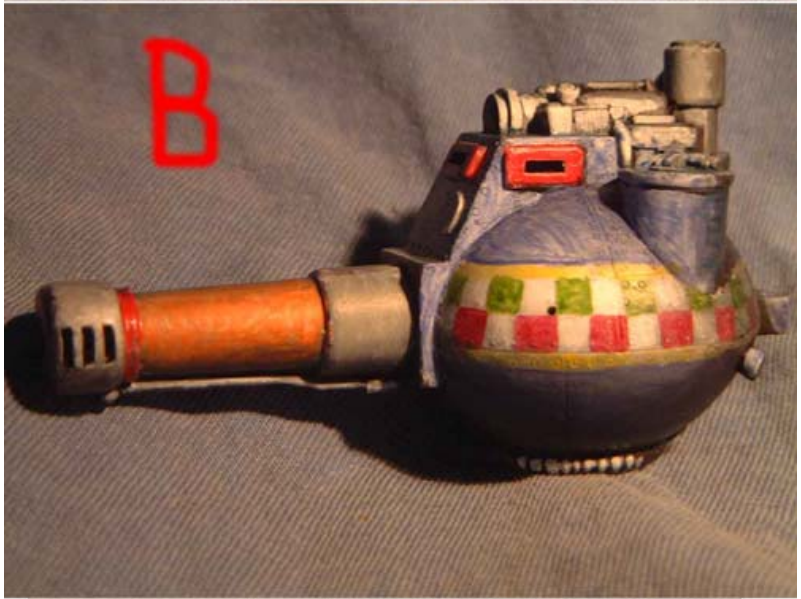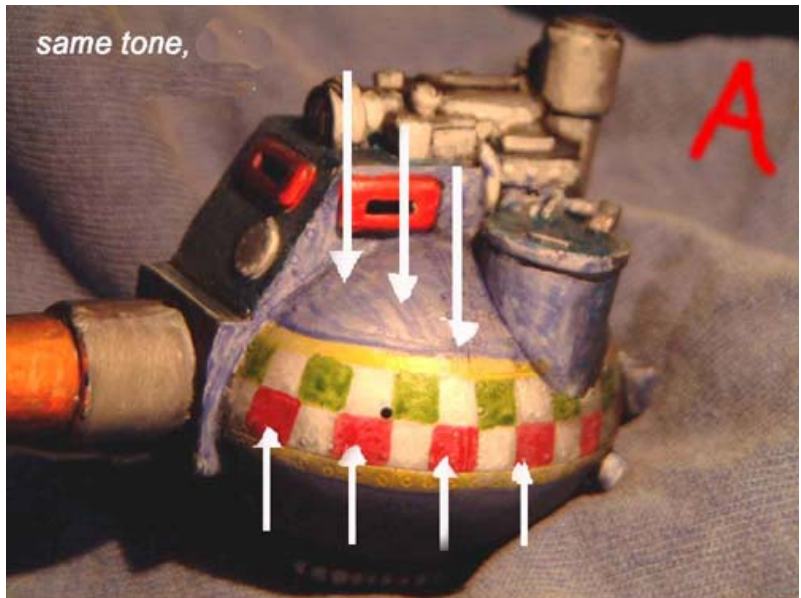
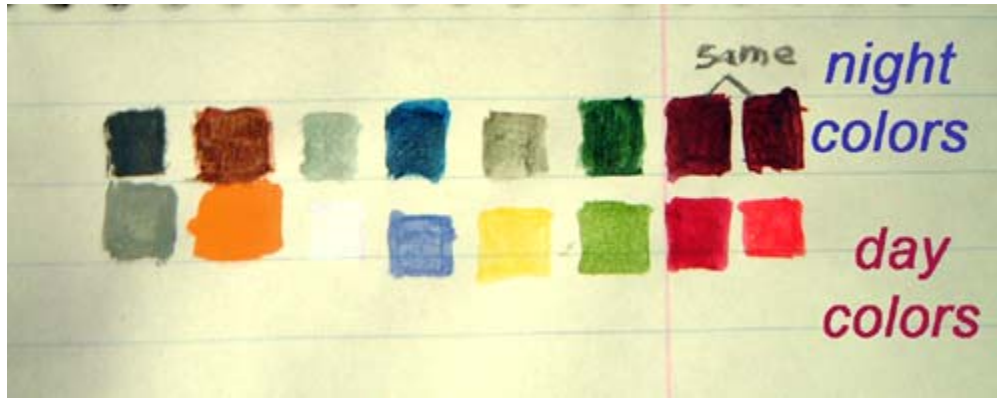**4**. Next, on the night side, with your paints really watered down (you want them to be very transparent) paint the night side part of the mini green, green, red, then red. Done right you should end up with a very dull color yet still know what it is. Dull is good. Or, if the colors come out too bright shift your palette to darker tones of each color

If thinned paints arent dull enough mix a little black and MABEY a touch of white. You want to end up with the color, but dull.

· You can stop at this point and the light should work. If you wish to go further simply continue on. I am picking up where the above stops. You dont have to start over again

5. Now I will further refine the gradations going from light to dark. On the day side I will take the color's I used in the step above and mix some white in. nearer the center, where the light is brightest

I will put the lightest shade and gradually, using less white, go to a darker shade as the surface - 1. gets further away and - 2. the angle of the surface turns AWAY from the PSL (see towards the bottom for an explaination of how angle's affect lighting). A. and B. are shown to show the difference between simple application of colors and gradiated colors.
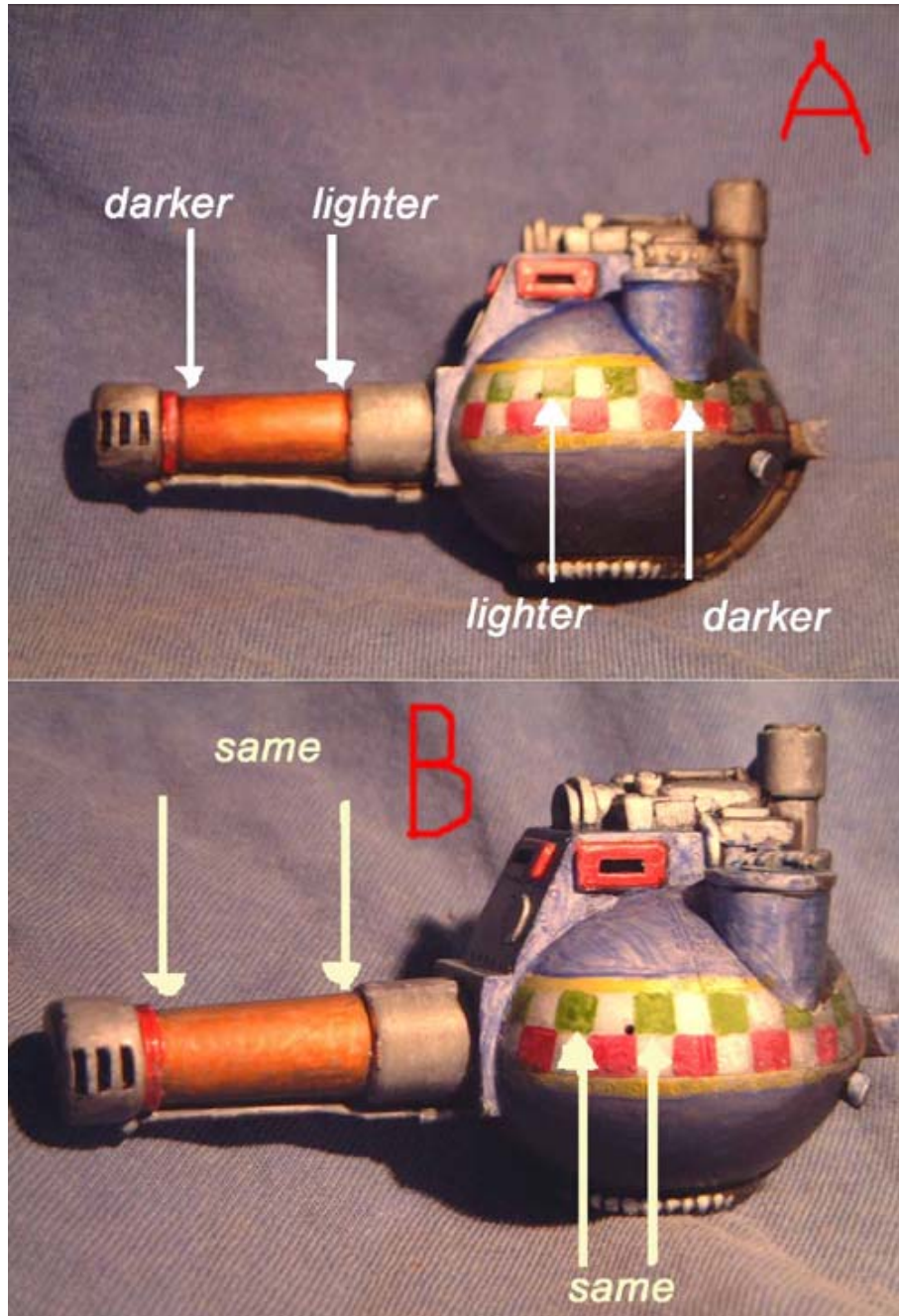
6. On the night side I will take any dark colors and gradually go to almost black as the surface either curves toward the evening area OR comes to a shadow area. image Typically the evening area will be where everything is darkest. Not necessarily black, but not far from it. The colors will be dull in this area to the point of almost being just black and shades of grey. This is where it starts getting deep.If you begin to get overwhelmed, take each section below one at a time. Get to where you understand it and can make it work then move on one more step.

7. On to the night side. This is where an OSL effect can go from nice to really good. In reality there is seldom light coming from ONLY one direction. Light is really bouncy stuff. In OSL I will not only use this fact I will accentuate it (a fancy way of saying I will cheat and make it more than it really is).

Stars, streetlights, explosions, city lights, or me just putting light on the night side all can be indicated on the night side (this is called a secondary light source "SLS"). I almost always put the secondary light source directly opposite the primary light source (image 5). While a secondary light source can come from any direction, putting it directly opposite is easiest and gives a good effect. Decide which color your secondary light source will be.

8. Usually when I do a SLS I shift towards blue-black, call it a dull blue or a blue tinted grey. (you don't have to use blue but I find it pleasing). If you are using another color SLS simply mix that color, the color of the mini surface (color of pants, flag,) black and a touch of white, DULL. Yellow is one exception. It MIGHT be better to go with simply using the SLS color black and white.

9. If this wasn't confusing enough, here's another thing. Tonally (how light or dark a color is) the colors will remain roughly the same IN RELATION TO EACH OTHER (color chart) as they go from light to dark. On the day side red, blue, green will be (usually) darker than yellow or orange or white. In the evening area, while the colors are now all darker, the red, blue, and green will STILL be darker than yellow, orange and white. Same with the night area. As you have the secondary light source get darker the tones will become closer (less range of dark and light) together till all is black.

10.The SLS shadows (not cast shadows but the shading normally done around objects on a mini to make them stand out) will be in the black to black-blue range of colors. I will shade with black

washes. You can highlight on the night side and you can get fairly bright with it, you decide. I will keep this rather dark. The highlights will be just a little more white to the base color-black, white mix above

11. Between the night and the day areas is the evening. With the primary and secondary light sources directly opposite each other there isn't much to highlight in this area. In this area I will put no highlighting or VERY little (there are some odd instances where you will put both night and day highlights on. These would be when you have a rivet, button, or some small thing that falls in the evening area and sticks up). Instead of highlighting I would accentuate the shadows using black on the night side of evening and a dark shade of whatever color I am transitioning on the day side of evening.

I think this would be another good stopping place. The following are not really step by step things but more principals. They can be used each by itself or all together. If you are new to OSL or painting in general I would strongly recommend taking this stuff one step at a time.

12. As mentioned above, light is really bouncy stuff. When it hits something it scatters. The further from the light source the less this happens (with secondary light sources I have NO scattering). As I get nearer to the PSL the more the area is flooded with light thus more stray, scattered, random light bouncing around. Most if it is going DIRECTLY AWAY from the light source but there is enough stray light bouncing in other directions that the shadows get more filled with light. The range of contrast between light and dark on the day side as you get nearer the PSL becomes less.

13.Imagine you are in a room with many colored objects in it and the lights are slowly turned down As the lights go down obviously the colors will get darker but they also get duller.

14. Light always travels in a straight line

15. · One overall rule in doing OSL is that having pure black somewhere in the shadow area and pure white some where on and-or near the primary light source-PSL are essential to making something glow bright

16. I'm not a scientist so my physics may be off but as and artist I'm pretty sure this works most of the time. As the light gets brighter the colors will get more intense. There is a point where it will go beyond intense and begin to wash out (lose color and begin to go to white). These last two things are where you decide how bright your light source will be. You do not have to have the colors wash out. Instead of thinking about it just do it and see what happens. You can always adjust brighter or darker. The above mentioned,

colors brightening and washing out, get progressively more pronounced the closer you get to the PLS. Experiment.

17. This isn't 100% of the time but most of the time. Light is usually the result of heat. I find that a slight shift to warmer color as I get toward the light source can work. Again, you decide.

18. A general principal in OSL is that (yes this is obvious but I want to cover it all) the further you get from the PLS the darker things get. No matter what part of the mini it is or what it is attached to. Just because a part is connected to the main mini doesn't make it special. It will get dimmer at the same rate as something disconnected but at the same distance.
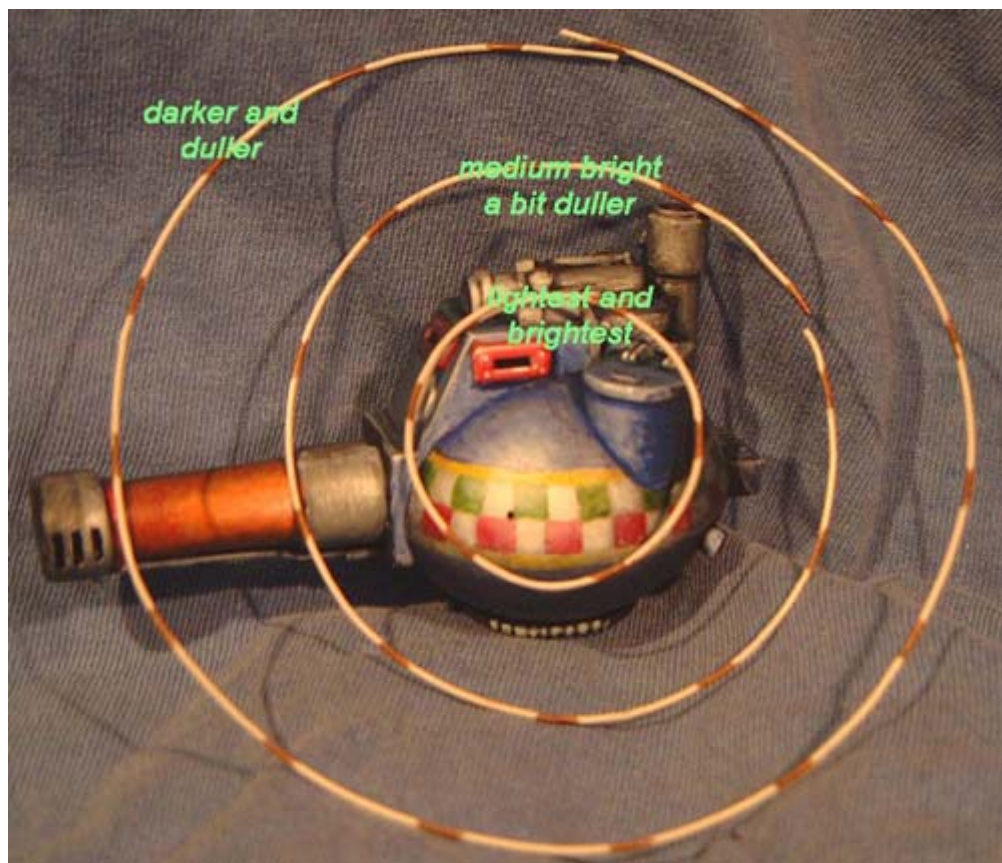
19. When doing OSL on flat surfaces angle is everything. The distance from the PLS is where you start. That will determine what the brightest CAN be. If the flat surface is 90% to the PSL

(perpendicular) it will be the brightest an object can be at that distance. At 45% to the PSL it will be half as bright etc... This applies to small things-books, small boards, the flat side of a gun,

etc... Larger stuff - walls, a big table, a large flat flag, etc...will fade as the object stretches from near to further from the PSL (the floor going off into the distance).

20. I'm teaching this with the mini supposedly set in a really dark setting. To achieve the OSL effect you don't have to have many things go to black, as though it were night. You can do a mini with a lit effect where things are simply dim. When I do OSL, no matter if it is to be pitch black night or something not so dark, I will try to do all of my painting without using ANY pure white. I may tone here and there but will never use white straight from the tube. Once I get the shadows and all that other business worked out I will put PURE white in the PLS (that is if the PLS is an actual thing that you can see and not something that is not in the scene such as the sun). You ALWAYS want the PLS to be the LIGHTEST, BRIGHTEST thing in the mini.

21. When choosing a mini and it's surrounding I like to have a lot of projections, texture, and little bits. These all give you more opportunity to show where the light is coming from since these things will cast shadows all pointing to where the light is coming from (all shadows, especially small stuff will 99% of the time point directly to the PLS). Sometimes I will stretch a shadow, say a rock on the ground, a little longer than it really would go just to accentuate the light coming from OSL.

If you look at the ground on the piece called "Fire!!" (right) you will notice that the ground lighting is not accurate. I lit the ground as though the light source was much lower (just barely off the ground) and from a single point. The
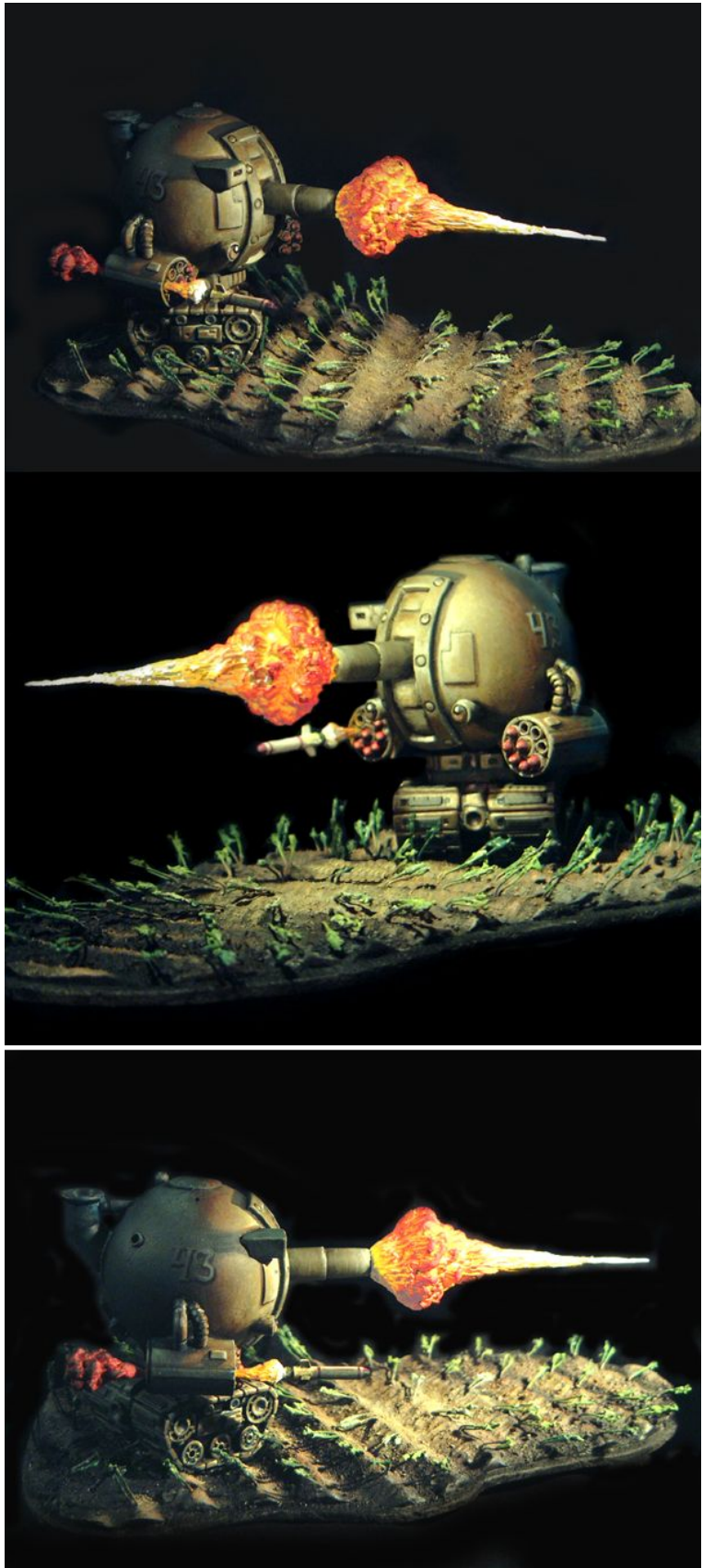
length of the muzzle flash would have lit the rows of dirt very uniformly and diminished the drama of the sourced look. I did this to accentuate the effect of the light coming from one place. On the piece I did called "Neo-Soviet guy with glowing thing" (right), I intentionally used a brick wall because the bricks would all pick up the light on one edge, again dramatizing the light. I also intentionally put the 'glowing thing' in the doorway so that the light would strike the wall at a very low angle. This gives a more dramatic effect.

22. Put a coat of dull coat on EVERYTHING. The more you can reduce or eliminate environmental reflections, the better the results.

23. When photographing, try to light it from as many angles as possible (a light box would be ideal). You have PAINTED the shadows and don't want to have your lighting casting shadows. This can be one of the harder parts of OSL. Having light coming from all around hopefully will eliminate any cast shadows. Take your time positioning the lights. Also try to eliminate reflections.

24. I know this part will be controversial. It will be up to you to use your discretion and not cheat. I use Photoshop to reduce reflections and cast shadows. The way I view it is that due to the peculiar nature of OSL and the odd photographic difficulties it poses a little help is warranted. I DO NOT add stuff that's not there.

25. I hope you will give this a try. As stated at the beginning, if you are new to OSL, start with a REALLY basic mini. Just to learn the ropes.
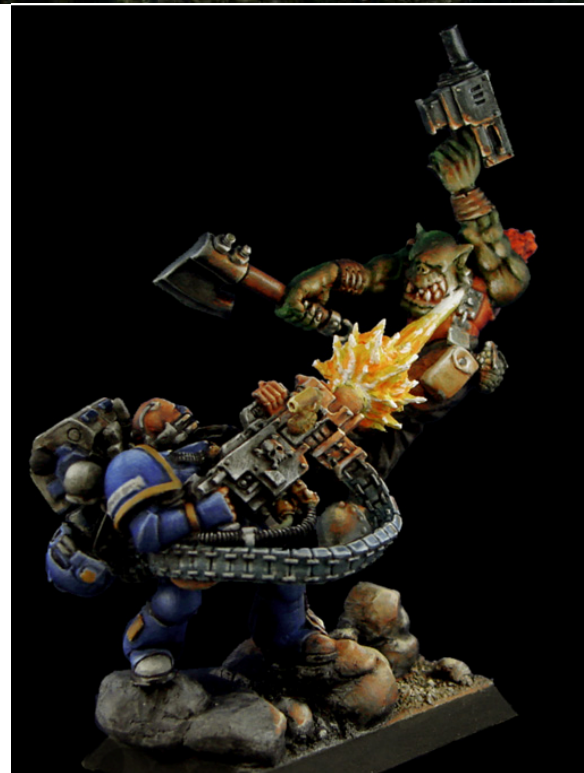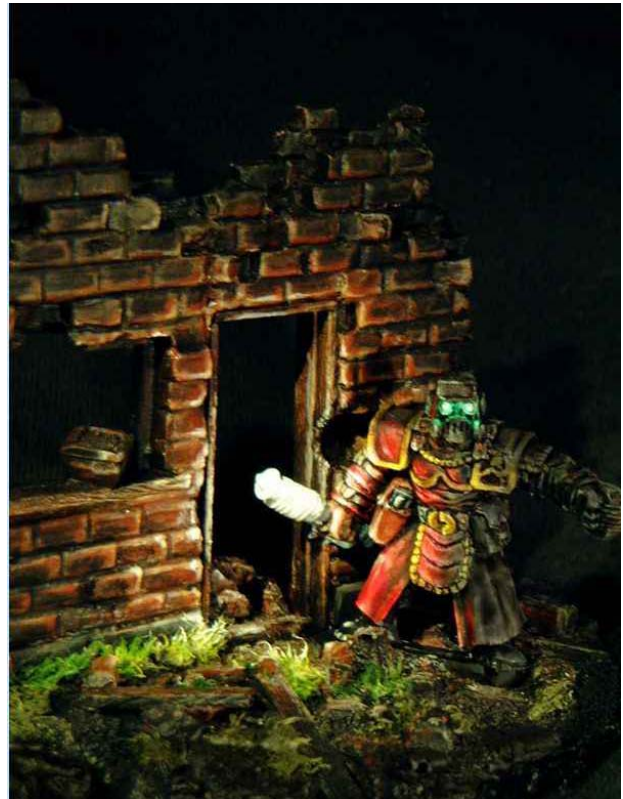
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Finishing your masterpiece

Bases form an integral part of any figure, and a beautiful base can make a miniature really stand out. Collected here are some of the best articles on the dark art of basing.

Base work 101
by Jeff Wilhelm

"Dragon Forge Design"

I find I'm constantly asked, how I do the ground work on my painted figures and terrain pieces. I'm going to try and explain it as simple as I can in a step by step tutorial. My goal is to provide some valuable information to everyone from the beginner to the experienced modeler.

Materials
I use a lot of ground work materials made by **Woodland Scenics** (http://woodlandscenics.com) which offers a wide range of scale model scenery making materials available in most hobby and model shops.

For my basic base work needs, I use a mixture of model railroad ballast. I use a mixture of fine, medium and coarse ballast with some larger materials mixed in. This is a product called Talus made by Woodland Scenics.

The picture on the left shows the different sizes of Ballast I use, the right is my tub of mixed ballast.

As far as a Percentage for my Mixture, its about 25% Fine, 25% Medium, 25% Coarse and a 25% mixture of Talus. But it changes constantly as I add a little bit of this or that. Best advice I can give is to experiment with a mixture you like.

I usually apply ground work to my bases with a Cyanoacrylate Adhesive (super glue) but you can use anything fro white glue to a clear matt medium. I like CA glues because of the speed at which it dries plus its strength.

Once the base work is done I primer the finished model. I paint all my base work because I feel it gives a painted figure a natural look. I find that unpainted base work looks "Out of Scale". You ask, what do I mean by out of scale? Well we spend hours painting a miniature figure to give the illusion of reality. In other words we take a small metal miniature and try and paint and model it so that it looks almost like it could walk off the war game table. When the base work is applied unpainted, I feel it looks "Unnatural" or "Out of Scale" So if we paint or finish it, it looks more natural.

Examples of base work primed white and black.

Below are some examples of painted base work. They are a basic brown earth tone, a desert sand and an "Ash" waste land. As to exact colors used to paint them that's not all that important because there are so many different ranges of paint used to paint miniatures these days. But the basic concept is to start dry brushing with a dark shade of your chosen earth tone, followed by a medium and then lighter shades of paint. It's up to you as to how far you wish to take this. One image shows a small amount of static grass added to it.
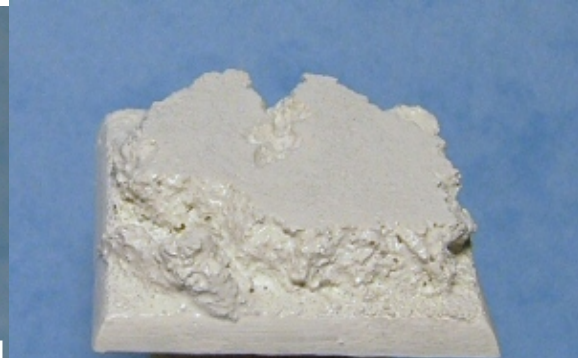
Painting hot lava bases
by Mark Craggs

"Klute"

Here's a quick tutorial on painting your bases to look like HOT LAVA.. Thanks to Scott at Groundforge for the base. (http://www.groundforge.co.uk)

Base as delivered

Primed Skull White

Heavy Golden Yellow Drybrush

Lighter Blood Red Drybrush

Next Scorched Brown

Finally Chaos Black

Bubbling Lava base
by Terry S

"wrestlerguy21"

You are going to start out with a plastic base of any size. I prefer the rimmed basses but any type will work fine. I then locate a rock which is glued on one side of the base. When selecting a rock I recommend finding one that will make it easier to paint your light source (OSL) .

I like to pour in realistic water at this point. The reason being that it makes for a smoother painting surface but PVA glue will also work. This step does not need to be done just make sure that your base is smooth. Next I roll a small ball of green stuff and let it dry. Once it is dry I will cut off the top and the bottom of the sphere. These are going to be the bubbles inside of the lava. Now if you cut the sphere short you will have a small "just rising" bubble. If you leave much of the sphere (say half) then you will get a bubble that's about ready to burst. These two are about medium and roughly the same size. You can experiment with this making all different bubble sizes. I then glue the two half spheres onto the bottom of the base. I also paint the rock a dark grey at this point. I will latter drybrush it in a lighter grey.

Next I paint the bottom of the base in a dark brown.

Now I will start blending from red to yellow. During this I use watered down paints , about 3 water to 1 paint. I want a smooth shift from brown to red to orange to yellow.

Now orange

And Yellow

Now for my lighting effects. I am not going to go deep into this as there are numerous articles about this topic. Basically I am going to start painting reds and oranges along the rock where light would hit it. I always make these slightly darker then the original light source. If there are deep groves I will often use a watered down black ink to make shadows. Basically I just put a little bit of paint on at a time untill I get the desired effect.

You can see that I made it a little bit lighter towards the centers of the light reflections. I'll add some orange.

Now I re-check my paint job and fix or smooth anything out. Paint the outside of the base black and glue the mini on top of the rock

.

A little bridge base
by Terry S

"wrestlerguy21"

I start out with a set of bamboo shish kabob sticks. You can get these at the store or substitute for some other kind of wood. I then clip (using nail clippers in this case) out a group of these, maybe 7 or so. I will cut these about 1/2 an inch or so. I then cut 4 more pieces about 1/4 inch.

Now I roll out a ball of green stuff and then roll it onto a can. In this case I am using a can of primer. Anything cylinder shape will work but make sure it has a paper cover. If not roll paper around it. You will see why in a sec. I will shape out a basic rectangle shape though I am not too worried about how the green stuff looks.

I then press in the LONGER pieces of the previously cut bamboo. I press them in horizontally with each one touching the other and I make sure to keep them in a straight line.

Once this is dry I use a razor to cut the paper around the green stuff. Now for those who are challenged I will warn you that If you cut too hard into the can , and it still has pressure, you will coat yourself in exploding paint. I was able to do this without injury.

Now I am sorry for my lack of photos on this part but you will see it in the finished product. I will take a plastic base and paint it the shade of water that I want. I use dark blue or a brown..and you will be able to see both at the end of this. In the first example I paint the base a sienna brown. Once it dries I sprinkle in a few rocks near the area where my bridge entrance is going to be. While this is drying I sand both sides of my bridge so that they are even. This also hides the extra green stuff. Once this is done I take the bridge and glue each side of it down onto my base. I use a little extra pressure (to the ends) if I want my bridge to have more of a curve or less if I want it to be more straight. Finally I will glue all four (remaining 1/4 inch pieces) on the four corners of the bridge.

Now for the paint. I paint and highlight the bridge any color (in this case brown). Next I use realistic water effect (woodland scenics makes this..I think) and I carefully spread it onto the river bottom. I find that an old paint brush and an eye dropper works good for this. I also make sure not to put this on to thick

because I don't want to cover up my rocks. Once the water effect dries its should look perfectly clear. Next I paint a series of lines that will represent the flow and splash of water. I start with a light grey then highlight with white. I have found that if you make short wavy lines that the water flow looks slow and calm. If the lines are long and straight the water flow looks fast. I make sure to put a little extra grey an white where water would hit things, like the bridge posts, rocks etc. Here is a photo of this bridge with a blue river bottom.

Hopefully this can add some fun to your bases. Happy painting.

Making a simple show base
by Daan Muller

"Daan"

Squighoppers always scream out racing to me so I decided to make a little show base with that theme for a squighopper I recently painted

As you cant have a race without someone to wave the finish flag I took a little snotling with a suitable pose to become the finisher.

I am going to use a file, x-acto knife, pin vise, some greenstuff, super glue, clipper, paperclip and the little snotling.

With the clipper I cut of the end of his club. Using the pin vise I drilled a little hole in the end where I cut of the club.

Next I glued a piece of the paperclip in the hole with some superglue. I covered the pin with greenstuff, after that had set a bit I made some cuts with the x-acto knife to 'model' a little wood grain. I will make the flag itself later with some foil.

For the base I use a coaster (the thing you can put your drink on). It's nice and round, has the right size and the center is indented. I filled it up with airdrying clay from the arts and craftstore, a lightweight kind that doesn't shrink, they use it to make puppetheads.

Using a base of the same size the squighopper is on I made a hole where he will sit later on.

Two cocktailsticks became the poles that are going to hold up the finish banner.

Although the clay wasn't supposed to shrink it did a tiny bit leaving a little gap around the edge. I filled in the gap with some PVA glue and then sprayed the whole thing with chaos black.

I painted the center of the base where the lane is for the squighopper sandcolor and the sides green.

Then I glued sand on the center lane with PVA glue.

Next we need to put the finisher in its place before gluing on the grass.
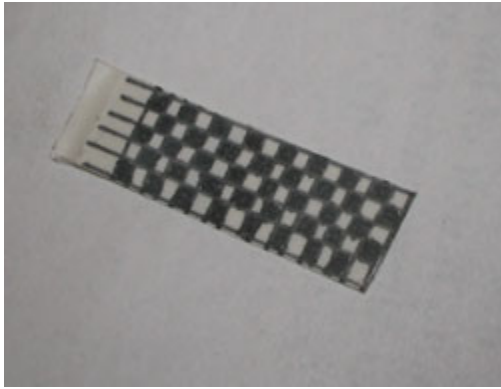
For the finish flag I used paper, folded double and with some scotch tape to seal it.

Superglued the flag to the flagpole of the little snotling finisher. Now all that's left to do is glue the grass on both sides of the lane with PVA glue and paint a finish line with some white paint between the poles... And there we are...

I only need to make a banner with finish on it for between the poles, but it's late and I have to get up early so that can wait another day.

Hybrid base
by Black Farmer

I was surprised how many questions I got concerning the base on my Purifier to the Hybrid game, since it's actually nothing spectacular or advanced. But if there is an interest, I see no reason why I shouldn't write a little something about how I did it. It's really easy.

The modelling material I used is called CERNIT and is much softer than green stuff, which makes it difficult to sculpt figures, but is excellent when making scenery and bases.

First of all measure out the top of the base. In this case the base (Rackhams) is about 2.0 x 2.0cm. We cannot sculpt directly on the base because it has to be baked in the oven, and we don't want to melt the base. You can therefore draw a square of 2x2cm on normal piece of paper as a frame to work within.

Now take a piece of modelling stuff and warm it up a bit by rolling it in your palm. It gets softer and easier to work with if it's warm. Squeeze it until it looks like a squig has been run over by truck. Try to make it as thin as possible in the edges.

In my opinion, the number one spoiler when sculpting is a fingerprint. You can erase these horrible patterns by stroking with your finger. If this doesn't work you can always use something with a smooth

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surface like a CD, plastic card, or whatever, to press with. Cut of the edges with a sharp knife so you got a nice square. There is no need for surgical precision at this point, once you start sculpting the sharp edges tend to deform anyway.
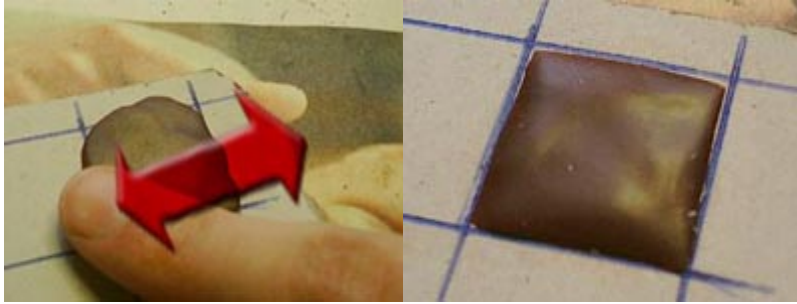
If you have real sculpting tools that's great. But I don't so I use a simple pin, which in this case works just fine.

Making a stone floor is easy, just decide what size the stones should be in and press the pin down. It might not turn out the way you want the first time but you can always start over. It can be a bit tricky not to mess up when working in the middle of the base when using just a pin, because you have to work with an almost horizontal angle. Then it can be a good idea to use a screwdriver or something similar that enables you to work vertical.
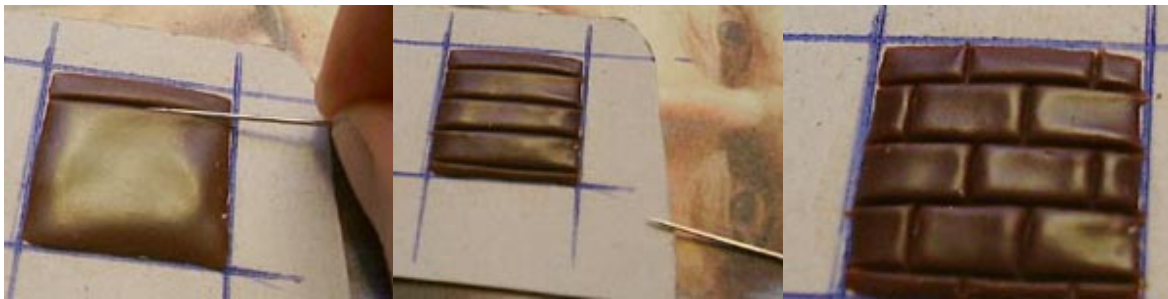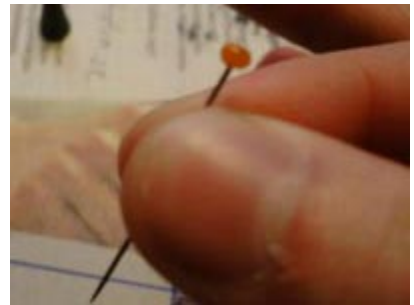
Now it's time to add some detail. Cracks and scratches can be done using the pin. The surface is too smooth to look like stone and it can be difficult to paint if you want to drybrush it. To make some texture pick up a nice little rock, make sure it's really rough. Press the rock gently and roll it around a bit. This will help getting a more natural surface. Of course if you want the base to belong in a nice fancy castle with polished floors, you can skip this part.
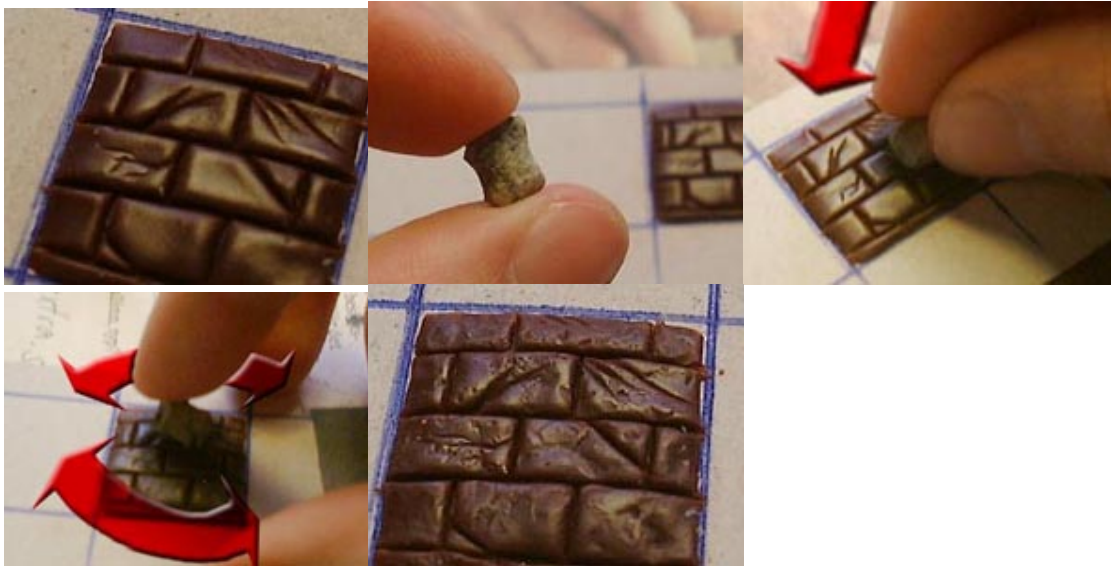
The Hybrid game takes part in underground laboratories. It can therefore be appropriate to add some metallic parts. To make a simple metal plate, flatten some modelling material and cut out a piece. Place it on the base. To easily make rivets you can use the tip of a pen as shown in the picture.
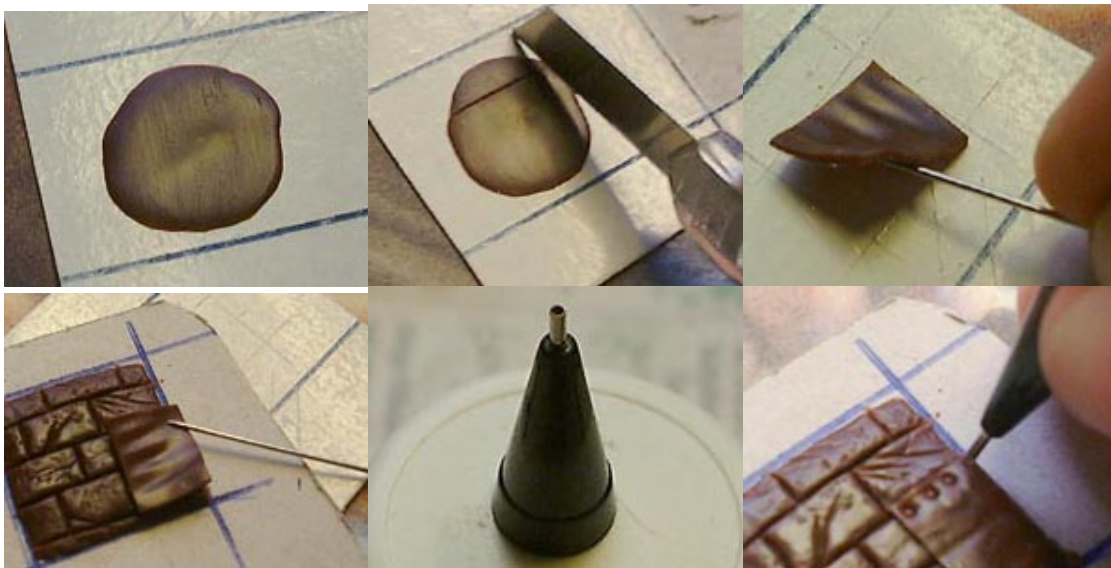
When you feel satisfied with your base it's time to bake it. Follow the instructions on the package. *("Bake in preheated oven at 100-130°C / 215-270°F from 5-30 minutes depending on model size")*

When done glue it on the base. That wasn't too hard was it?

Creating a huge 3 inch base for RPG use

by Peter Lee

"Temperance"

This article shows a way to create a 3 inch base, a size used in D&D to represent a Huge creature. The article shows a way so it can be attached to a wooden base for display.

This can be a relatively inexpensive project if you look for some simple components.

The large white circle is something called a 3 inch test cap. I found it at a nearby Menards, a home improvement warehouse, in the PVC pipe section. It's around $0.50 USD. The wood disk was found at a local craft market for again around $0.50. Pick the one that is the smoothest. The white rocks are plastic casts from a mold used for model railroad terrain.

Next, we prepare the test cap.

The next step is to get the test cap prepared.

The test cap that I found needs to be trimmed. First, remove any tabs that are inside the cap. Second, cut off the rim.

Sand down the test cap to make it a relatively even height. You might as well sand the wood block smooth at the same time.

Next we attach the test cap to the wooden display case.

Now we want to make a display base that we can easily separate the test cap from the wood base.

Make a paper circle and determine the center of the wood block. Drill a hole into the center of the wood block -- you may want to first drill a guide hole. The final hole might not be exactly in the center -- use a rat tail file to cut a whole to the middle. You'll also need to cut a hole on the bottom side large enough to fit the head of the bolt inside the wood block. Glue the bolt into the center of the wood base with some epoxy.

Center the test cap onto the base. I like to make the nut a bit higher into the base, so I set it on top of a few pieces of balsa wood.

Next, we glue the parts together and attach the miniature.

Now we finish gluing the base together.

Take some epoxy and glue together the wood and nut. Make sure that you don't glue the test cap to the wood base, nor glue the nut to the bolt! We want to make it so these things can be easily seperated. You can disguise the nut by drilling a hole in a plaster rock and covering it.

Continue gluing the plaster rocks to the base. By not gluing plaster stones on the whole base, you can later use clear resin or something to make the base a bit neater. Pin the miniature to the base. Continue with normal basing techniques, such as sand, resin, etc. Stain the wood base. After you paint the miniature base, you'll have a great inexpensive display base!

Melted Snow base
by Terry S

"wrestlerguy21"

This is what you need to create a melted snow base.

You will see Elmers glue, realistic water and snow from Woodland Scenics. They have a website you can order from. I also find this stuff at most hobby stores. To start I find a rock that I think will work well. This one my dog found in the back yard. I paint it light grey then a wash with black ink about 1:4 parts water. After it dries I dry brush the rock with the same light colored grey and then again with a bit of white. Finally the use a touch of ivy green here and there. (I did my final dry brush last so you can see it in the final picture.)

Next I get a base and I prefer the ones with the raised lip on them but any base will do. I paint the inside of the base a sienna brown color and let it dry.

Then I glue the rock onto one side and position it the way I want. Once it dries I toss in a few pieces of static grass and some gravel. This is going to be the river bottom area and I want it to look as such, you

can put whatever you want down for this effect. Also I don't use glue here because the water effect will keep it in place.

Next I pour in the water effect. This stuff is great and I highly recommend it for making water bases. It is the consistency of thin hair gel. I think it costs about $12 or so. I just fill the bottom of the base making sure there are no bubbles (approx. 1/8 inch deep). This stuff will shrink down quite a bit so I often put in a second layer. When it dries it is crystal clear.

Now for the snow. First I mix the powder woodland scenics snow with PVA glue. The powder snow is about like baking soda but slightly larger grains. When you mix it with the PVA I go for a consistency of toothpaste. Its very thick stuff. I then place in on areas I think snow would settle like the top on the rock or falling off into the water. When you first put this on it dosn't look right but when it dries it looks like slushy snow.

Finally I might add some reeds or anything else you want to. I glue the mini ontop of the rock and then paint the base (outside) black. Let it dry and your ready to go.

Have fun!

Building Industrial Bases

by J Wiltshire

"jgwl"

Righty oh,

I managed to get some time to snap some pics and process them so here is my basing article. Since during the slog for a deadline, basing is often something that is rushed I wanted to keep it quick .... secondly since I don't do much 40K this project gave me the opportunity to do something unashamedly futuristic. Here goes ...

Base Preparation

This is obvious and boring but I thought that I'd put it in. When you buy GW bases they are on a spruce, when these are ripped off this normally pulls a bit out of the base and looks unsightly. The better option is to clip them from a spruce or use a modelling knife but there will still be a small bump which again will look unsightly. This is shown in picture 1.
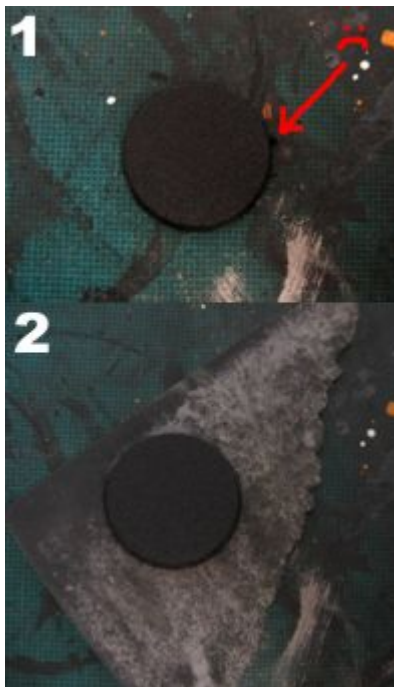
The best way to get rid of this, especially if you are looking for a display level of finish is to go get some fine sandpaper, the grade I use is 600 and I get it free from work but any DIY store will stock it - the finer the better. After a few strokes the base rim is flat as show in picture 2 (with the sand paper underneath) - be careful though too much sanding and too much material will be removed and the base will no longer be round.

As a final point, if you cant be bothered to do this at least glue the model to the base so that there are no bumbs/divets at the front of the model.

Magnetic Basing

I'll be using magnetic bases for this army, its very simple. I bought my magnets on Ebay, there are plenty of sellers but the one I used was magneticlife. Here is a picture of the two types I have bought:
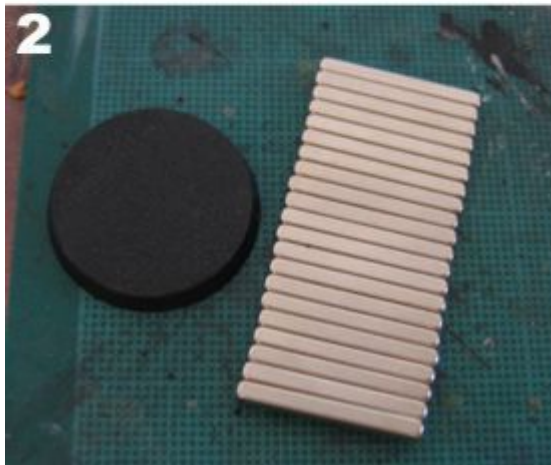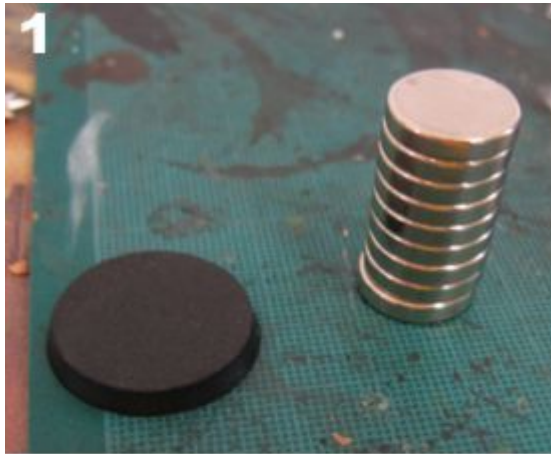
The height is such that they don't sit pround of the base when they are glued in, the round one is way too powerful but the rectangular one is OK. If I bought them again in future I would buy smaller ones. The sizes are:

Pic 1. NdFeB magnets 15X3mm Pic 2. NdFeB magnets 20X4X2mm

Anyway I just glued a single rectangular one underneath the base using a shed load of super glue although two part epoxy glue would also do the job.

Basic Industrial Base

OK ta daaa........
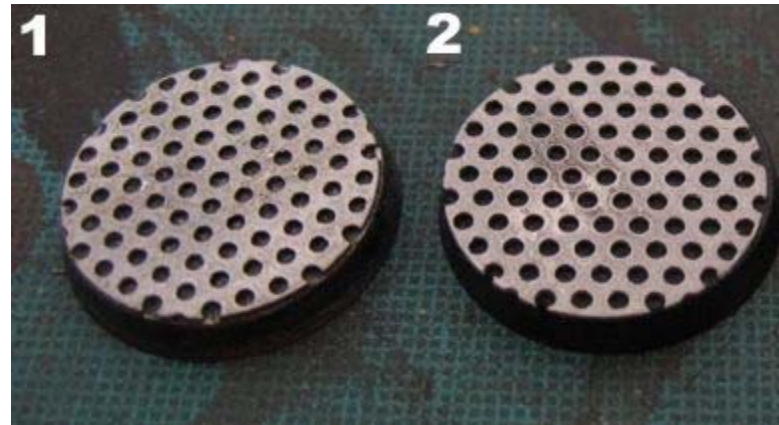
Here are three variations of what I have decided to use for the majority of the bases in the army. I bought some aluminium sheet with 2mm holes from 4DModelshop

(http://www.modelshop.co.uk)

I have used this company for years and they stock most things that you need that GW don't sell (cheaply or otherwise). I recommend their 1mm drill bits and 0.8mm brass rod for example.

This sheet was machined down to the same diameter as the top of the Games Workshop bases.

Picture 1.

This was glued on using Citadel glue because the brush was useful, a dropper would have meant that when the top was put in place it would have gone everywhere. Anyway the piece was painted boltgun metal and then dry brushed chainmail.

Picture 2.

Same as 1 but the painting was done before gluing it on so that the drybrushing did not get onto the black base between the holes.

Picture 3.

This is just the raw aluminium top glued on.

I actually prefer the third option it looks the cleanest in terms of construction, it is also the easiest to build. I think that it gives a nice neat finish that hopefully is a bit different and should look quite striking. However unlike typical bases using sand and the like the feet of my miniatures will have to be painted and cleaned up to a higher standard than ususal. When you glue sand or flock on you know that the feet will be obscured to some degree but to pull off this basing method I'll need to be a bit more careful.

Super Glue

Just a short point on glue, I use superglue for plastics and metals. Many people mention that they have a problem with Games Workshop glue in that it does not bond particularly well. I have never had that many problems but I pin everything. Some things have definitely come loose over time but whether that is due to wear and tear is difficult to say.

However based on economics alone it is not the best option. I use the following locktite brand:

It's cheaper for more, it also has a great dispensing mechanism (although the GW brand brush is useful for this basing method). You can get this glue in WHSmith and Woolworths in the UK.

More advanced Industrial Basing

I also came up with a more advanced scheme for my army that I may reserve for characters or the odd unit leader.

I bought some steel tread plate plasticard from 4DModelshop and machined this down to the same diameter as the aluminum sheet. Pairs of each were then chopped so that mirror pieces of each material could be paired to create a single

base. Does that make sense? Well the picture should explain this. Anyway here are some brass pins and some ASA rectangular shaped strip, again from 4DModelshop.

Here is the process of making the base:
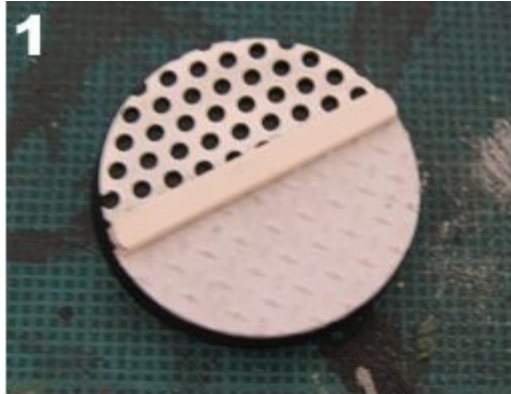
Picture 1: The first stage was to glue the two reciprocal pieces together, then a piece of the ASA was cut so that it would cover the join. The end were filed slightly to correct for the curve of the base and then it was glued in place.

Note that here the pieces are actually larger than the top of the base, this was a mistake when I machined them but for a test it shows the principle.

Picture 2. Three holes (~1.2mm) were drilled for the rivets.
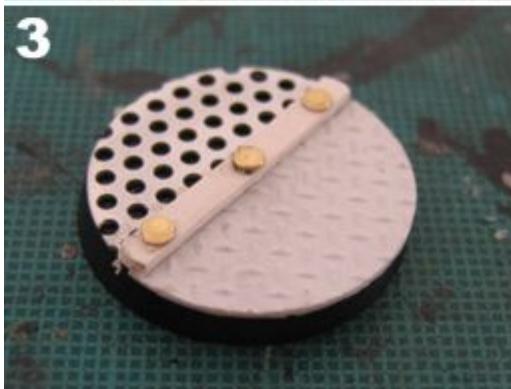
Picture 3. Three pins were glued in place, since the pins are brass they can easily be clipped from underneath.

That's it really, it would require more painting but it looks OK, the mistake I made was to not cut the aluminium and plasticard along the line of the holes/tread it looks a bit odd at an angle and would look more natural if the join was parallel to the detail.

Crystal Creation (Bases)
by Erik Ekholm

"snapple"

I wrote this article mainly for necron players, because they will have the necessary supplies, but any one can buy what they need in GW's online shop. First, you will need some nesscary supplies. Simply put, you will need a needle file, wire cutters, superglue, a base, and most important, the awesome translucent green sprue leftover from those little rods necrons use. to start off, cut a piece with no bumps in it about 1-2 in. long.
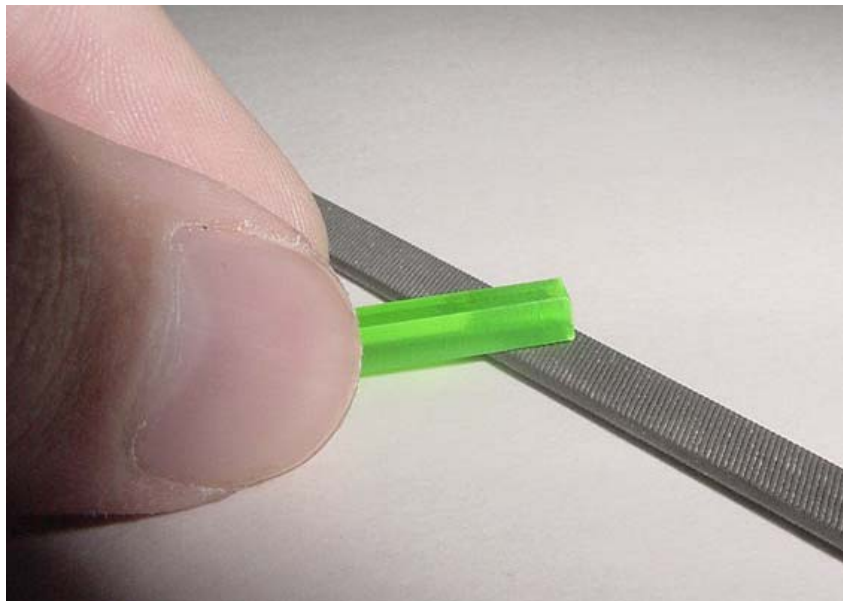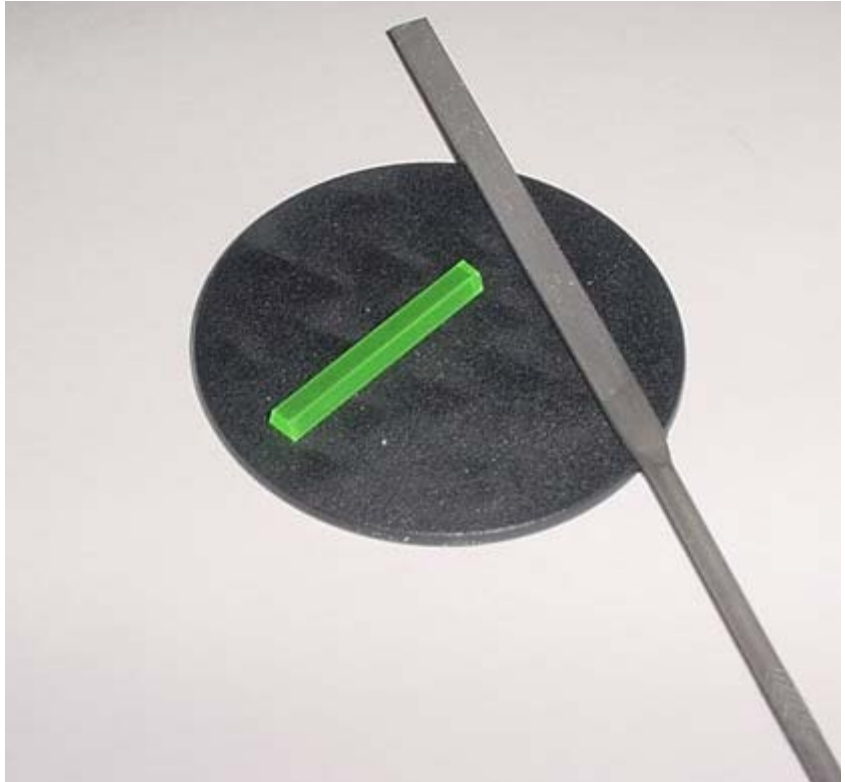
Place the file flat on your work surface and drag each "face" (there are four) back and forth to file down the surface.You're looking to slightly dull the rod so that the finished result blends in with itself. Arter you do that, you will need to file each of the edges at an approximate 45 degree angle.
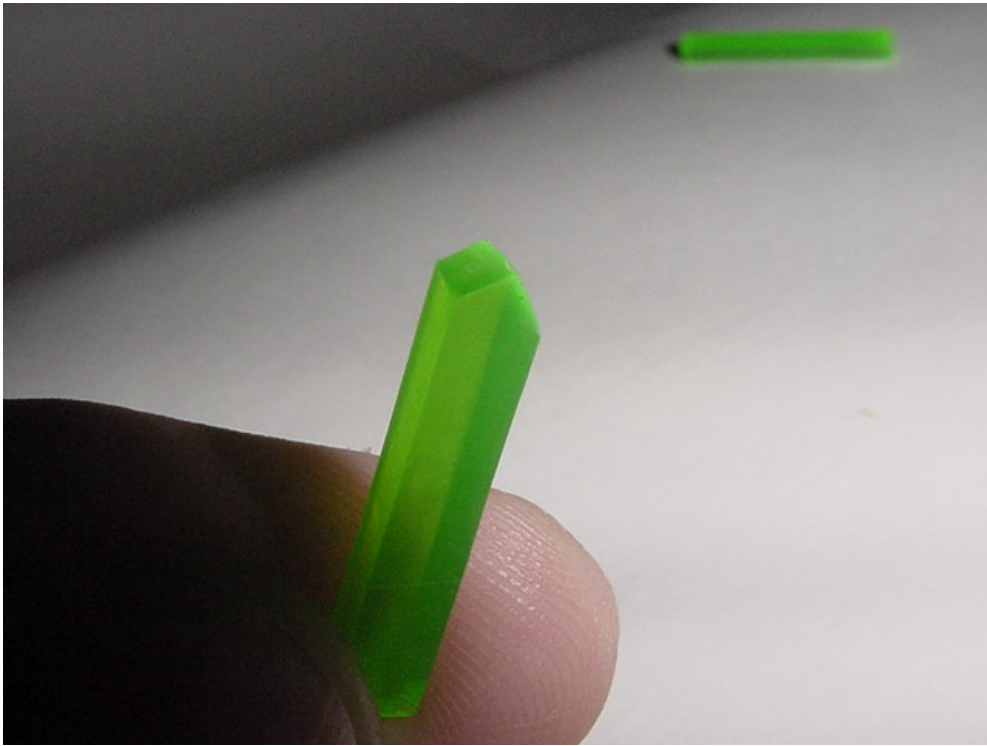
Two opposite sides filed
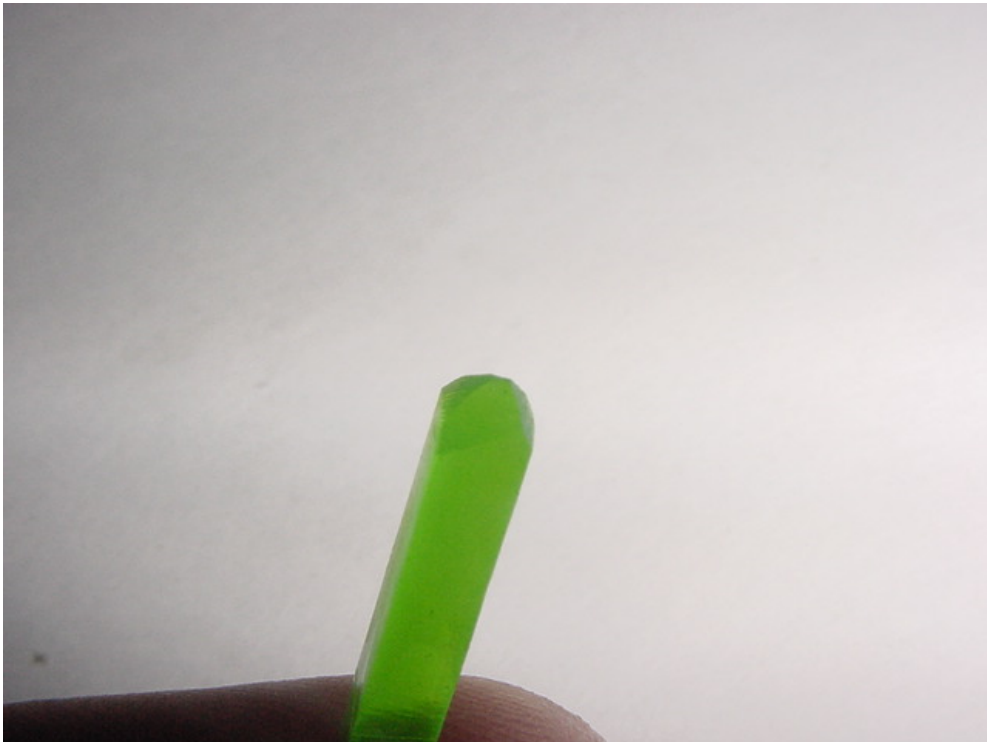
All 4 sides filed down
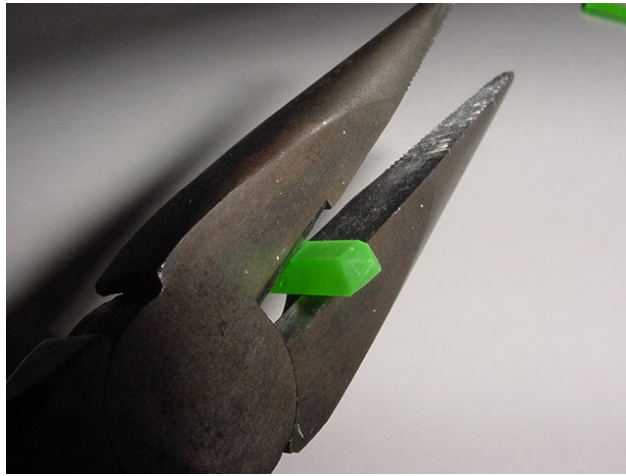
Once you have all the sides filed down, you will need to cut it. Cut with wire cutters, not a hobby knife!!! You can also cut it at an angle so it looks like it has grown out of the ground. Also, cover it with your hand so it does not fly into your eye or somewhere else.

Once you have cut up all your sprue into crystals, set them to the side, for now you need to make your base. Before you glue down your crystals, you'll need a place to put them. If you use sand, gravel, or any other basing needs, glue them down first. Be sure to leave a small 'hole' in the gravel to put the rods. (in the photographs, I have removed the model for clarity)

You will also need to paint everything, that is your miniature and base, before gluing your rod in place.

Glue your rod in place with superglue or epoxy. pva and wood glue is not good for gluing plastics.

You can also use the clear sprue from flying bases for a cleaner effect.

If you want more depth, you can highlight the very edge with white.

If you don't have the green or clear sprue, you can use regular sprue and paint it.

Urban Bases
by Michele Esmanech

"ikim"

The time has come to write a little tutorial on how I make urban bases, for my upcoming Nid Zilla army. These are WH40K bases (carnifex size bases, to be precise), but the same technique can be used to make WHFB bases as well, and smaller bases too. Here is the list of items I have used:
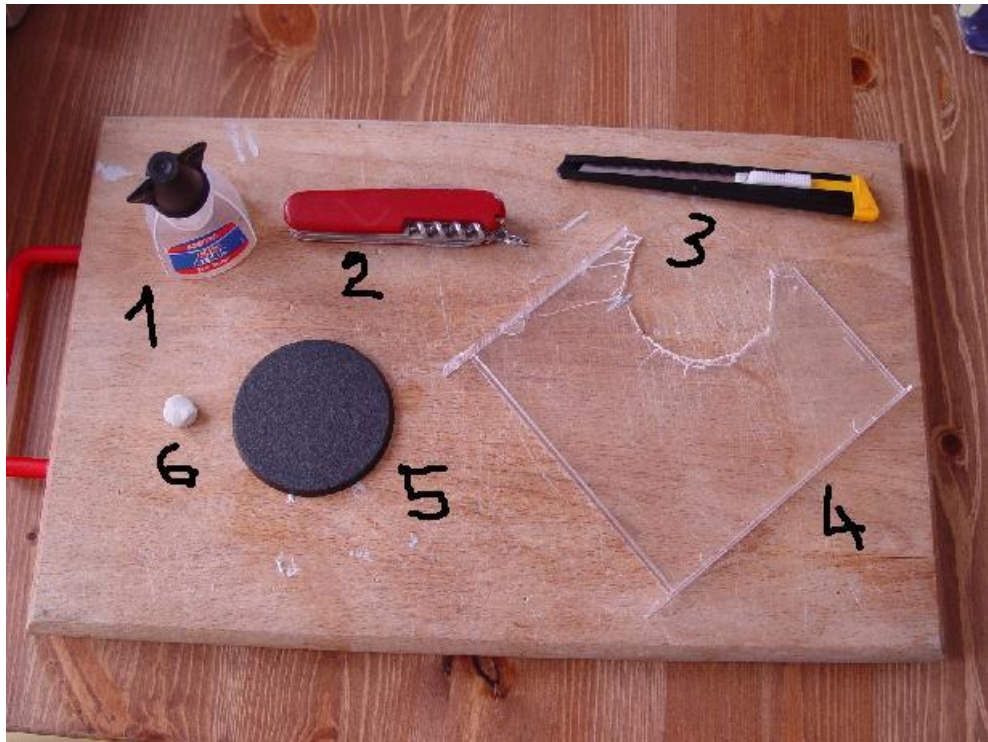
1.super glue; 2.my handy Swiss knife; 3.cutter; 4.old CD case; 5.the base we want to convert; 6.white tack.

STEP 1: First thing you have to do is attaching the old CD case to the base, at make sure it is sturdy and won't move. For this, the white tack is a great media:

STEP 2: Now it is time to cut out the rounded portion of the CD case, and this will be what we will model. To do so, flip upside down the CD case, with the base attached to it, and, using a precision cutter, cut all around the base (that won't move, because of the white tack attaching it to the CD case). It is advisable to use 2 hands: while one cuts, the other holds the CD case in place (I had to use one hand to take the picture, so don't use me as an example). Beware: the top most part of the base is slightly smaller than the lower part of the base, so the cutter should be pivoted a little inside, in order to have the circle as big as the part where the miniature will stand.
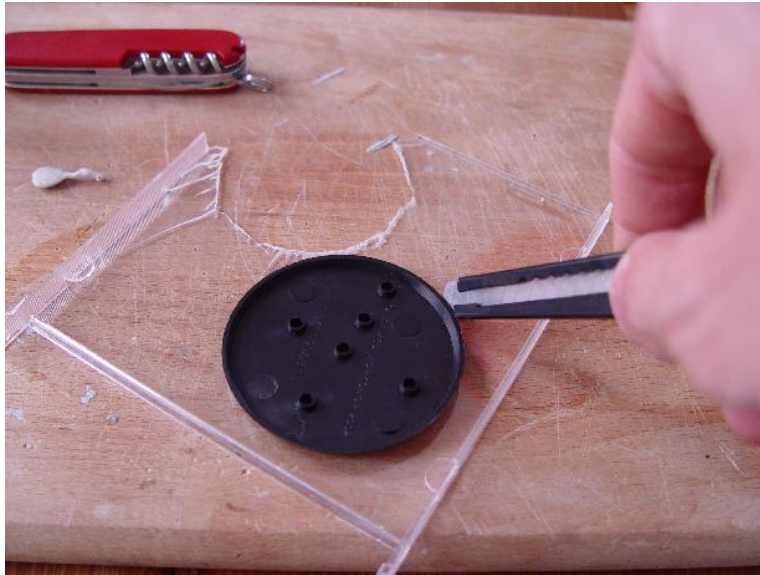
STEP 3: Detaching the base from the CD case, we have a circle, that will have to be cut out with our handy Swiss knife. A cutter can be used too, for this, but the blade is a little to thin, and it may chip, causing serious damage. If the base cracks during the process, don't worry: you'll have to crack it anyway later, so no fuss.
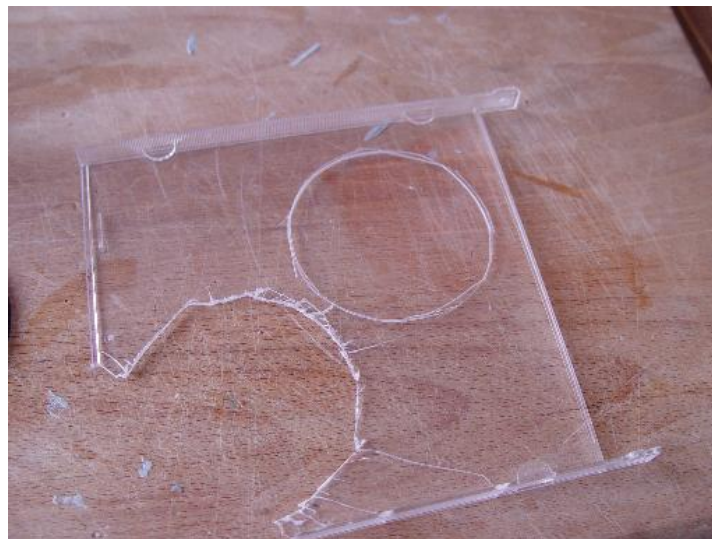
STEP 4: As you can see, this is the final product: I have cut out the circle. Now all we need to do is to see where the miniature is going to be and "ruin" it a bit with some cracks, indents, etc.

STEP 5: Now we put our miniature on the circle, to see where the feet are going to be placed (I have a converted carnifex, for this, but, of course, you can use what ever you like, but remember: the bigger the miniature, the better the effect will look). We carefully mark, with the tip of our precision cutter where the feet are going to be, and we cut out these parts.

STEP 6: As you can see, I chipped the base, and it broke, but, as I said before, no fuss, since this will be broken concrete, so this will give it a realistic look. When you have found the right position of your pieces, glue them with superglue (I use the one with the little bristles, but any will do).

STEP 7: This is the final product: I have added some little bits of the CD case, to represent the weight of the carnifex that broke into the ground. To do so, I put some in a pivoted manner, partially on what should be the holes created by the monster. I have also added some crumbles and scrubs to show that it is not a clean place.

Now put the miniature on it, to see how it fits. Just add/remove the little bits, until the miniture fits perfectly on the holes created.

Now the base is finished. Paint it up, and pin the miniature in place, and you have an urban cracked base. If you wish, you can go further, and add sand and/or bricks to represent broken walls etc. The bricks are

made out of old sprues, cut in the length I wanted, and glued one over the other, as building a wall. Here is what I did:

I finally managed to paint the bases, and create a scenic base to may nid-zilla army. I added a touch of sand, some tubes, and sprue pieces, to create a rumbled looked. The paint job was done by undercoating

with a mix of codex grey and black ink, the highlighting to shadow grey. I then drew some yellow lines with sunburst yellow, and, then I tapped the yellow with codex grey, first, than shadow grey, than a little touch of black ink. The gravel was painted with watered down brown, and drybrushed shadow grey.

and this is the finished display base (made out of styrofoam) using the same painting technique:

Movement trays

by Artem Vorobiev

"imperialforge"

Here I will share some of my experiences of making movement and display trays for figures. Note that I deliberately included the word "display"– because I am not as much interested in gaming as I am in collecting, and also because the same modeling principles apply for both gaming and display purposes.

Making a good-looking movement tray is ridiculously simple. As with banners, all we need is styrene plasticard, a steel ruler, a Sharpie marker, green paint (preferably spray paint), sand, flock, and regular acrylic paints.

I use two kinds of styrene plasticard for this project: the first is Plastruct # 91107, which is thicker than the plasticard I use for banners, since it should not bend and be strong to support troops, whether plastic or metal.

This is the product we need for the base of the tray:
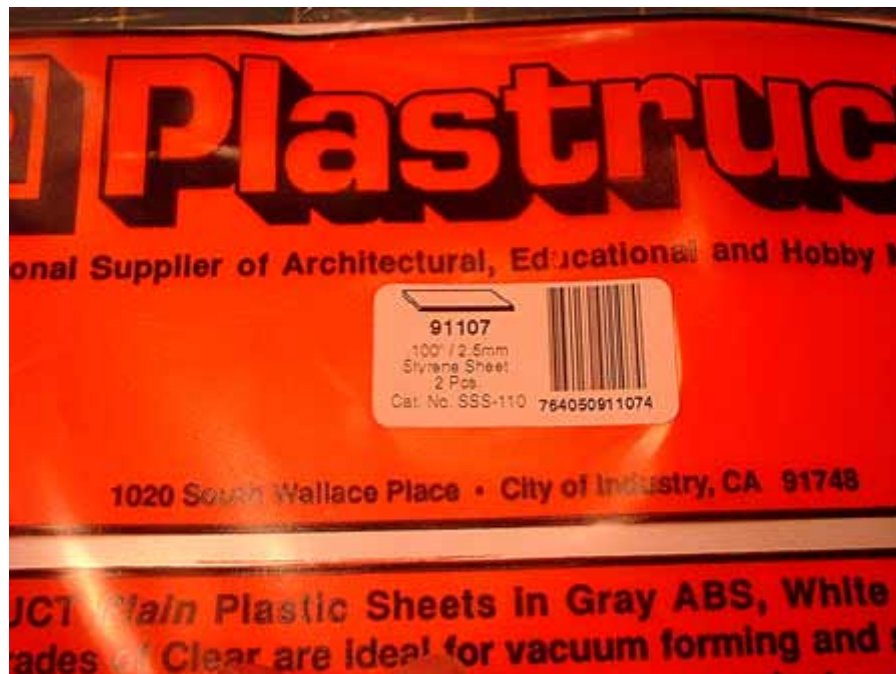
The second kind is Plastruct styrene strips # 90776. They will come handy for tray borders and for creating the spaces between figure bases. Here they are:

The size of the movement tray you want depends on you and your preferences. I opted for 6 figures wide by 3 figures deep for my swordsmen. I put my swordsmen on the base (before I cut it out, so I put them on the sheet that came in the package) and put the plasticard strips between them to create some more space between the figures. The reason I did this was to create some more space between figures to allow for better ranking up. Additionally, I like it more visually – the figures are not as crammed into the tray and the resulting space creates a greater feeling of individuality and movement.

Once I put all 6 swordsmen on the base and interspersed them with plasticard strips, I measured the resulting frontage and repeated the same process for tray depth. Once I knew the full dimensions of the base (53/4 x 31/8 inches), I cut out the base using the steel ruler and a hobby knife. I then used a standard Warhammer infantry base as a measurement guide and glued the plasticard strips into place, creating spaces for 6-figure front and 3-figure depth. I use the standard Testor's plastic cement, which can be seen in one of the pictures in the banners article.
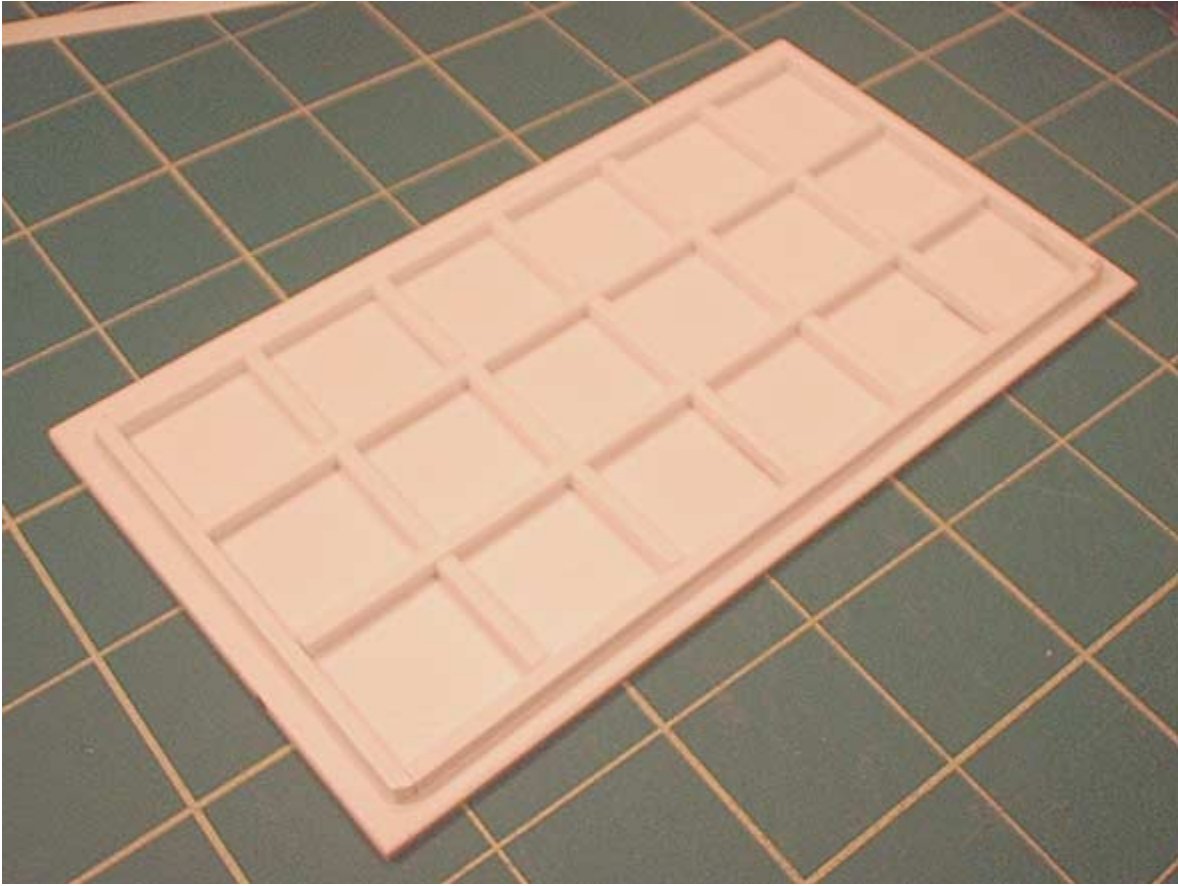
The next step is to spray paint the new tray green, using the Krylon Green Paint. I generally do not like Krylon, but this product seems to work miracles. It is great "wargaming" green (very similar in color to Snot Green) and it covers the target in nice smooth layers, which look very professional when dry and provide a durable and sturdy surface.

I then put a layer of Elmer's glue on the outside edges, borders and intersecting strips of the tray and dipped it into a container with fine sand. Be careful at this point, to make sure that no sand ends up being glued obstructing the spaces for the infantry bases. Again, those of you who will decide to bypass this and make a regular movement tray without intersecting strips, will have an easier time, since all you have to deal with is the edges of the tray.
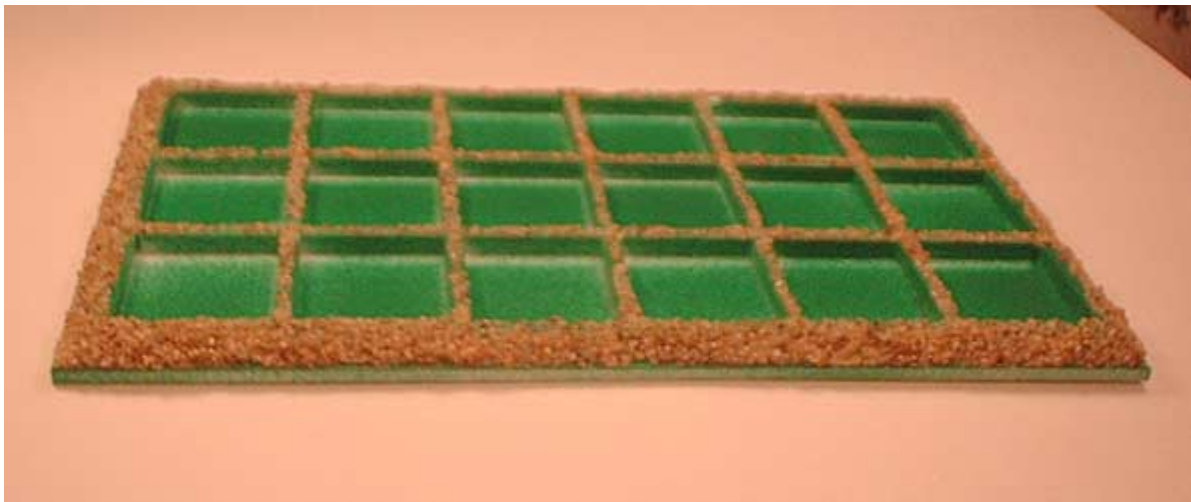
At this point, the movement tray is essentially ready. After the glue dried, I gave everything a couple of more coats of Krylon green paint – it provides additional bond for the sand and serves as an excellent base coat.
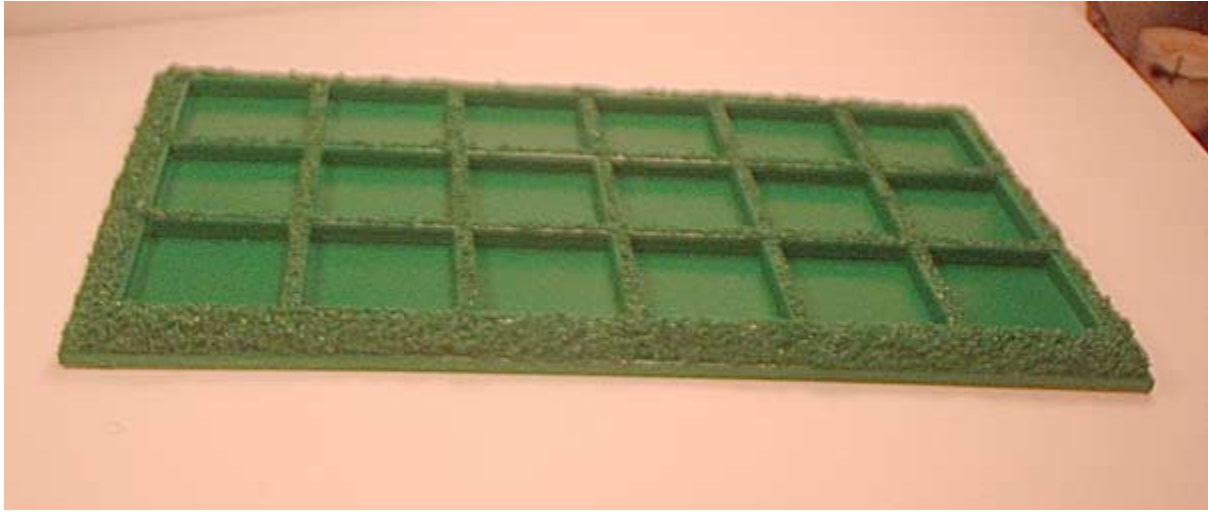
This is the completed movement tray, with shadows, highlights, and flock added. I added regular green flock, which I highlighted with yellow to represent last year's grass.
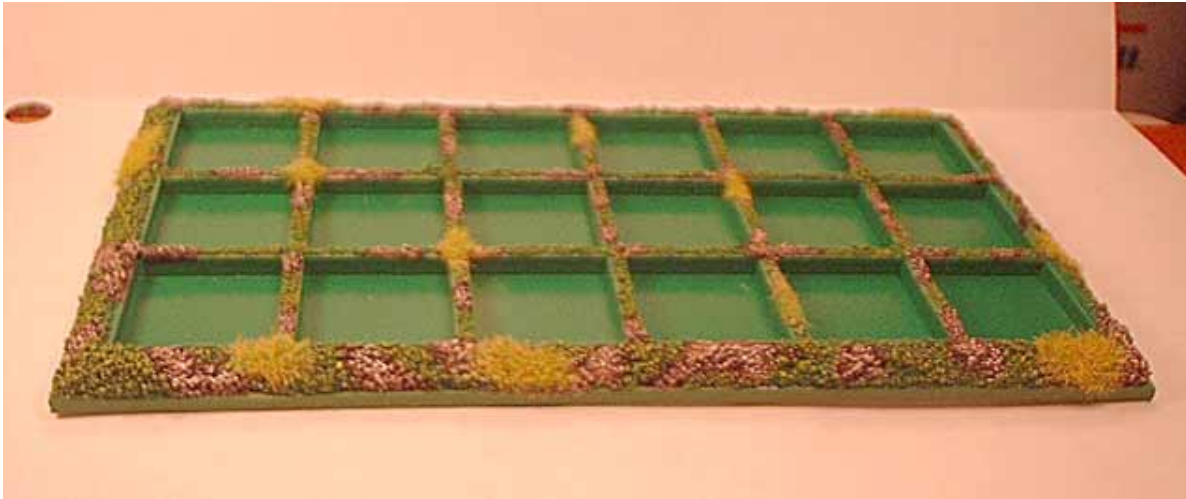
MINIATURES STEP BY STEP

Examples of how miniatures are painted, for every level of skill

Nothing beats watching the artist put together his work with your own eyes for learning. The next best things are these detailed descriptions of how these artists painted their figures, in their own words. The articles are sorted roughly in order of difficulty and time required to achieve the same results.

Tabletop quality High Elves

by Gabriel Andaya

"highpaladn"

Like some of you, I got into painting miniatures because I play a tabletop wargame. In my case, I play Warhammer. All of us want a perfect looking army, but sometimes we just want to get our minis painted just so we can go out and play with them. I lack the skill to paint miniatures at the level that Golden Demon winners paint, but I don't really need to paint at that level because I just want to have a decent looking army. If you feel the same way, then this guide is for you. I'll be painting a high elf seaguard champion in this guide, but a lot of the techniques in this tutorial are equally valid for most other infantry type models. If not...stick around, you might learn something new =) Throughout the tutorial, I will be telling you to do certain things that go against what most painting guides and tutorials tell you, but remember the aim of this tutorial is to make decent looking miniatures in a minimum amount of time. These things will have a *** next to them in the tutorial. Anyways...on to the tutorial.

First, you'll start out with a primed miniature. In the case of the high elf, I've chosen to use white primer. Normally, I would use black primer, but it takes FOREVER to paint a light color (such as white or yellow) on black primer. The elf will have a white robe, so I decided to just paint the non-robe parts black after I prime it.

***Most people would advise you to use two light coats of primer, rather than one heavy coat. A thick coat will take away some of the detail from the model. But for our purposes, one heavy coat shouldn't do too much to the detail. (Just don't overdo it.)

***Another piece of advice that most experienced painters would give you would be to thin down your paints. If you want a really smooth and perfect paint job on your mini, then that's the way to go. You should put some of your paint on your palette, and then add some water. But if you don't mind some slight imperfections in your paintjob, then you can use the paint right out of the pot if you'd like. I've done it enough so that I can actually get a pretty smooth paintjob even without thinning down the paints, so it's not a big deal. Either way, the mini should look alright from two or three feet away. But if the paint seems too thick to directly apply, then feel free to add water to it. All I'm saying is, you don't have to add water if you don't think it's necessary.

After the primer, I've painted the flesh, armor, and leather parts of the model black. If you used black primer, this step won't be necessary.

Next, we paint the flesh.

***One of the standard techniques for painting flesh would be to start off with a basecoat of Dark Flesh. Then, highlights of Dwarf Flesh, and Elf Flesh are added. But in our case, we are going to use the black as our basecoat. (This would save you time if you had primed the model black.)

Then, we paint all but the very deep crevices of the face and fingers with a flesh color. For this model, I have used the Vallejo color Beige Red.

After applying the basic flesh color, we add one more highlight to the very tip of the nose, the cheeks, chin, knuckles, and all other raised areas. For this model, I have used Elf Flesh.

Next, we paint the eyes. ***A lot of tutorials that I have read tell you to use an off-white for the eyes, but I don't see anything wrong with using plain white. So, I paint the eye socket white, and then add a dot of black. It's that easy.

Next, we work on the hair. You can drybrush it, but in the case of the high elf, the details on his hair are large enough to paint manually. Drybrushing will save you a lot of time, but for this model, I decided to paint it manually. I started off with highlighting the already black hair with snakebite leather. (*Note: I forgot to paint the hair black earlier. Just pretend that I did. Hehehe)

After the snakebite leather, I highlighted again with Vomit Brown.

Lastly, a subtle highlight of Golden Yellow.

Now, on to the armor.

***Again, you can choose to drybrush the armor, but I prefer to simply paint the armor Mythril Silver. Just a preference. (It just looks more shiny than a simple drybrush). I did however, drybrush the sword.

Next, we move on to his sleeves, pants, the gems, the rest of his armor, and runes on his sword. Luckily, all of these are the same color. (Dark Angels Green)

Now, we work on the robe. A quick, but effective way of adding depth to white cloth is to simply paint the recesses Spacewolves Grey, and keep the rest of the cloth white. In the next two pictures, I have painted what will be the recesses of his robe, Spacewolves Grey. Don't worry about being neat, because you will make it neater when you paint the white over it.

Next, you paint white on everything else. When painting the white, make all the lines neat and clean.

Now, we work on adding some depth to his sleeves and pants. We simply paint the raised areas Snot Green. (Also notice that I cleaned up the green lines on his robes that were accidentally painted over by the white paint in the last step). (I have also highlighted the lines with Snot Green) Also note that I have painted a crescent on the bottom right corner of each gem Snot Green.

I wanted part of his armor to look like it was glowing green, so I will use the same colors on that part of the armor that I use on the gems and runes. First, I highlighted the armor, runes, and gems Scorpion Green.

Then, a final highlight of white.

Now, on to the shoes, bow, and bow holder. First, a basecoat of Scorched Brown.

Then, add a highlight of Bestial Brown. I highlighted the shoes normally, but for the bow, I simply drew lines on the edges.

And now, for finishing touches. Paint the sword handle Burnished Gold, and the arrow feathers Codex Grey, and you're done.

To do the base, first you're going to paint the sides of the base whatever color you want it to be. Also...If you used white primer, make sure that you paint the edge of the top of the base also. This will ensure that no white will show at the edge of the top of the base after you put gravel/sand, (or whatever you want to use) on it. Don't worry about getting full coverage. If you primed the figure black, some black will most likely still be seen through the layer of green paint that you've just painted. That's fine because you'll paint over it again later. The whole idea is to just get the green onto the top edge of the base.

Next, you're going to base the figure like you normally do. You take some watered down PVA glue, and you brush it on. Then, you add gravel or sand or any other basing material to the figure.

After the glue has dried, you use brown ink to paint the base a dark color.

**Most people paint the gravel with paint, rather than using ink. I use ink because you can actually dip the brush in the ink pot, then simply touch the sand with the brush. The ink will then seep into the sand, without you having to brush it on. It will take longer for the ink to dry than paint, but the time you actually spend working on the figure will be significantly smaller than the time you spend if you actually paint it on.

After the ink has dried (it will take a long time) drybrush Skull White onto the sand.

Now, paint your base color (in this case, Goblin Green) onto the sides of the base.

Next, spray your preferred varnish on. Once the varnish has dried, put some super glue on parts of the base, and put static grass on the figure. After that... you're done!

Here are some pictures of a whole unit painted like this. I hope this article is of some use to you.

Night Goblin
by kebabi

Hello fellow painters!

As you probably know, there are about thousand ways to paint greenskins. But I like to think of this way as quite a unique one, or at least uncommon, involving the Camo Green line of green (of the Citadel-range of course!) and several different techniques. But it's quite easy to do, and even tough it takes some time. But with the finished process of painting, it gives a good gaming standard, in my humble opinion.

Colors:
Chaos Black

Scorched Brown

Bestial Brown

Snakebite Leather

Bubonic Brown

Bleach Bone

Skull White

Shadow Grey

Codex Grey

Camo Green

Rotting Flesh

Dark Green ink

Flesh Wash

Blood Red

Fiery Orange

Sunburst Yellow

Material:
Hobby knife

Clipper

PVA glue

Plastic glue

Sand

Pebbles/rocks

Static grass

4 kinds of brushes (a standard, a detail, a old worn out and a small cheap old brush)

Preparation:
I try and do my minis in large groups, because it goes a lot faster that way (and when painting several dozen goblins it's a relief to know that it could have taken twice the time if you'd painted them individually).

So I start by removing the parts required to make the goblins from the sprue, using a clipper (could easily be substituted by a knife, but it's faster with a clipper and you need to spend less time cleaning up the parts later on). The shields can stay on the sprue, but the part of the sprue containing the shields and the moons (which I've used here) is removed from the main part, separately (so you've got shields and icons four by four, easier to spray and paint later on). I've stayed away from the spear arm holding his spear in a awkward position, looks too weird for me. Next I clean the parts using a knife. A file will work as well, but I find the knife to be more effective. Take off flash and moldlines by running the blade across the surface gently, I've

also removed some of the skulls on the hoods and also the moons (just don't think they fit).

Then glue the parts together and put them on their bases (still, leave the shields for later), simple as that!

Now time for the bases. First I've take some pebbles or small rocks from the garden (economical, wouldn't you say?) and put on about every fifth goblin, attached with the PVA glue (a.k.a. Wood glue), this is applied with a cheap and horrible brush. Then, once it dried (takes about 30 minutes for it to really fit) I've painted the entire base (except the where the feet and rock are) with PVA glue (a little water helps to get a good consistence), using the same brush as for the pebbles. These are then, right after painted, dipped in a bag of sand (regular sand, I bought mine for about 1 buck at a pet shop), cover the base then lifted up and shaken a bit. Now there preparations are done, just left to spray it Chaos black.

Step 1. Started off by painting the base. Begin with a overbrush with Scorched Brown (pretty much paint on the brush, but gently stroked across the surface), followed by a lesser overbrush of Bestial Brown and lastly a drybrush of Bleach Bone. Make sure there is little paint on the brush and slight strokes, as the color should only be on the highest parts of the sand. Next is to paint black on the skin, those parts where the spraying missed. This is done with Chaos black and water mixed with it. Note that I only painted the skin-parts black, the rest of the mini still grey waits for later. This is one of the most time-consuming parts of the painting-process.

Step 2. All skin parts are painted Camo-green, with two layers and mixed with some water, so the skin doesn't appear thick once finished.

Step 3. Now the mini is given a wash of Dark Green ink. The wash is approximately two parts Dark Green ink and two to three parts water. This will make the skin much darker, and a bit shiny, but it'll look better later.

Step 4. I've gone about highlighting these Goblins using the drybrushning-technique (wiping off most of the paint on some paper), this doesn't give the mini as clean finish as layering does, but it's faster and easier (since it picks out the higher parts of the skin), which is good when painting a greenskin horde. This is done with a older brush, as it wear out the brush quickly.

Step 5. After the skin has been brought back to it's base color, but with the deepest parts darker and overall a much more standard-green tone to it, I've done the same as the previous step, drybrushed. But this time with Rotting Flesh. This gives the goblin a pale skin-tone, which suits goblins.

Step 6. With the skin done I paint the parts left, which isn't skin or the base, with a watered down Chaos black. It's messy to drybrush so the areas around the skin gets green, and when repainting these parts it's just as easy to add painting black on those parts were the spray missed. With the repainting done it's time for cloaks. This is simply extreme highlight (a light color over a dark, only painted on the highest parts) of Shadow Grey. As the goblins are good models you

can easily make out these parts. Also, the shoes, spear and the type of leather bracelets that are a bit thicker are painted Scorched Brown. The tips of the spears are also painted now, drybrushed with a light layer of boltgun metal.

Step 7. All remaining is the finish touches. Using a detail brush I painted the teeth Bleach Bone and the eyes Fiery Orange. The spear (non-metal part) has then been drybrushed with Snakebite leather, to make it look a bit more alive. The tongues and gums are painted Blood Red, then painted with a layer of (non-watered) Flesh Wash, that makes it more glossy and gives it depth. Some few parts are bone (like skulls on hoods or bones sticking through their heads), these were painted Scorched

Brown, then highlighted with Bestial Brown, then Snakebite Leather, Bubonic Brown and lastly Bleach Bone (might seem like a lot, but it goes pretty fast with only small surfaces to cover). Then the banding on arms, spears and stitches on hoods/robes are painted Bestial Brown and lastly the rocks are drybrushed Codex Grey. It's a good thing if the rocks are a bit brown under the grey (from the first step), this will give them a cooler appearance and it looks more natural then when just being plain grey. That's basically it, but what's missing is shields, which is split into two parts and those are...

Shields. The sprue is made so that the four shields are still attached to each other, same goes for icons. That way it is easier to spray them and to paint them.

I've started by painting black where the spray missed, then the nails with boltgun metal. This makes a great contrast towards the black of the shield, yet very simple. The back of the shield is drybrushed Bestial Brown. This surface will be shown very rarely, so might as well make it easy to paint.

Symbol. These were sprayed with a Skull White undercoat, unlike the rest of the mini. As these will be yellow it's better to spray it white, it's easier to apply yellow or bright colors. After sprayed I did a layer of watered down Skull White

coat (about 50-50 water and white), and once dry a coat of very slightly watered down Flesh Wash. This should become pretty dark to give the symbol depth. The second symbol on the picture is a highlight with Bubonic Brown.

A great color to build up to either yellow or bones. Same as the goblin, these are neat sculpts, so you can clearly see which part to stay out of. Third is a highlight of Sunburst Yellow, leaving a rim of Bubonic Brown next to the deeper parts. Now the teeth is painted Bleach Bone and the eyes Blood Red. To finish it off the eyes are highlighted (leaving a little red left) with Fiery Orange and the boils (the parts that stand out) are carefully drybrushed lightly with Skull White, to pick them out.

Finished! The shield and icons are removed from their sprues, the edges where they were attached to the sprues are smoothed down and repainted yellow/ black. Then they're glued together and glued to the fist of the goblin.

Lastly the base get some PVA glue and patches of static-grass.

Warrior of Minas Tirith
by Tim Cook

"tidoco2222"

I'd like to say a couple of things first before I get under way.

Firstly I'm going to start with the basics of how I hold the mini for painting and each step will have an image to show, hopefully the images will show each stage clearly enough. I think this will be of some use to some of you.

Secondly I will not be going through the basing of the miniature as this is going to end up on a diorama suffice to say that your usual basing methods are perfectly adequate.

Thirdly this guide hopefully will be of some use to painters of all levels and even more hopefully you will all get something out of it.

Ok here we go, First up is the image of the items needed for the project,

Here is a list off the paints used in this stage of the project.

- Skull White

- Chaos Black

- Shadow Grey

- Codex Grey

- Ghostly Grey

- Boltgun Metal

- Chainmail

- Mithril Silver

- Black Ink

- Red Gore

- Elf Flesh

- Dark Flesh

- Dwarf Flesh

- Testors Dullcoat

Add to this the usual selection of paint brushes sizes 3/0, 4/0 and 5/0 and we are away. This mini is intended for a diorama and therefore the painting will be aimed at setting that standard, also it will not be attached to the slotta base when finished so it is only temporarily fixed on one to make holding it easier.

I've used a 35mm film case as the tool for actually holding the mini whilst painting and then placed blue tack on top and then pressed the slotta base and mini into the blue tack. If it is left for a while the tack will harden a little and will amply hold the mini. When it comes to removing the mini it is just a case of carefully taking it off the blue tack which is a relatively simple task.

Next up I undercoat the mini black I usually brush undercoat the LOTR minis especially the plastics as this gives more control over the amount of paint being applied and lessens the chance of flooding out the detail.

Now the mini is ready for painting proper so to speak. The face is the first detail to be tackled. Firstly basecoat the face with Ghostly Grey this covers black better than white and gives a good base for the skin tone, neatness is not necessary at this time.

Then a 50/50 mix of Elf Flesh and Dwarf Flesh is applied, it may take two coats to get coverage, it should be noted at this time that the paints are kept thin (about the consistency of milk) this gives more control and a smoother finish.

A wash of Dwarf Flesh is applied next. This needs to be very thin so as to flow into the recesses of the face and making the facial detail easier to pick out in the next step.

Deep shadows are created in the eye sockets and mouth and under the bottom lip with Dark Flesh, then highlights are created using Elf Flesh with a small amount of Dwarf Flesh mixed in. Because very little of the face is visible smooth blending is not an issue here.

Now we retouch the areas caught by the skintones with black and then apply Boltgun Metal to the Helmet and Breastplate and Back Plate, I like to break the armor down into sections so I can watch the development and then if I don't like what I see I have less to alter later. I find it also helps to keep my concentration better and thus I tend not to rush what I am doing.

Next up is the shading coat, I use a wash of black ink for this being careful when shading the helmet not to catch the face. The same thing can be achieved by applying a very thin wash of black paint this has the advantage of having no shine when dry but as I am going to matt varnish later the ink does fine.

Now the mini is starting to take shape. This system would quite easily work with painting 4 or 5 models at a time as well as singularly which is the way I normally paint. The next step is to start and highlight the metals, this should be treated exactly the same as highlighting normal colors working from the darker shade to the light, also (and this cannot be stressed enough) just like working with normal colors but even more so with metallic paints, the paint needs to be thin otherwise all you'll end up with is a gloopy looking mess. Thinning metallic paint will make the metal flakes in the paint flow out more evenly and will give a much smoother finish.

In the next three steps the pictures show how the metallic takes shape, firstly we go back over the areas if the armor with Boltgun Metal being careful to leave the black ink showing in the deepest recesses, the embossed Tree of the King on the breastplate is not touched at this time.

Then Chainmail is applied for the first highlight working more towards the higher points of the model's armor, again the Tree of the King on the breastplate is not touched.

Lastly Mithril Silver is applied sparingly to the highest points and edges of the armor. Now we can very carefully do the embossed tree, for this I use a technique called over brushing, this is similar to dry brushing but when taking the paint off the brush with the tissue you need to leave a little more on than you do with dry brushing. Then very carefully and in ONE direction very lightly draw the brush over the tree this will leave the paint only on the tree and because you have not highlighted it in the previous stages will make it stand out more.

The rest of the armor is painted in exactly the same way and when complete looks like this.

Note also that the details left to paint like the belt straps, sword sheath, various areas of clothing and shield and boot straps have been re-picked out in black.

Next up we are going to tackle the areas of clothing, this is possibly one of the hardest colors (black that is) to highlight convincingly and to be honest if it goes right it is usually more luck than judgment. The technique I use is layering, I use lots of layers of very thin paint to "hopefully" get the effect I'm looking for. As with any painting style the paint needs to be thin about the consistency of milk maybe even a little thinner. The opacity of the paint when thin helps to make the transition in color a lot smoother.

The colors we will be using for this are Chaos Black "obviously" and Codex Grey this will be added in very small amounts working up to pure codex grey for the final highlight. I won't go into quantities as it is best to go for trial and error on this just suffice to say that you only need a very small amount of grey in each stage obviously as you progress from the deepest recesses to the highest points of the folds and ridges the amount of grey to black will alter being pure Codex Grey at the final stage. If it ends up looking to grey do not worry as we can remedy this (to a certain degree) with the final stage of the clothing highlights but more on that later. In the following images you will see the transition in the highlights (hopefully).

OK so now we have gotten our highlights where we want them, I always think that my highlights look too grey at this stage so I need to tone them down. To do this I use very thin glazes of black paint. The way I mix all my glazes is to use an eye dropper (you can get these from most chemists easy enough) and a size 3/0 brush.

Firstly take a small amount of black paint just a brush tips worth and place it on your palette, then take your eye dropper and add one drop of water to the paint and mix well in.

What you have in effect is dirty water, then take your brush try not to over load it with the mix and paint on this mix, you will not see any significant change straight away as it will take a few coverings to make a difference but it will make a difference after a few coats.

Lastly take a fine brush like a 4/0 and paint thinned down black paint into the deepest areas of the

folds, this is known as deep shading. Now you should have a nice looking highlighted black for the clothing, as with anything practice will make perfect. At this stage the boots gloves and inside of the shield have been given a basecoat of Scorched Brown (also the hair can be painted as well if you like) as well.

The next stage is to mix a 70/30 mix of Scorched Brown and Chaos Black and thin it well down, apply this to the boots and gloves and also the hair if you have done it this color.

Take the same shading mix and very carefully paint thin lines down the length of the inside of the shield (try to keep the lines as straight as you can and also try to keep the distance apart as even as you can), this is to simulate the planking.

Next highlight the gloves, boots and hair with pure Scorched Brown, then again with

Scorched Brown and Bestial Brown increasing towards pure Bestial Brown and finally adding pure Snakebite Leather to the highest parts of the hair and fingers of the gloves. Also if you like you can add graining to the inside of the shield using a very fine brush (5/0) with pure Bestial Brown and then pure Snakebite Leather.

Now we paint the sword blade the edge of the shield and the shield design the metals are done exactly the same as described earlier the only difference being the shield design which is very carefully picked out with Mithril Silver. If any mistakes are made it can be easily tidied up with Chaos Black.

Now edge all the straps and belt with pure Shadow Grey with a very fine brush, again any mistakes can be touched up with Chaos Black at this time the sword hilt can now be painted first with a base of Tin Bitz, then with a highlight of Shining Gold, and then a final highlight of Shining Gold with a little Mithril Silver added to give the impression of tarnishing. Also at this stage you can add the teeth to the top of the mouth with a very thin line of Skull White and also paint the bottom lip with a mix of Elf Flesh and Red Gore give it a couple of coats of matt varnish and there you have your Warrior of Minas Tirith.

Now go and base your miniature in what ever way seems fit to you. I hope that this is of some use to you all.

Last Alliance Elf

by Tim Cook

"tidoco2222"

Following on from the article I wrote on painting a Gondorian warrior, here is my take on painting a Last Alliance Elf Warrior, the model used is a plastic one from the Warriors Of Middle Earth box. This article will go right through to the finished based model. Once again it is my hope that some of you will get some use from this. The model is painted to display standard and would not therefore be a useful way of painting models for use in an army unless you are totally mad or have more time than sense. Anyway here we go.

GW Paints Used

- Chaos Black

- Skull White

- Elf Flesh

- Dwarf Flesh

- Dark Flesh

- Tanned Flesh

- Midnight Blue

- Regal Blue

- Ultramarine Blue

- Lightning Blue

- Catachan Green

- Ghostley Grey

- Fortress Grey

- Codex Grey

- Scorched Brown

- Bestial Brown

- Snakebite Leather

- Dark Angels Green

- Snot Green

- Scorpion Green

- Bilious Green

- Tin Bitz

- Brazen Brass

- Dwarf Bronze

- Shining Gold

- Boltgun Metal

- Chainmail

- Mithril Silver

- Testors Dullcoat Matt Varnish

The first step is two clean and temporarily base the model in a slotta base, then undercoat it with Chaos Black, once dry then apply thin coats of Ghostly Grey to the face, don't worry about neatness at this time as this will be touched up later. Also drybrush the areas that are meant to be chainmail first in Chainmail, then again lightly with Mithril Silver.

Then a coat of Elf Flesh is applied, remember keeping your paints thin (about the consistency of milk) will yield much smoother results. It may take a couple of coats of this color to get a good solid covering.

Next step is to shade the face, to do this we Dwarf Flesh with a little Tanned Flesh mixed in and thinned right down to about the consistency of Ink and then applied to the face. Once Dry you can add the eyes if you wish, I find it best to do this at this stage as any mistakes can easily be put right with the highlight stages.

Now it is time to start the first highlights using a 50/50 mix of Dwarf Flesh/Elf Flesh and apply to the face, any mistakes around the eyes can be tidied up now as well.

Then a final highlight of Elf flesh on the high points of the face are added. If you make any mistakes it is easy to shade down again and redo it. It took me a few goes to get it right.

The next step is to start the skirt, this is given a basecoat of Ultramarine Blue, this will take two or three coats to get a good solid covering.

Now apply thinned down Regal Blue as a shading wash, be careful not to put too much on or it will pool and end up making the skirt look blotchy. It is best to add shade washes more like a painted layer as it gives much more controlled shades.

Finally in the deepest recesses paint in a thinned mix of Regal Blue and Midnight Blue this gives the impression of the deepest shadows.

Now the shading is done we can start the highlights. first we apply a coat of Regal blue/Ultramarine Blue about 50/50 mix to the skirt leaving the deepest areas in the shade color.

Then we apply pure Ultramarine Blue to the raised areas of the skirt being careful to leave some of the previous highlight visible.

The next high light stage is done with Ultramarine Blue/ Lightning Blue but only mixing in a little Lightning Blue with each stage. The highlights should be added towards the highest parts of the folds in the skirt and as before we are leaving some of the previous highlight showing.

The skirt now finished we turn to the armor of the chest, thighs and helmet. This is given a base coat of Tin Bitz, again keep the metal paint thinned down this is especially important when using metallic paint though you don't need to go as thin as you do with ordinary colors.

Once this has dried the next stage is to add some Dwarf Bronze, I'm leaving the helmet at this stage as this will receive a slightly different set of stages to the rest of the armor.

Next step is to apply Shining Gold to the armor again leaving a little of the previous stage showing. Note as well that I have left a definitive black line between the segments of the armor showing. Don't worry if you happen to go over as you can always reline it later.

Shining Gold with a touch of Mithril silver is the next step, this gives a tarnished, worn look to the armor segments.

Finally the armor is given touches of pure Mithril Silver on some of the very edges.

Moving right along we now start the cloak which is given a base coat of Catachan Green, then it has been shaded with Catachan Green mixed with Chaos Black. See also that the helmet has now been painted, this was done in the same way as the armor but there was an intermediate stage of Brazen Brass before applying the Dwarf Bronze. This was done to help coverage as it is a larger area.

Now we go back over the cloak with Catachan Green leaving the shade in the deeper folds of the cloak, this same technique is applied to the sash around the waist and shoulders as this all forms part of the cloak.

Highlighting is continued with Catachan Green, but now Fortress Grey is being added to it to give a more drab appearance, I've found this works better than adding White as that tends to make the highlights more grainy looking.

A final highlight is applied to the highest parts of the folds with the Catachan Green/Fortress Grey mix adding a little more Fortress Grey this time.

Now we can start to paint what is left of the armor which is done exactly as described before, the only difference is we miss the Dwarf Bronze stage out as areas this small really do not need so many stages.

The gloves and boots are given a base coat of Scorched Brown, whilst the gold hilt of the sword is painted and the blade is given a basecoat of Boltgun Metal. The gold is painted as before.

The gloves and boots are then shaded with a Scorched Brown/Chaos Black mix and then highlighted up with Scorched Brown, then Bestial Brown and finally a touch of Snakebite Leather on the high spots. The sword blade is highlighted with Chainmail and then Mithril Silver and a black line painted along the blade to give the impression of shadow along the casting. The gold plates on the gloves and the pommel of the sword are painted again being the same as before and finally the handle of the sword is painted Scorched Brown. Now the mini is complete and we can turn to the base.

Basing The Miniature

Materials required: Round Slotta Base, Cork Tile Pieces, Sand, PVA Glue.

Firstly take your base and attatch torn up pieces of Cork tile to represent rock, when that is dry apply PVA to the rest of the base and add sand. Let the PVA dry a little and then gently add watered down PVA to the sand and allow to dry completely. The watered down PVA will dry and seal the sand solidly onto the base.

Next undercoat the base Chaos Black, allow to dry and then paint the cork Codex Grey and when dry apply a thinned down Codex Grey/Chaos Black mix as a shading wash.

Drybrush the cork first with Codex Grey and then with Fortress Grey and lastly with Skull White.

Undercoat the sand with Dark Angels Green, and then dybrush with Snot Green, Scorpion Green and then very lightly with Bilious Green.

Finally add the miniature to the base and there you have it. One last alliance Elf. As previously mentioned not a way to paint for an army but if you want a display piece or a mini for a diorama then ideal.

Kelt Fianna

by asphyx, photos by CENTINEX

Used paints

GW Skull White Undercoat	GW Enchanted Blue
GW Bestial Brown	GW Fiery Orange
GW Bleached Bone	GW Red Gore
GW Bubonic Brown	GW Scorched Brown
GW Chaos Black	GW Skull White
GW Codex Grey	GW Snakebite Leather
GW Dwarf Flesh	Prince August Marron Orange 981
GW Elf Flesh	Prince August Marron Rouge 982

Step 1 : Undercoat

The model was undercoated with a Skull White Citadel Spray primer in two passes.

Step 2 : Undercoat

Washes of diluted Skull White were used to get a clean white undercoat.

Step 3 : Skin base

Skin was basecoated with an equal mix of Bestial Brown and Dwarf Flesh.

Step 4 : Skin base

Skin was highlighted to Dwarf Flesh by using successive mixes of Bestial Brown and Dwarf Flesh.

Step 5 : Skin highlight

Skin was highlighted using successive mixes of Dwarf Flesh and Elf Flesh.

Step 6 : Basecoating

All gold parts were painted in Bubonic Brown. Boots were painted in Scorched Brown, and laces in Snakebite Leather. Armor and braces were colored with Enchanted Blue.

Step 7 : Boots highlight

Boots were highlighted with successive mixes of Scorched Brown and Bleached Bone.

Step 8 : Armor highlight

Armor and braces were highlighted with successive mixes of Enchanted Blue and Skull White. The lightest color is about 3/4 of Skull White for 1/4 of Enchanted Blue. Pure Enchanted Blue was used as lining.

Step 9 : Sword

The sword grip was first painted with a mix of 3/4 of Red Gore with 1/4 of Chaos Black. It was then highlighted with pure Red Gore, and finally with successive mixes of Read Gore and Bleached Bone.

The sword blade was basecoated with Codex Grey, and highlighted with mixes of Codex Grey and Skull White. Light reflects were made using a color mixed from 9/10 of Skull White and 1/10 of Codex Grey. Shades were made using mixes of Codex Grey and Chaos Black.

Bracers located on the arms were painted using the same color scheme.

Step 10 : Hairs & Clothes
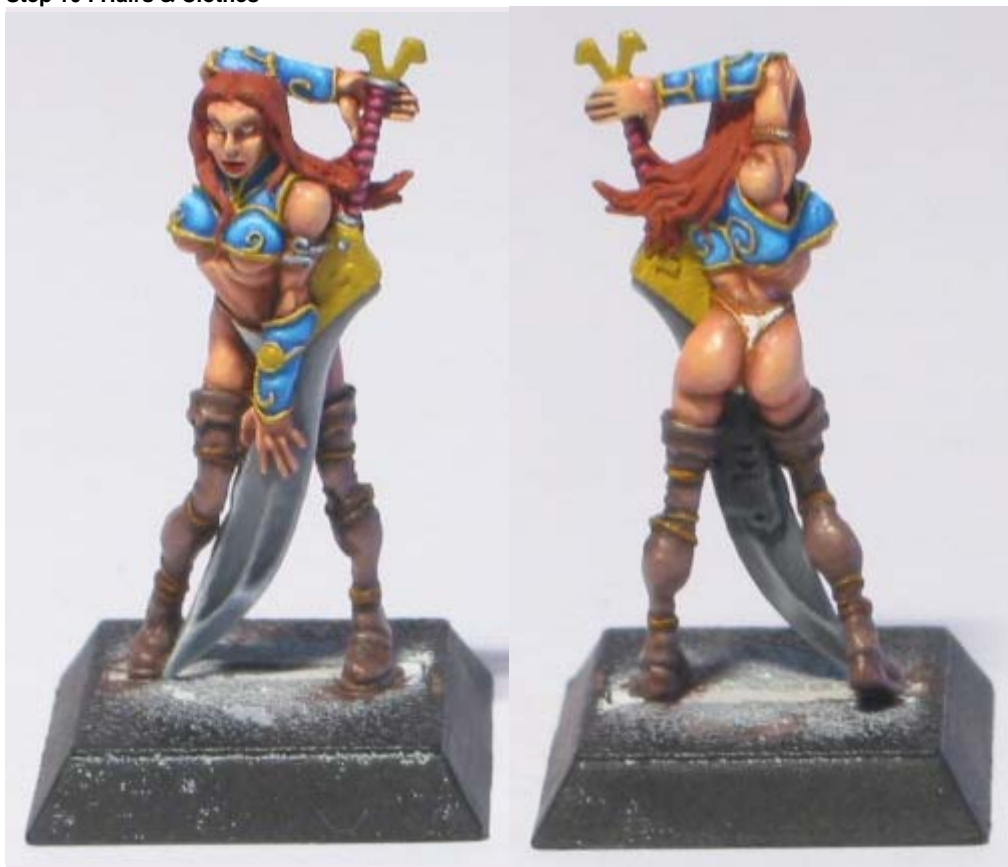
Hairs were basecoated with a mix of 1/2 of PA981 and 1/2 of PA982 (This color mix was stolen from Bragon). Rear clothes were painted in Chaos Black and highlighted with mixes of Chaos Black and Bleached Bone.

Step 11 : Hairs highlight

Hairs were highlighted with successive mixes of the base color with Bleached Bone.

Step 12 : Gold

Gold parts were highlighted with successive mixes of Bubonic Brown and Skull White. Shading was made with a mix of Bubonic Brown and Chaos Black.

Step 13 : Final step

Gem was painted in Chaos Black, then highlighted with a mix of Chaos Black and Red Gore. Pure Red Gore was used in the center, then a mix of Fiery Orange and Red Gore was used to highlight the upper corner. Pure Fiery Orange and pure Skull White were painted on the top of the gem to draw light reflect.

Laces were highlighted with successive mixes of Snakebite Leather and Bleached Bone.

Scorched Brown was used to draw eyebrows and eyes.

Step 13 : Basing

Sand was glued on the base using PVA. It was first painted with Brown Ink, then drybrushed with Snakebite Leather. A last drybrush of Bleached Bone was used to hilghlight the sand.

Flock was glued on the painted sand using PVA.

Base sides were painted with two coat of Goblin Green.

Two coats of GW Purity Seal was used to protect the model against battlefield damages.

Aragorn

by Håkan Ek

"bakalla"

There are so many ways to go about painting a miniature. Depending on the quality you want and how much time you're willing to put into each miniature, it can be a widely different experience from miniature to miniature. I'm going to do my best to describe the techniques that I use when I want to create when I have "unlimited" time and I want to do a miniature to the very top of my skills. My skills are of course limited, as everybody else's 😊I have been painting for a year now, and this is what I have learnt! Our little guinea pig for today is Aragorn from Games Workshop's box of "the fellowship" from Lord of the rings.

I'm going to skip the first few, basic steps. These steps include:

- Get your miniature out of it's package! 😁

- Clean your miniature from flash and other flaws.

- Prime it WHITE! Yes, white - the color in which all miniatures should be primed 😁

- Put it on its base and put sand (or flock or whatever else you fancy) on the base, using PVA glue.

Now you'll have a clean miniature, primed white, standing on white sand. Not very appealing to the eyes, is it? But appealing to your creative side, hopefully, yes? Seeing cleaned and primed miniatures makes my brush-fingers twitch with excitement, I can't wait to get started, so on we go to the first actual step in this painting guide.

Step #1 - no fancy stuff here. Just put on all the primary colors like this. Any colors you like is fine, but the more thought you put behind the choice of colors, the better it will of course look in the end. I've chosen browns, greens and reds here, because this is after all Aragorn - the ranger. He's used to running around in the forest and hunting and hiding (or whatever Aragorn likes to do in his spare time). I think it's generally a good idea to keep the colors together somehow. I don't like to use 10 different colors in the same model. Using different shades of brown and green works well for this kind of model.

Step #2 - I have used three colors of washes here; dark brown, dark green and black. I have applied these washes all over the model. Dark green for the cloak and green bits, black for the brown areas and brown wash for the skin and on the red-brown. I have not used any inks for these washes. I've just used normal colors, thinned with water and acrylics flow improver. The amount of water and flow improver you want to add, varies depending on how deep you want the shadows to be. I have used **very thin** washes in several layers, rather than one less thin wash.

Step #3 - this is the second phase of shading. I've let the first layer of washes dry and then applied further washes. I then let those layers dry also, and used the black wash over the cloak as well as on the skin, to really get deep shades all over the model. The black wash is more thinned than the green and brown washes, to let the black shades sink further into all recesses.

Step #4 - shading is finished now, so I go on to highlighting. I think it's always a good idea to add some drying retarder to your paint when you're doing highlights, because **it makes blending MUCH easier!** The drying retarder makes the color more transparent and the highlights will become less harsh. I start by highlighting the face, with the original skin tone that I used for the base layer. I then highlight another 2 layers, with a few drops of skull white added to the mix.

Step #5 - a good ranger needs eyes, right? The entire face and the eyes in particular are extremely important for the all over appearance of your model, so you want to **avoid any major mistakes here!** Painting eyes can be very tricky and requires a good brush. I painted small, white slits to begin with. I then painted the pupils with a very, very dark blue color. This model is too small to paint any more detailed eyes than that, I believe. I also gave him eye brows and highlighted his bedroll-like thing that he's got on his back, as well as the cloth that sticks out from his quiver. Again, I highlighted these green areas by just adding white to the original color.

Step #6 - this is where I begin to highlight his outer cloak. The original color for this cloak was "Russian uniform" which is a Vallejo model color that is extremely similar to GW's "catachan green". I had to add some black to the "Russian uniform" before I started to highlight this cloak, because the washes I applied earlier made it rather dark. After the first layer of highlighting, I added some bright green color and a drop of yellow, to make it brighter. I then applied a second layer of highlights.

Step #7 - more highlighting on the outer cloak is done here. I add yellow to the green mix and I also add more drying retarder to the mix, to make sure that the highlights are applied softly and smoothly. **You don't want to see the edges between each highlight, ideally.** Dry retarder makes this much easier to achieve. After two more layers of highlighting on the cloak, I decide not to highlight it further. He's a ranger after all, he won't be running around in a shiny, neon-green cloak. So I want to keep it dark like this.

Step #8 - further highlighting. I wanted his leather jacket that he's got underneath his cloak to shine slightly red. I started by highlighting using Vallejo Game Color "dark fleshtone", which was the color that I used for the base layer before I shaded it. After the first layer of highlighting, I added "blood red" to the mix, to give it a very red shine. I highlighted a third time after that, with almost pure "blood red". Note that the bow on his back is the same color, so I highlighted that in pretty much the same manner. I've also done his boots, hair and quiver here. They're all dark brown (Vallejo game color "scorched brown") so it's pretty straight forward how to highlight it. Three layers of highlighting, adding brighter and brighter browns into the mix as you go. When highlighting hair, it's best if you can paint each strand of hair individually.

Step #9 - I fixed some details here, like the little strings he's got all over that keeps his equipment together. I also highlighted the sword scabbard he's got sticking out from his cloak. I shaded the stones

he's standing on with several layers of black washes. I've started to paint the edges of the base with "scorched brown" because I think a brown edge looks nice.

Step #10 - long and hard work, but it's finally done! 😁I have added static grass to the base and drybrushed the stones with gray and then white. I also made sure the edges of the base had a good, solid layer of brown on it.

I haven't done any NMM on this model, as you've probably noticed. I haven't highlighted the metals at all, either. I just base coated the metal areas with Boltgun metal and then shaded it with black washes in several layers. It's hard to say which looks better, good metals or good NMM. I think that this looks good though. I think it's extremely hard to highlight with metal colors, however, so I didn't do that. I think it's a good and fast way to paint metal to do it like this. Base layer with a metal color, then shade it with thinned black 😊

Bright Chaos Warrior
by Takahiro Hashinaka

"Qiao-Zhong"

I'm often asked how I paint my miniatures, so I wrote this article to briefly give you an idea how I go about it. Generally, it usually takes more than 20 hours to achieve the result I want. If you're looking for a quick way to paint miniatures, then I can't recommend this to you.

All paints are GW Citadel Colors.

Preparation

Before painting, I spray white primer even over the figure, followed by a light spray of Gunze Limited Mr. Super Clear, which is a matt varnish. I find this improves the binding of color to the primer later.

When the primer layer is dry, I mask of the edges of the base, followed by filling the hollow plastic slotta base with epoxy putty (ie Milliput/Kneadatite). I try to position the putty to compensate for any unbalance in the centre of gravity of the model.

I've chosen for this article a Warhammer Fantasy Chaos Warrior, mainly because it's fairly easy to obtain anywhere. Because the model comes in three parts (the whole right arm, the main body and the left hand), I temporarily assemble the model with a bit of Super Glue, drilling and pinning the various parts with a pin vice and brass wire. The right arm is not stock, it's swapped in from another model (it was missing from the blister!

After the primer dries, if there's any exposed metal, I brush on some Smelly Primer to cover it up. It's the same shade white, so there's no visible difference.

Black lining

Right, time to start. But where? I always start with the face.

First, I use a process called Black Lining. This is different from inkwashing in that you only apply the dark paint to areas of shade so as to make transitions prominent. I used a Woody Fit from Bunseido, a 10/0 camel hair brush and in my opinion is the best brush for precision work for anything under 600 Yen. Even though cheaper brushes may be had here for around 200 Yen, they don't last beyond one model; the current brush I'm using here has been used on 5.

I used Imperial Purple as a foundation color for the chainmail, instead of the normal black/silver drybrush.

Layering

I painted the helmet using the Near Metal Metallic (NMM) style. The transition is Chaos Black->Shadow Grey -> Space Wolves Grey. First, I mixed 1 part Shadow Grey to Chaos Black for the base coat, thinning the overall mix by a roughly equal volume of water. At this stage, any mistakes are easily corrected by immediately daubing with water, there's no real damage done since we've just begun.

Next we add a bit more Shadow Grey, just dipping about 1/3 of the brush's bristles in, then dipping it into the diluted Shadow Grey/Chaos Black mix, gradually painting on highlights until the lightest point in the middle of the helmet. The compound mixture is regularly diluted with a drop or two of water, since it'll be drying on your palette while you're doing this. **The trick to smooth layering is to always make sure that the color mix is dilute enough**. There are 4 layers here, with the darkest being Shadow Grey only. Finally the last highlight is added with Space Wolves Grey mixed with a bit of white, carefully painted down the centre of the helmet.

I do the horns next, starting with a black foundation. Next is the first highlight of Black + Bestial Brown + Rotting Flesh, gradually lightening up the layers by mixing in more Rotting Flesh. There are fewer layers here to create a greater contrast on the sharp edges of the spikes and ridges of the horns.

The mask was painted with Snakebite Leather (and conveniently covering up any accidental paint). From a base of Snakebite Leather + Leprous Brown, small amounts of Badmoon Yellow were added. Next a layer of Leprous Brown + Badmoon Yellow was applied with a final layer of Badmoon Yellow + White for the hard edges and raised areas.
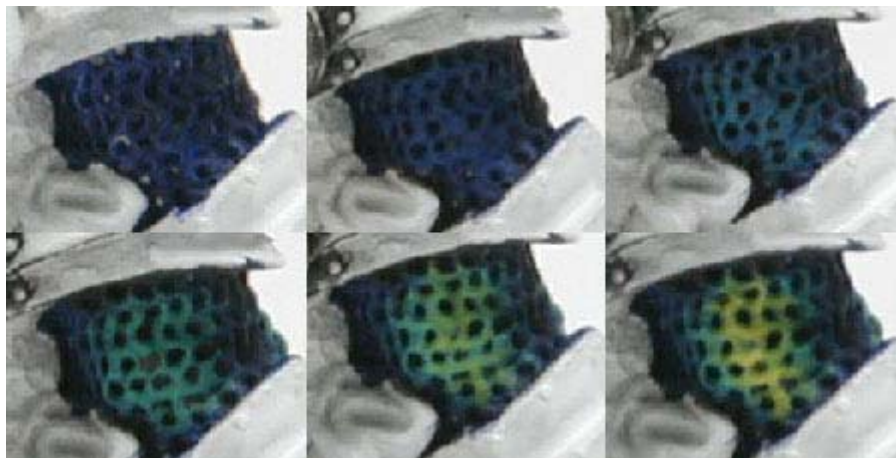
Next is the chainmail. First comes a base of Nauseating Blue. Hawk Turquoise is mixed in, with Hawk Turquoise alone eventually. This is followed by Badmoon Yellow, Jade Green and finally Vile Green with a bit of white for the final highlight.

The midsection of the model. Less time is spent here than the face since relatively less attention is given to this area by a viewer. Starting from an inked blackline, Scab Red forms the foundation, highlighted with Blood Red, and finally with a small quantity of Blood Red and Badmoon Yellow. I chose to paint the pants as silk, so used White mixed with Blood Red as the final highlight rather than Badmoon Yellow to simulate the tightness of the material on muscle.

The embossed Chaos symbol is given a Snakebite Leather foundation, with a Leprous Brown + Badmoon Yellow highlight, with a little white mixed in for the edges. Note that for fine detail like this, if a metallic paint is used instead, precision is necessary since the metallic flakes in the paint can make the surface quite rough, painting over a mistake may not sufficiently smooth it over.

The shoulder strap is painted with a base of Bestial Brown, then Vermin Brown and Fiery Orange is added to the highlights.

The belt and shoulder pad is painted in a similar way to the helmet, but this time with a bit of Ultramarines Blue added to the Shadow Grey + Spacewolves Grey mix. For the shoulderpad, more Spacewolves Grey is added to areas where light would theoretically fall. Repeated over many layers, this creates an effect of "shining" plates.

The scrolls on the belt are given a base of Bubonic Brown Leprous Brown as a foundation, mixed with Rotting Flesh for the highlights, finally ending with Bronzed Flesh with a bit of white for the scroll on the right. Since they're not hard, shiny objects, there's no need to highlight edges too strongly.

Liche Purple mixed up with Tentacle Pink goes on the tabard.

How do you highlight black? I usually use Shadow Grey, but since it's already been used on the armor I'll try something else, in this case Jade Green, with about 4 to 5 layers, slightly more than normal. The leather decoration on the boots is painted with a Snakebite Leather worked up with Badmoon Yellow, with the edges highlighted additionally with a bit of white.

The skull amulet on the shoulder pad is painted with a foundation of Snakebite Leather worked up with Bronzed Flesh, and finally with White mixed in.

This is more or less the last bit, the swords. As you can see from the photograph, the right hand sword is painted with a foundation of black, worked up with Shadow Grey and white, with a final sheen on the tip of the sword painted in Tentacle Pink.

Finally, the left sword. First the rune of the sword is painted with the Ultramarine Blue and highlighted with IceBlue mixed in, with a final Ice Blue highlight. Because this sword is parallel, close attention is paid to the direction of the light spot.

Since the sword in the right hand is emphasized, and also not to have too many color schemes repeated, this sword is painted Black and layered up with Ultramarine Blue, then Space Wolves Grey.

We're nearly done. Just going over the various raised rivets, the basing and spraying of the protective coat. My way of painting mostly requires time and patience. It's not really very difficult, and I invite you to try it, the final results are very rewarding.

Mech Pilot
by Cyril, translation by Alexis

1- Here's the master of the mini, 100 % fimo (here in a champagne color) on a base of brass wire recovered with a thin layer of green stuff, which explains the green stains (the pigments of the green stuff migrate in the Fimo when backed) the sculpture of the mini will be the detailed in a future article.

2- The mini is made of resin, cast by me, it as been washed with soppy water, then like usual, undercoated with a citadel spray on with primer in 3 successive layer, I let the mini dry for about 5minutes in between each layer.
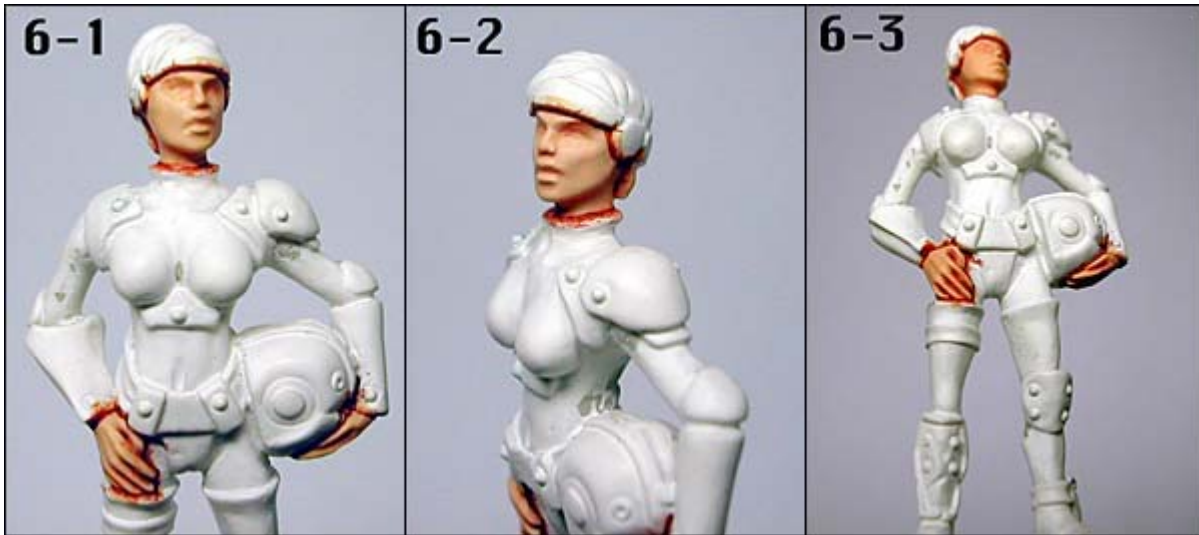

The figure with undercoat is ready to receive the colors
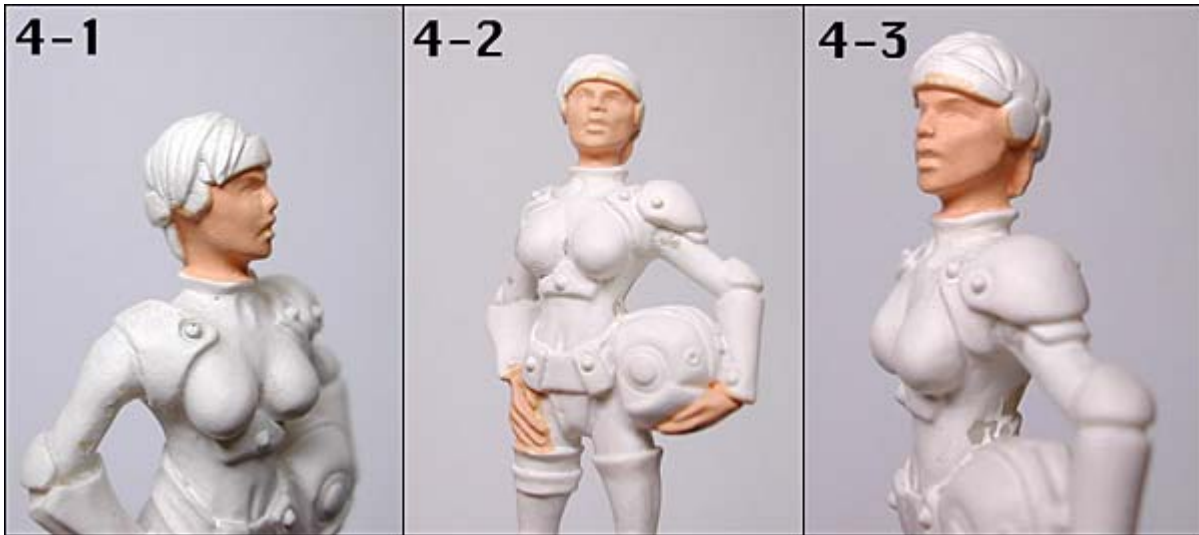
4- the skin is done with a basecoat of elf flesh.

5- The first shadings are done with some dwarf flesh added to the elf flesh. I shade the shadow of the eyes (lightly), under the jaw, and the nape of the neck.

6- I then add some dark flesh to the preceding mix, and I outline the parts that are in contact with other elements of the minis, under the helmet, between the fingers, around the neck, it's a very light outlining.

7- The highlights are simply done by adding white to the elf flesh, you have to mark the parts that receive the most light, the top of the cheeks, the bone of the nose, the jaw, and the fingers.
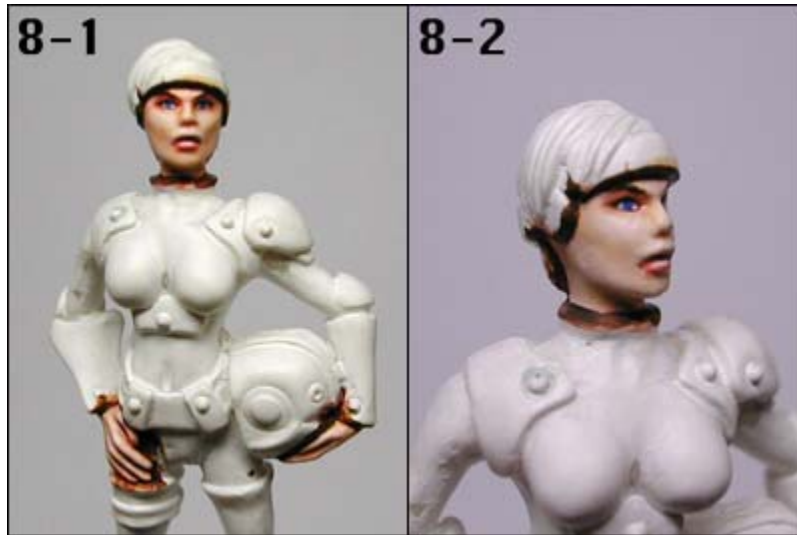
8- Outlining with dark flesh +black, the lower lip is painted using elf flesh +red, and then highlighted with white to create a glare. The eyes are blue (enchanted blue), at this scale there is no need to do the pupils 😊 Don't forget the eyebrows that do a lot for the expression of the face.

9- The flying outfit is painted with Russian khaki, ref 5 at Andrea color, I had to apply at least for layers to have a unified basecoat, it is very important to dilute your paint it can't be said enough

10- The highlights are made out of bleached bone added to the Russian khaki. And since I was satisfied with the color I didn't do any shading.

11- Outlining with black of all the elements that come on top of the flying suit. You will then obtain a very thin outlining very easily by covering with the color of the elements.

12- the protection plaques are painted in field grey (German uniform) ref 1 at Andrea color. The border that receive the lights a done with a bit of white in the base color, and the shadows by adding black.

13- The belt and boots are done in snakebite leather.

14- here the mini is at a more advanced stage, the leather of the belt as been highlighted with bleached bone and slightly shaded with some bestial brown +black The other parts of the equipment are done just like the reinforcement plaques, the rivets are done in codex grey and highlighted in white. For the blond hairs I start with a mix 50/50 snakebite/bleached. For the helmet I put on a base of blood red + black ink, highlighted up to blood red alone, and then glazed with a thin layer of red ink to give it a shiny aspect. the eye protection thing is done with a base of leprous brown highlighted with white and shaded with dark flesh.

15- The hair is highlighted with white. The boots are done just like the belt, there is still some pieces of equipment to be done but nothing very complicated.

The Base: For that kind of mini rocks and dirt not being appropriate, I preferred a minimalist base that still told a small story, the pilot is about to take command of her robot, and she's looking at the stars will the last preparations are finished. On a round GW base I glued a 1mm plasicard, I then carved the line of the structure plaques, this is a well known technique of people who do airplane models, a small piece of plasticard of 0,3 mm creates a bit of relief, as well as a couple of rivets.

The base is then undercoated with a black spray primer. And then painted with different mixes of black and bleached bone to have different shades, I then used a couple of washes of dark flesh to represent a bit of rust, the F on the ground was painted with bleached bone and codex grey and finally the grease spots were done with some very diluted black paint that was deposited in small drops. Now I just have to glue the mini, in total about 6 hours of painting were necessary with a voluntarily minimized range of color. It was a pleasure to paint this model from A to Z.

Flying Hive Tyrant
by Tyson

"Menelker"

Here is a tutorial on how I painted my Forge World Flying Hive Tyrant.

First off I had to clean the resin model with warm soapy water to get all the residue off of it that was left from when it was cast. Next up was the required cleaning and touching up of the miniature. Typically you will find a lot of flashing and a few small holes that are left over from the casting process that will need to be cleaned up and patched.

Next came the assembly of the figure. I had originally decided to do something a little more dynamic to the model. So I used my blow dryer to heat up the wings and tail so that I could bend and reposition them to something I liked a little better. Also the Venom cannon had to go... so I made two new scything talons that were appropriately sized for this model. The normal "large" scything talons that GW makes are too small for something this big. Some of the other additions to this include; poison sacks (on the arms), adrenal glands (for extra BS and I. Mounted on the back) and implant attack (the things coming out of its mouth). I also put some holes in the wings to make it look like he was not fresh out of the spawning vat. Of coarse every thing also gets pinned in place. This will insure that the model will be strong enough to play with later. Below you can see the pictures of it at this stage after it had been primed.

The "silver" model on the base was glued there to provide extra stability until I was finished paining and ready to mount the figure to the display base. Though the model will stand on its' own, I swear! What I should have done in retrospect was make the spore chimney that he is leaping off of out of lead to counter weight the model.

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The head was mounted on a wood block and painted separately so that it would be out of the way.

These are the rippers that will be accompanying him on the base. I cut the regular ripper head off and attached the head of the Epic 40k Trigon.

Skin
Skin Step 1

Next I started to work on the red of the "skin". The first color I used was GW scab red. This was thinned down using a Floating Medium by Plaid (it is a clear blending medium used to thin down paints, MUCH better than water. You can also use Future Floor Wax or any other desired suspension medium). As you can see in the picture below, it has gone on thin a blotchy. This is effect that am looking for to give the skin the underlying shade changes that will give me a good background for the later layers of color.

Here is another picture of the first step, which illustrated the blotchy effect. Also when the thinned down paint (about the consistency of milk) is first applied it will look much brighter and more opaque, but it will darken as it drys. I would recommend doing a small area first until you get the hang of it.
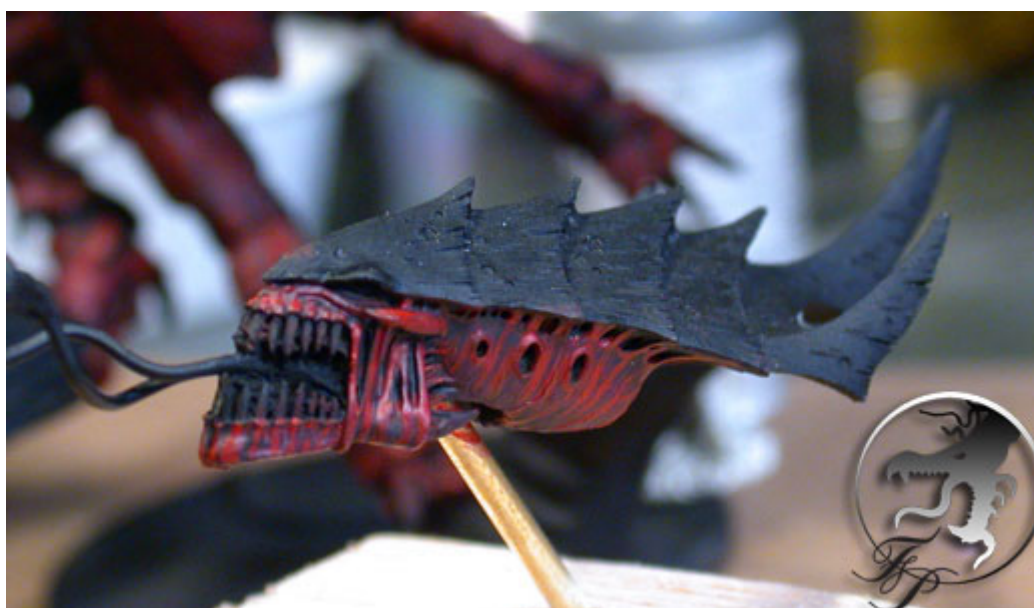
Skin, Step 2

Next, I take scab red (Note: I always use a little of the floating medium mixed into the paint when painting. This will make sure that they don't give you the chalky look as you build up layers of paint. See the Carapace tutorial for a little more info.) and start painting on the "streaks" onto the skin. Also paint the edges of the skin and other protrusions that you will eventually want lighter than the darker base skin color.

Skin, Step 3

Next GW Red Gore is applied over the same streaks that had been made by Scab Red. I will also highlight the higher areas a little more at this point too.

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Skin, Step 4

A 50/50 mix of Red Gore and GW Ruby Red (I don 't think they make this color any more. Blood red will work fine too. It just had to much yellow in it for my taste.) is applied over the streaks and other highlighted areas. Remember to make the streaks for the different colors smaller each time so that a little of the previous color will show through.

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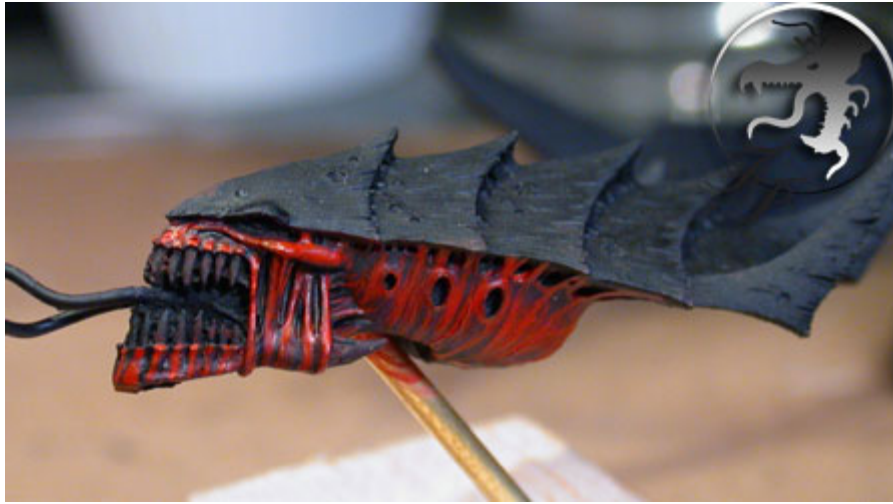
At this point I still have one more layer of highlighting to add the the skin. But I am going to wait on those until I have the armor and the all the little green bits done. This is to save me the hassle of having to touch up later where the green parts and armor get close to or merge with the skin.

Now it is time to paint all the little vents/sacks and other items that I will want to be green. First off I painted everything GW Snot Green. They were then washed with GW Ork Flesh wash (a dark green

wash), they dry brushed Snot Green again once the wash had dried. Next I dry brushed a 50/50 mix of Snot Green and yellow over this concentrating it more to the middle of the vents. Lastly I added dry brushed a little yellow to finish it off. I used the same colors for the adrenal gland (little things on his back) and the tongue, but used pretty much the same techniques that I used to do the skin.

Armor

This will pretty much just be a reprint of my armor tutorial but now with pictures on each step.

Colors used:

A. Scorched Brown (Games Workshop)

B. Bestial Brown (GW)

C. Golden Brown (Delta Ceramcoat-the large paints you can get a Michael's Craft Stores)

D. Flesh (Coat d' arms paints)

E. Oyster White (Delta Ceramcoat)

F. White (Vallejo Paints)

There is no reason I chose one manufacture of another, it is just what I had. I did use color "D" though because the GW Bleached Bone has too much yellow in it for me.

Also for all of these steps I use Floating Medium by Plaid (it is a clear blending medium used to thin down paints, MUCH better than water). See the little caption at the top of the painting steps picture. Color 1 and 2 are the two colors that I am mixing. Color 3 is the blending medium that I am mixing in to the two paints that I mixed to keep them smooth. This way I can put multiple layers of paint on a miniature without getting that chalky paint build up look.

This is a quick reference for the different steps for the armor

Armor, Step 1

First I painted two thin coats of Bestial Brown (GW) to get a nice ever base color. Next, where the plates of the armor join put down small streaks of Scorched Brown that have been thinned down.

Armor, Step 2

Mix colors Bestial Brown and Golden Brown (50/50 -Same technique as seen in the mixing caption). Lay the paint down in triangular patterns as seen in Example 2 of the quick reference image above. the triangles may overlap. For the long straight parts on the wings and the scythes I just made streaks.

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Armor, Step 3

Lay down a thinned Golden Brown in the same triangular pattern. Don't take this color up as far as you did in step 2. Also make the "triangles" thinner than in step 2 also so that a little of the previous color show too.

Armor, Step 4

Mix Golden Brown and Flesh (50/50 mix) and add the thinning medium (again the thinning medium is present in all steps. I usually thin it down to a soupy mix). This is then applied in the same way as the other colors but just with less coverage so that all the previous steps still show a little.

Armor, Steps 5,6,7,8
The picture below after step 8 when I had put the head on.

Armor Step 5: Now apply a thinned down Flesh in smaller triangles than Step 4.

Armor Step 6: Mix colors Flesh and Oyster White (50/50) and apply in smaller "Triangles" (or streaks where appropriate) that don't go up as far.

Armor Step 7: Apply a thinned Oyster White in very small streaks than maybe only go 1/3 of the way. up.

Armor Step 8: Apply a very thin White just to the very edge of the armor.

Armor Step 9: Lastly, take some brown wash and darken all the little bullet holes and cracks that are all over it armor.

Wings and Joints
The wings and joints were painted with about 4 different shades of gray working my way up from a dark Charcoal Gray to a lighter Ghost Gray on the very edges and lighter highlights.

Skin, Final Steps
The first thing I did here was a little bit of touch up a the places where the green and the gray for the joints had gotten onto the skin. Next I did the final highlighting with a mix of Golden Yellow and Red Gore (about 70/30 mix, or to taste)

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The Base

Now it was time to finish the base. The spore chimney that it is leaping off of was made out of scultpy. The other items on the base were made out of green stuff. The white stuff on the base is magic sculpt. Magic sculpt is an epoxy 2 part putty that is water soluble. What that lets me do is wet my finger and smooth out the large surface on the base quite easily, it is also quite cheap and drys ROCK hard.

This next steps involved:

1. Painting the tyranidy terrain on the base and the bio pool that will later have clear casting resin pored into it

2. Gluing the Rippers onto the base.

3. Gluing on the sand with white glue and painting it. Which usually involves a few washes to get some shades of color into the sand, and the a few layers of dry brushing for highlighting.

4. Next I added the long grass and the pinkish flowers to the base.

5. Now at this point I put of few coats of Testor's Spray Dull Coat on the model to protect it.

6. Lastly I poured the resin onto the base to form the pool. I let the resin cure a little in the cup first so that it would not be too runny when I pored it onto the base since there would be no "walls" to keep it contained. To get the green swirlies in the resin I dipped a tooth pick in some paint and then swirled it in the resin while it was in the cup. You don't want to mix it in to much otherwise you would just end up with green water.

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Conclusion

I was quite happy with the way that this model turned out. As always there are things on it that I would have liked to improve. But I was finishing it the night before Games Day. Maybe next year I will learn that starting a project 2 weeks before is just a bad idea. In total I probably spent about 40 hours working on it. But the best part about this figure is being able to terrorize my opponents with it on the battlefield.

The Grey Wolf (Space Marine)
by jagr, translation by Yurii

The Author is grateful for the help and support of all people participating in discussion of this mini at all stages of painting. In particular I would like to express my gratitude to Denis, aka [Bad Russian Guy](), without whom this article probably would never be written and Yurii, aka [Skeeve](), responsible for English translation and editing of this text.

To start it all, for my minis I am using Citadel Color paints (GW). A number of people were asking whether is possible to use paints by other manufacturers. The simple answer is yes, it is possible. Andrea, Rackham and Vallejo brands are as good as GW and are successfully used by many miniature painters. If you prefer paints by Vallejo you might want to use the table of correspondence between GW and Vallejo here (http://home.att.net/~katamaran/vallejo.html)

This text should not be considered as a cookbook to be followed exactly. Miniature painting is a creative, «trial and error» driven process. Experiment! Don't be afraid to use new techniques. If you decide to repeat color schemes described below but you are missing specific colors I was using do not despair and use different ones (or paints from different manufacturers). By mixing appropriate replacements you will end up with something very similar or even identical to the paints I was using here.

Another important point. I always use relatively diluted paints (at least 2 parts of paint to a part of water, more often equal amounts paint and water). Some people might think that it is inconvenient but I strongly believe that the more water you have in paint the easier it is to make smooth transition between colors. The most important is to limit your brush load to avoid paint flood and then you should have no problem controlling brush stroke and paint delivery.

I would like to apologize for the small number and certain lack of system in illustration. I was not planning to write this article and it grew out eventually from my WIP photographs and my blog that I was posting on one of the forums. Nevertheless, I hope this article will be of use.

The painting
The model was primed black. I started painting wolf fur initially thinking that I will simply drybrush it. The fur was drybrushed with the mix of **Chaos Black** and **Codex Grey** with small addition of **Regal Blue**, then overbrushed with **Codex Grey**, and drybrushed with the mix of **Codex Grey** and Fortress Grey. Finally, I lightly drybrushed with pure Fortress Grey. The end result of this exercise you can see on this picture.

Not bad, in principle, but doesn't look much like wolf pelt. Not satisfied I started again from scratch, this time actually painting individual bristles. I used the same colors for highlighting as above. Final highlights were done by a mix of **Fortress Grey** and **Skull White**.

Having finished the pelt I started painting the face. I basecoated it with **Scorched Brown** and then painted eyes. I don't think it makes much sense to describe here how I painted the eyes, since there are a number of good tutorials on the internet on the subject. The only difference I would like to mention is that instead of using pure **Skull White** to paint the sclera (whites) I added a little bit of pink to create an aggressive «bloodshot» look.

To paint the skin I gave a coat of pure Terracotta, followed by the mix of **Terracotta** and **Bronzed Flesh**, highlighted with pure **Bronzed Flesh**, and finally with **Elf Flesh**. If you want a paler look you can give you mini an additional layer of highlights with the mixture of **Elf Flesh** and **Skull White**. If, on the other hand, the face color becomes too pale you can give it a wash with diluted **Bronzed Flesh** (which I end up doing here).

For the armor I prepared a mix of **Chaos Black**, **Codex Grey** and **Regal Blue** in a separate bottle for continuous use. If I had mixed this right on the palette more likely then not the paint would dry out before I finished. Reproducing the mix exactly would be difficult and you really want to have as consistent basecoating as possible. Later on I was also using this mixture for cleaning up and correcting small mistakes.

Using «wet feathering» (applying multiple layers with highly diluted paint) I lightened up (highlighted) the armor with **Codex Grey** with small addition of **Ice Blue**, followed by **Space Wolves Grey**. Final highlights were painted with the mix of **Space Wolves Grey** and **Skull White**.

While painting armor I often washed with highly diluted **Chaos Black** to create smooth transitions between colors and to deepen the shadows. On one of forums I was asked how I avoid streaks of black paint on the mini. The secret here is that I am not painting with black but rather wash with a semi-transparent mixture of water and **Chaos Black** with no more then 5-10% of the paint in the final mixture. As a result there is no streaking on the miniature, yet the underlying colors become muted with each following layer of the wash.

You can probably see on this photo that the right shoulder pad remains unpainted and awaiting for some freehand I was planning to paint later.

I decided that hair should be auburn so that it will stand out well against the grayish background of the fur and armor. I started with **Terracotta**, that I further highlighted with the mix of **Terracotta** and **Vomit Brown**, then with the mix of **Vomit Brown** and **Fiery Orange**, and finally pure **Fiery Orange**. To increase depth and add some more character in the end gave it a wash with very dilute **Blood Red**.

It is very frustrating to realize that the chosen color scheme doesn't work, but after several people pointed out unnatural color of the pelt, I , thinking myself «the great master» decided to repaint the whole thing shifting color more toward orange/red. Nothing good came out of it so swearing bloody hell I returned to my original scheme adding an additional level of highlights with **Bleached Bone** and starting with a darker shade of grey.

To paint glowing eyes I used two colors: **Sunburst Yellow** as a base and **Fiery Orange** for highlighting. After this I wanted this wolf to look more aggressive and increase glow. Reading article on Glowing Eyes, I realized that additional white reflections under eyes might help. Thus,

after adding highlights with **Skull White**, I did three consecutive washes with **Sunburst Yellow**, **Blood Red**, and then **Sunburst Yellow** again. Now, this wolf acquired aggressive, predatory and slightly crazy reddish glowing eyes.

All bones, including wolf's teeth were painted as follows: basecoated with **Scorched Brown**, and then highlighted sequentially with **Bestial Brown**, **Vomit Brown**, and finally **Bleached Bone**. In the end washed with the mix of **Scorched Brown** and **Snakebite Leather** and re-highlighted with the mix of **Bleached Bone** and **Skull White**.

To paint golden elements of armor I ventured to attempt SE-NMM technique. The idea behind this method or rather the goal that one tries to achieve is to imitate the sharp separation in the reflections of «sky»(bright) and «earth»(dark) by metal parts. For a detailed description of this method I refer you to the paper by Vincent Hudon "Siphild".

Read the Magmatrax Tutorial http://www.bolterandchainsword.com/index.php?showtopic=105449 for a detailed description.

After basecoating golden parts with **Scorched Brown**, I gave them a coat of **Vomit Brown** to create a smooth base layer. Then I used **Snakebite Leather** to create «horizon» and accentuated horizontal lines. Using the same color I painted everything below these lines including recesses and surfaces in shadows, while doing this one have to consider that «horizon» is not always a straight line and might also reflect hills, mountains etc.

I emphasized horizontal line with the mix of **Vomit Brown**, **Sunburst Yellow** and **Skull White** (1:1:2).

From here onward I was brightening the lower parts of the golden elements and darkening the upper parts with Vomit Brown. As a result my horizon lost its contrast and I rehighlighted it with the mix of **Vomit Brown, Sunburst Yellow** and **Skull White** adding more white at 1:1:3 or even 1:1:4 ratio. I also increase highlighting of all edges with the same mix and washed the recesses with highly diluted **Chaos Black**.

After this wash using the mix above I rehighlighted certain parts again to emphasize details even further. In some places I had to tone down the brightest highlights with diluted **Vomit Brown**, while in others I increased the intensity of reflection with the mix of **Vomit Brown**, **Sunburst Yellow** and **Skull White**, progressively increasing the amount of **Skull White** with final highlights done with a pure **Skull White**. This whole process is rather tedious and time-consuming yet it is not as complicated as I thought it to be when I just started.

At this point I returned to skulls and the fur, that I was not quite happy about, and added an additional highlight with **Skull White**.

Then I finished several smaller details such as joints of armor plates on his arms, cables and wires (First with the mix of **Chaos Black** and **Codex Grey** then **Codex Grey** and reflections with - **Fortress Grey**), wolf's fangs (same colors as above), and the skin on the side of wolf's pelt (basecoat - **Scorched Brown**, then - **Snakebite Leather**, and finally - **Vomit Brown**).

The next big thing was the bolter. I started with a 1:1 mix of **Chaos Black** and **Codex Grey** with tiny addition of **Scorched Brown** è **Regal Blue**.

Then I started to dilute this mix with addition of increasing amounts of **Codex Grey** / **Space Wolves Grey** mix and finally highlighted it with pure mix of **Codex Grey** / **Space Wolves Grey**.

To increase contrast I was adding the **Skull White** to my base mix of **Codex Grey** / **Space Wolves Grey** applying consecutive layers to the reflecting parts of the bolter with the brightest reflections painted with pure **Skull White**.

The axe was painted in a similar way.

The leather-covered handle and the strap on the axe was basecoated with **Scorched Brown**, and then highlighted several times with the mix of **Scorched Brown** and **Bleached Bone**, progressively increasing the amount on **Bleached Bone** in each consequitive layer.

Now to the freehand. I used the wolf from the Space wolf codex and painted it with **Chaos Black** on the shoulder pad over the base color. Then I brightened and highlighted it up, leaving the black contour with **Codex Grey** and **Fortress Grey** and finally highlighted it with **Skull White**. Later I also tried to highlight the shoulder pad itself but then dropped this and instead filled the empty space with stars (rays with - **Codex Grey**, and the bright dot in the center with **Skull White**).

I decided against complicated base but spiced it up by addition of several details that stands out. I painted sand and stones with **Scorched Brown**, then drybrushed it with **Codex Grey**, and finally with **Fortress Grey**. To improve depth and contrast I washed base several times with very dilute **Bestial Brown**. I completed the base by adding snow, made from the mix of baking soda and grounded glass and several withered stems that I made from tooth brush bristles painted **Catachan Green**.

Thus the work of two and a half month was completed. It is hard to tell how many hours I spent on painting, but I think it was close to 60. As it always happens I have a number of ideas both mine and generated during discussions on forums and with my friends but I had no strength left to implement all of them. In particular, I decided against painting runes on armor and made a rather simple base, that in my opinion is quite effective but the snow that, at least on pictures doesn't look very expressive. Nevertheless, I truly enjoyed painting this miniature and gained an invaluable experience developing and using new for me painting techniques.

I also hope that text of this article will be of use to fellow painters 😊

SCULPTING

Where miniatures come from

If you've ever wondered how these fascinating figures are made, then here's a collection of articles that will more than satisfy your curiosity. This is the perfect graduation for those who have succumbed to the converting itch.

35mm Knight
by Gael Guomon

"gael"

Greenstuff (GS) or Duro

GS (Greenstuff) is generally supplied in two-tone strips (as pictured). More recently, it can be found in tubes, where the two colored sections are supplied in separate sticks rather than joined at the middle. This means none of the greenstuff will have cured before mixing, making it better for sculptors. One mixes the two colors (blue and yellow) and the result is a green paste (hence the name greenstuff) which cures/hardens in a few hours (though it is malleable for sculpting during the the first couple of hours).

Some basic advice:

- Always wear gloves when handling the GS, as it can be irritating to the skin (Vinyl gloves are better, as they stick less to the GS than latex gloves).

- It is recommended to remove the centre of the GS before mixing (ie: the part where the two colors meet in the strip) as the GS at this point may already have begun to cure. To further ensure the GS stays fresh, it is a good idea to keep the GS in the fridge.

- After having obtained a beautiful green color (by mixing for at least a minute), remove any "yellow grains" or parts that have not been mixed, or are already slightly cured.

- Always lubricate your tools (with water, oil or petroleum jelly…) and have a clean work area.

- Always build up a figure with several layers rather than trying to sculpt all at once.

- Test various mixtures of GS by adding different ratios, ie: more blue than yellow or the reverse. You will see that the different ratios can have very different properties.

- The GS has properties which change when it starts to cure. This means you should do some

parts of a sculpture with fresh GS, and others with it slightly cured.

- Do not prepare too much GS (You will normally only need a little when making miniatures, and you can always mix more).

- One can accelerate the drying time of the duro by placing it under a lamp (warning! If the heat is too high, the surface of your mini can burn).

- Once cured, the duro is like soft plastic and it is very difficult to sand/file down.

Tools

Needles assembled on the handle of old brushes, 2 or 3 tools that my dentist gave me, 1 or 2 clay shapers (these help with the smoothing of the GS) and a hobby knife, or blade (like X-Acto or another). A glass of water, oil (petroleum jelly or others) to wet the instruments, different grades of iron wire, toothpicks and a hand drill. A grip to hold the figurine (a wine bottle cork works well and is used by many sculptors). To avoid accidents, make sure your work area is clean and has a cover to protect it from spillages etc.

The sculpting stages
Stage 1
The face is the most significant part of the figurine, because it is seen first by most viewers. Therefore, you must take time and care to sculpt it.

On a toothpick, I coarsely model the shape of the face with a needle. This stage is significant, because if this basic shape has anatomical errors, they will be seen on the finished face. (Before you start on faces, it is a good idea to look at books on "how to draw". These will give useful tips on common proportions and characteristics, to help produce a convincing and attractive finished product). I let the face dry.

> **Note**
>
> I always sculpt faces on a toothpick, because this method makes it possible to reach all areas of the face.

When I have a little left over duro, I make small balls that I put on toothpicks. This provides a more solid base to work on for future sculpts.

I sculpt the face by adding small pieces of duro to strategic places, like the cheeks, the eyebrows, the jaw, the eyes and below the nose. I also apply the ears and the hair (I generally let the head dry before adding the hair, but as it is a short cropped style in this case, I made an exception).

Stage 2

The creation of the chest begins with a GS ball. I do this part separately so the skeleton does not obstruct me during my work. I leave it to cure.

Stage 3

I set up the muscles with small balls of greenstuff that I smooth to bind the different parts. I always sculpt the musculature even if I know that it will be hidden in the end, because I find that it helps me make figurines that are more realistic. I leave this to cure.

Stage 4

I drill the hips and insert iron wire to make the legs. I also drill the neck and I fix the head with a flexible iron wire to be able to test various head positions. When I find a position I like, I make the connection with the chest by sculpting the neck.

I have removed the hair, because I am not happy with the first attempt.

I sculpt the legs next.

Having attached the head, it is now easier to judge if the miniature has pleasing and believable proportions overall.

You can also see that I do not use a cork stopper to hold the figurine, but a grip which I find more practical. This is because I can easily remove it to reach difficult places on the sculpt.

Don't cut the wires for the legs too short (I always leave 10-12cm) because it is sometimes very useful to be able to hold your figurine with these wires. I leave these parts to cure.

Stage 5

I add the hair by applying a ball of duro in which I «engrave» the strands with an X-Acto knife. I fill the space between the legs to have a solid base to sculpt the chain mail upon. I also add the right legging/boot to see more accurately where the hem of the tunic should fall. I leave this to cure.

Stage 6

I add a very simple decoration on the legging.

For the chain mail I apply a ball of greenstuff, that I spread out and smooth with one of my fingers (I check that there is no yellow grain, which may have escaped previous inspection). Using a needle, I sculpt the chain mail. This is done line by line, making sure that the needle does not go too far into the GS. I finish it by adding a small band of duro around the chain mail (made by rolling a small piece of green stuff out on a flat surface, until it makes a long thin strip)

I sculpt the draped skirts, by adding small rolls of GS to make the folds.

Stage 7

For the arms I drill the shoulders, and insert iron wires in the holes (as was previously done for the legs). I then sculpt the arms by loosely adding the basic musculature.

Stage 8

I sculpt the tunic by using small rolls to make the folds. I finish the chain mail of the arms and around the neck with a pin. I add the sleeves of the tunic. Then I sculpt the left glove and the right hand (though I don't sculpt the right hand glove for the moment, because this arm will carry a shield). I sculpt the pack on his back.. When the surplus GS I mixed previously starts to cure and be more "plastic" (after about 1 ¼ to 1 ½ hours) I make a sheet of it by spreading it out thinly. I cut some bands to make the belts, and apply those to the figurine, making sure not to damage the parts I have just finished. Lastly, I add the loops of the belts. I let these cure.

Stage 9

I sculpt the right glove, and I check to make sure there will be no problems when I add the shield on the arm.

I finish the right legging.

I then sculpt a base for the figure, upon an existing round plastic base. I cut the wire at the bottom of the feet (leaving 0.4mm) and I insert the figurine in the base (making sure not to touch the uncured glove that has just been sculpted) I let this cure.

The shield and the sword:
To do the shield I spread out a rather thick sheet of duro. As when doing the belts, if you work when the duro has started to dry, it is easier. I cut the shield shape out, and then lay it on a plastic tube to give it a slightly convex form. This is then allowed to dry.

I add the cross, and some small rivets done with tiny balls of greenstuff. I let this cure. I take off the shield and I sculpt the other side.

For the sword, I coat a metal wire with Andrea Sculpt (it is like Milliput) and I crush it between two chalked plates. Once dry, I sand this down to give it the correct final shape (this can be done with a Dremel for convenience, though be careful!). Then I make the handle with greenstuff.

Note

If the figure is intended for casting by vulcanization, it is preferable to reinforce the swords and other weapons with a metal wire.

Stage 10

I add the sword by sticking it on the figurine and I sculpt some decorations. I finish by sculpting the straps on the shield.

Space Pirate
by Ming-Hua Kuo

"minimaker"

VIP (Visions in putty) is a regular showcase project at the 1listsculpting miniature sculpting yahoo group. We pick a sculpting theme and participants get about three months to create a suitable sculpt. After that they can choose to have it cast in metal and they all get displayed at www.miniature-painting.net.

For VIP 9 the theme was science fiction. We happened to be discussing making sculpts of members in the CMON forum and Avicenna mentioned wanting to be a space pirate. That

gave me the idea of a Jack Sparrow type of space pirate which was great for VIP. And since Avicenna gave me the idea I said I'd try to give the mini his face.

A quick note for novice sculptors. Every sculptor has his or her own tools, techniques and working methods. What you see here is just my way of doing things and it can differ from other sculptors. Don't let this worry you. Just try out different things and find out what works best for you.

Designing a miniature
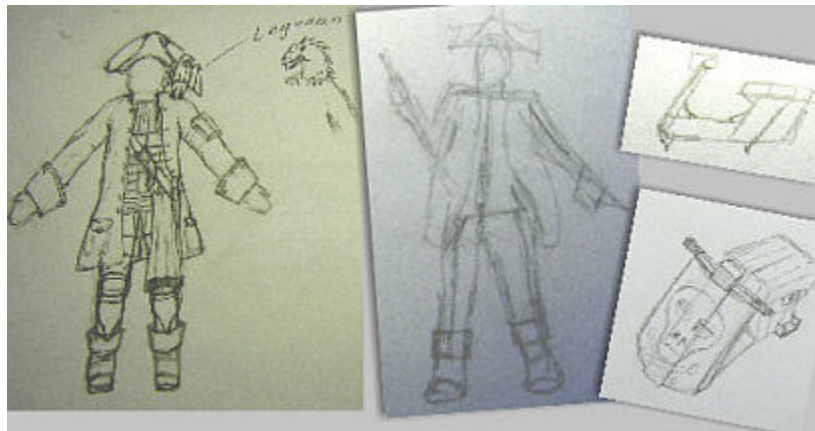
First thing you need is a clear idea of what you are going to make.

Step one is to get some ideas and background info. I looked at pirates of the Caribbean again, checked internet and books for info on pirates and leafed through SF books. Made mental notes of what would be cool, etc. Next thing is to create a bit of background for the figure. I find it easier to sculpt a figure when I've sort of created a character for it. Just like when you set up a role-playing or story character. With some

brainstorming I had this image of a guy some time in the future who was so obsessed with the old romantic pirate stories that he decided to become one. As a matter of style and to fulfill his fantasy he has chosen to dress dress up like one, but not being a total fool he is using modern weapons and wears a power suit under his coat.

I made a quick sketch of his clothing and added a few things referring to Avicenna and Tooshy. The main weapon would be a sniper rifle, the

pirate was to have a scooter (or Doom) and there would be a molegrip somewhere.

Last step is to decide on a pose. For this you can try out poses yourself, pose dummies or even use Poser or Daz studio. Since this figure was to be cast the pose had to be suitable for that. I went

for the pirate leaning against the scooter with his gun pointed upwards.

Let's push some putty!

Pirate and scooter were sculpted at the same time but I'll discuss them separately.

Making the scooter

@ M-H.Kao 2005
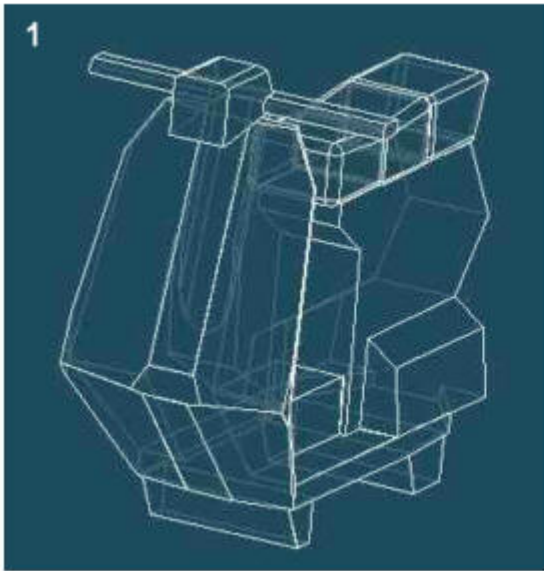
With mechanical sculpts like these I like to do some pre-designing in a 3D CAD program so I can play around with volumes to make everything looks right. This gave me the model on the right. I printed a technical drawing at the right scale and used this as a size reference while sculpting.

I wanted an armature so I had something strong that I could mount the shield on. I cut a bit of
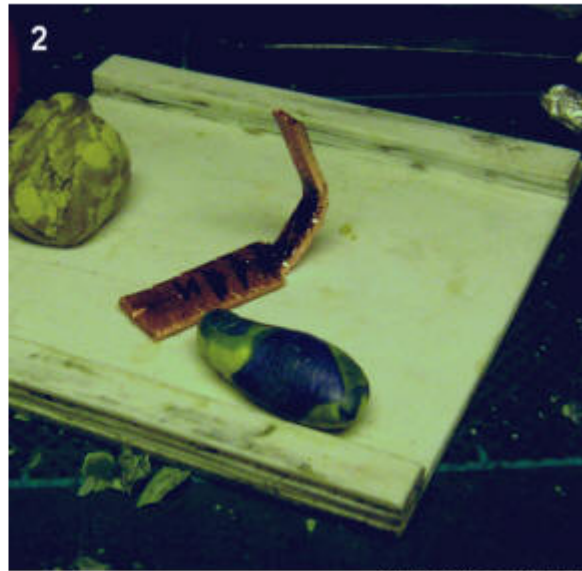
brass sheet to size and bend it to follow the shape of scooter bottom and shield.

My preferred material for mechanical sculpts is a 50/50 mix of green stuff and Milliput. This mix holds together much better than pure Milliput and is a bit softer than green stuff. After curing it's hard enough to file, sand, etc.
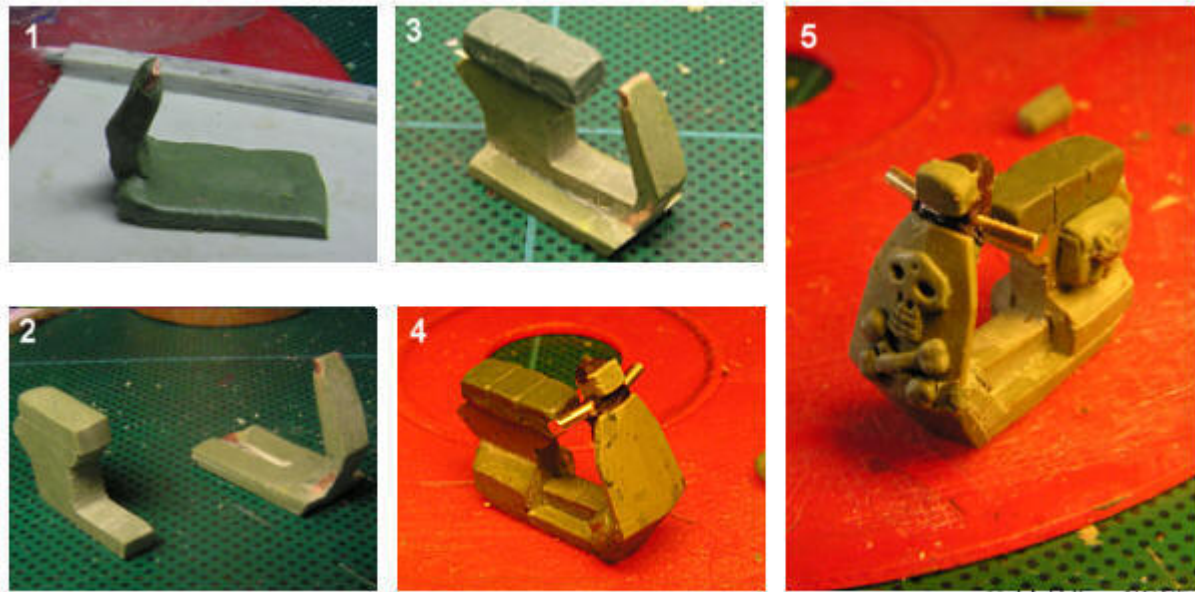
© M-H.Kao 2005

The armature was covered with putty mix. Left-over mix was flattened into a slab and all was left to cure. After curing the floor and support were filed into shape and the centerpiece was cut out of the slab with a jeweler's saw. They were glued together with green stuff which was also used for the saddle.

The front shield was cut from cured sheets of putty mix and filed in shape. A brass rod was

bend and glued on top of that with some brown stuff and a headlight (also cut from putty sheet) was glued on top. The motor housing was built using putty mix and filed in shape. Final details were sculpted in putty mix and the scooter was done. Oh, a molegrip was added to the sidebag.

Sculpting the pirate

This was pretty straightforward.

@ M-H.Kao 2005
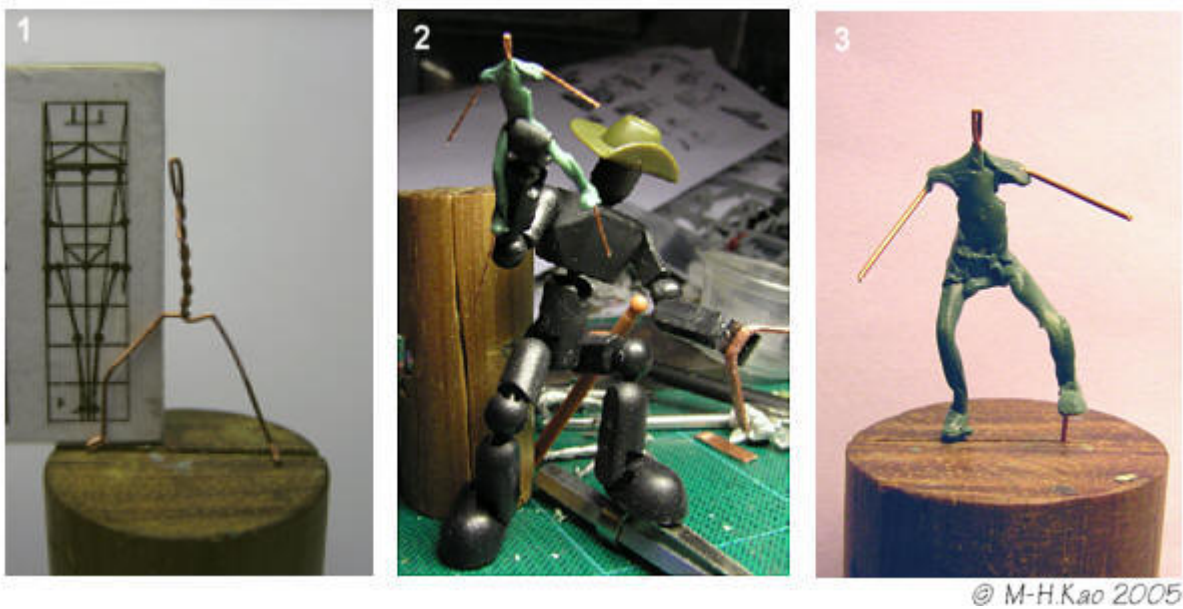
Again I started with an armature. This time a twisted wire one. I used 0.5mm copper but if you want to make one I'd recommend brass. It's more stiff. On my armatures I bend and twist legs, hip, spine and feet and add arms later.

The armature is bent in the right pose using a posed plastic toy figure as reference and then fleshed out to freeze the pose. The arms are added at this stage by bending wire in a T shape and glueing it to the spine using green stuff. All this is left to cure. I used a putty oven (15Watt lightbulb in a tin) for this to speed up curing.

My sculpting order can differ from figure to figure but I tend to build it up from feet to head. This gives the figure more stability and I find it easier to keep proportions.

First thing I made was the space suit leg. I wanted to be able to scrape straight and sharp edges on it so I decided to use a mix of about 30% Milliput and 70% Green stuff. This still sculpts like green stuff but is easier to scrape and file. When the leg was done I made the boot in green stuff.

Second leg was made but since I wasn't sure of the pose I decided not to do the knee yet. Torso was made as well and then work on the head started.

With heads I usually do core, nose, eyes, cheeks, mouth, chin, details and then adjust where needed. Since I had said I'd use Avicenna's face for this one I used his photographs as a reference for face and nose shapes. Resemblance wasn't that good in the end since I needed a few modifications to exaggerate the facial expression

and wanted to add a (bionic) eyepatch. Oh well, I tried.

I had done a testfit with the scooter and changed the pose by straightening the right leg and adjusting the left one. Bits and pieces were added and then it was time for the hat.

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I needed a round sheet of green stuff and flattened a ball of green stuff between two sheets of plastic (the plastic wrapper from the green stuff works well for this). I carefully put it on the pirates hat and pressed it down. I mostly used tools for this to avoid fingerprint. A core of green stuff was added, edges were smoothed and the sides were folded up like the real thing. Any

damage or fingerprints were removed using clay shapers and it was left to cure. After curing I filled in all gaps to avoid undercuts and trapped air.

A sword was made from cured putty sheet (handle from brown stuff) and added to the figure. Then the rough shape of the coat was added in green stuff.

@ M-H.Kao 2005   A

pose check with the scooter to check that the coat didn't block anything and then it was finished by adding drapery effect and smoothing the surface.

Time to make the arms Left arm is pulling back the coat while the right hand holds a gun. The gun is actually a modified copy of the gun I made for the cyber angel.

Modifications to the gun were the addition of a longer barrel, folded bipod and a sniper sight.

On the back hair details and coat details were made.

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Some final details were added like clasps on the jacket, skull on the hat and a sash which was also used to fill up some undercuts.

At this point the pirate was done and all I needed to do was to make it ready for casting. Since it would be using the scooter as support I decided not to make a tab or anything. So I filled the soles flat and added my signature in a hidden place.

The handle bar of the scooter could be a casting problem so I decided to avoid that by making it a separate part attached to a sprue.

All done and ready to conquer the dark seas between the stars. Or at least look cool while trying too. 😊

If you want to know more about sculpting, feel free to ask over here at CMON or hop over to the 1listsculpting yahoo list (http://groups.yahoo.com/group/1listsculpting) which is dedicated to miniature sculpting.

Mushroom
by Peter Lee

"Temperance"

This is a simple step-by-step example of how I sculpted my Mushroom miniatures based off the D&D Shrieker art. It took me about two hours spread over two days. This is the second type of miniature that I'd ever sculpted. I once tried to do a treeman, but that was a disaster...

Tools needed: Greenstuff, Plastic base, knife, paperclip, toothpick or modeling tools, glue such as epoxy, and wax paper. Note that I at first tried this will milliput, but that was a disaster -- the twisting aspect of step one was impossible as it would break instead of twist.

Step 1: Making the Stem


Step 1: Making the Stem
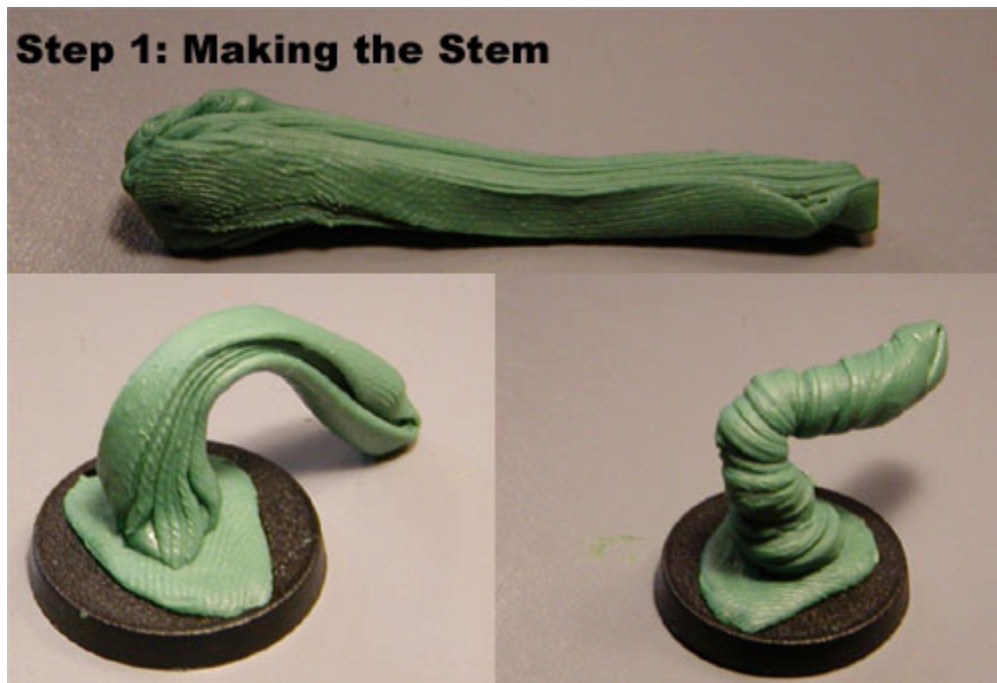
1. Take the mixed greenstuff and stretch it out like taffy, and then fold it over itself. What this does is form a group of ridges which will help give the stem an organic feeling. Make it a little smaller than the thickness of a pencil.

2. Take a base and put a thin layer of putty on it. If there is a slot, fill it in; it's not needed. Attach one end of the stem made in part one.

3. Now the fun part; twist the stem so it gives a chaotic twisted surface. I like it if it's not quite straight as it gives the final mushroom a more "dynamic" look. You may want this part to harden if you are worried that handling it will destroy it. If you don't like the look of it, try again! This is the easiest step and experimenting with it can help.

Next, we sculpt the gills for the mushroom.

Step 2: Sculpting Gills

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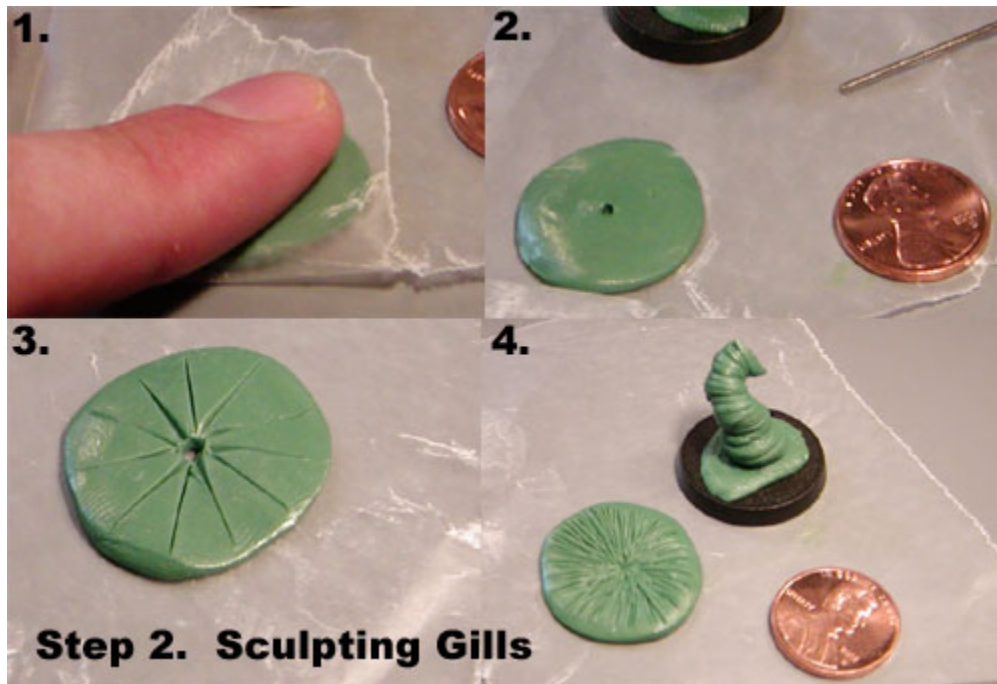
1. Using wax paper, flatten out a coin-sized object.

2. Poke a hole in the middle, and let this coin harden for a while; perhaps an hour.

3. Take your knife and cut slits. Go outward from the center radially. I think it's easiest to work on the whole thing at once, and not concentrate on one section. Don't let the slits cross! Don't make them too thin -- we will eventually want to do an ink or paint wash and have that get into the cracks.

4. Continue cutting slits until the entire coin-sized disc is covered. You may want this part to harden if you're worried that handling it will damage it.

Next, we sculpt the rest of the cap.

Step 3: Sculpting the Cap

Step 3. Sculpting the Cap

1. Trim the gills to the size you want, and trim the stem to the length you want. It's a good idea to trim the stem by cutting into a valley as it disguises the cut. Poke or drill a small hole into the tip of the stem so a paper clip pin will fit.

2. Glue (I used epoxy glue) the disk (gills side down!) and stem together, with the pin as a strengthening device. Let the glue dry.

3. Reinforce the top of the cap, making the middle part thicker and cover up the pin. Imagine that the cap is a clock. Attach three cone shaped amounts of greenstuff at the 12, 4, and 8 position. This splits it up into three identically sized segments. Smooth out the thicker part of the cone along the edge of the gills.

4. Bisect each section with another cone shaped amount of greenstuff at the 2, 6 and 10 positions. Then fill in the gaps between with another cone. This should give 12 identically looking sections to the cap. You may want to do a little bit of clean-up sculpting with a tool (like a toothpick or a knife) to make sure that all the cone sections interect and smoothly approach the center of the cap. Poke a small indentation into the top of the cap. You may want this to harden slightly.

Now, just a few final touches and we're done!

Step 4: Final Touches

Step 4. Final Touches

1. Roll a small ball and attach it to the top of the cap to hide some of the joins at the tip. This should cover the small indention made in the last step. Roll out a small snake and attach it to the edge of the cap to form a rim.

2. Cut off the excess rim and smooth it out, joining the front and back of the snake together.

Take your knife and cut a shallow cut into the rim so the cuts are in the same positions as the top of the cap.

3. Make some more shallow cuts into the rim; I did two more per section. Now you're done! Let it harden for a day or two, prime it, and paint it like any other miniature.

Sculpting tips
by pega

I received a lot of queries about my sculpting technique and someone send me via email these questions. So I decided to make an article with my answers.

Q: What grade of milliput do you use? I have never used it but since I have been reading sculpting articles ever one refers to it.

A: I use the Standard Yellow-Grey Milliput (because I found only this but there are other types perhaps better) and usually I use it mixed with Green Stuff to make rough moulds of hand weapons and then dry sculpt the rough replica (i.e. for the Inq Covenant sword I make a very rough mould of the space marine terminator captain sword and then make a copy with a mix of green stuff and milliput and then dry sculpted it with files and sand paper). I don't make a lot of attention to the amount of each product. Generally I use more milliput because it's less expensive and that bit of GS give to the mix a more elastic consistency. The milliput on the other way makes the mix once dried perfect to de dry sculpted with files and sand paper. The GS that I use in the mix is made with more yellow component because 1) I think its the yellow part that give elasticity and 2) when I sculpt I use more blue than yellow and so I got a lot of yellow unutilized.

Q: What type of tools do you use? I have assorted dental picks and clay sculpting tools that seem to do the job but there something missing, also is there a trick to keeping the green stuff from sticking to the tools so bad? I use water witch seems to help a little bit.

A: Until now I have used:

1. Toothpicks (rolling then on the GS I make a rough desired shape and at the same time I smooth the surface, they are also perfect to make folds on garments etc.)

2. two old ink pen (a 0.2 to make little holes and a 0.4 to make embossed rivets).

3. screwdrivers (to give more accurate squared shapes)

4. the GW Sculpting Tool (mainly to sculpt hair and fur) and water, water, water:

5. I think to keep the green stuff from sticking there is no other way than maintain your fingers and tools always wet (the toothpick being made of wood maintain the wetness for a long time, while the metal tools are to be bathed every time you use them).

6. I begin with a blue yellow mix at 50% but lately I tend to use more blue and with this mix the GS tend to be less sticky.

Q: Also when your working with the green stuff do you let it harden up for a bit before you start working with it or just start using it after you mix it?

A: Usually I start working it just after I mixed it (as I said before I use a bit more blue and so the mix result a little bit harder). In fact to give the first rough shape (with a toothpick) it's better worked when it is fresh. Then I refine the shape using the other tools until I obtain the desired shape (at this point a good amount of time passed and a the last touches are done when the GS is a little harder). However it depends on

what do you want to do (when I do wire cables I prefer to work with the GS a little hardened).

Q: One last question most of the greens I have seen; when they are done have a shiny wet look to them what causes that? It just looks cool and wish mine would turn out that way.

A: As I said to achieve the desired shape it takes a good amount of time of adjustment using the various tools (very wet) and in this process I achieve the smooth and shinny look. (The shinny look I think depends from the use of very wet tools).

However try these steps:

1. bathe your fingers and make a GS mix with a little more blue.

2. take an amount of GS that you think is needed to make the shape you want and put it on the mini you want to convert or you are sculpting giving a very rough shape with your fingers.

3. bathe a toothpick and begin to give the give a finer shape (mainly rolling it between your fingers and at the same time along the piece of GS you are shaping)

4. When you have achieved a rough desired shape bathe the toothpick and keep rolling it on the GS making a little

pressure (this should give a smooth and a bit of shinny look).

5. If the shape needs to be squared, bathe the screwdriver and begin to adjust the shape. And so on.

6. If it's a garment or something similar begin to make the folds with a wet toothpick but now moving it along its length (not rolling it).

With this steps you should achieve the desired shape (usually a robe, a garment, a piece of amour, a breath plate etc). At this point you have to add all the little particular: you can add rivets (embossed: making a little pressure with the 0.4 old ink pen or standard: making a very little sphere of GS and shaping a little where do you want it).wire cables, or sculpt little skulls etc. Mainly to make all this little particular you have to work with little balls and sausages.

That's all for now. I hope this tips would be useful. Let me know. And good work.

TERRAIN AND DECORATION

Context for your miniatures

In this chapter, various types of terrain are discussed, from making trees and buildings to entire gaming tables. Read on!

Idiot's guide to trees
by freakinacage

Are you guys fed up with having to pay a ton for GW/professional trees (I don't want to turn this into a GW bashing session)? Aren't really very good at making your own? Well lucky you – this is a simple way to make fairly cheap and, I think, effective trees. They aren't especially quick but that is only because you have to wait for paint/pollyfilla/glue to dry.

To make the trees, you will need: fairly thick yet bendable wire, modelling putty (I use Milliput), foamcard, Polyfilla (I think in America it is called spackle, correct me if I'm wrong) and tissues or that plaster impregnated bandages that they use to make plaster casts, textured paint, spray paint, coir which has been cut up into smallish pieces (I got this from a fabric shop – I think it's used for stuffing pillows and such), flock, small foam pieces, spray varnish, basing stuff (sand, static grass etc.) and PVA (white glue).

Step 1 Bend wire into tree like shape to make a sort of armature. Different bits shoot off for big branches:
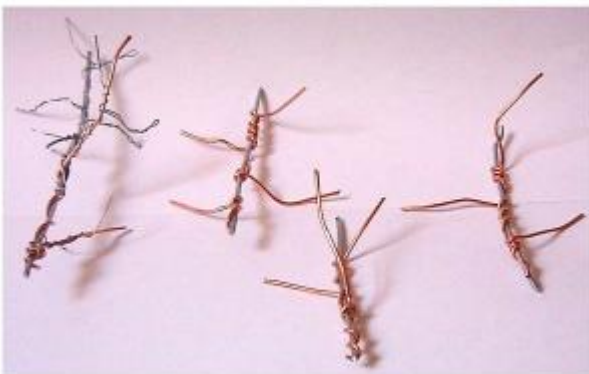
Step 2 Use pollyfilla soaked tissues (or equivalent) to mould over the basic armature so the wire shape isn't too obvious:

Step 3 Dip the upper part of the armature in textured paint and allow to dry.

Step 4 Shape some foamcard into an appropriate base shape and ram the bottom of the trees into it. Then sculpt roots with the modelling putty and allow to dry. This not just so it looks good but also makes the tree stronger:

Step 5 Paint the bottom with textured paint. This can be added to the base along with some sand for some texture:

Step 6 Add loads of glue to the branches and attach coir bits to it. Now, I find that coir looks naff if left as it is springy and coily. (I know that's a naff way of describing it but I can't think of a better way) So I wait for the glue to dry and give it a little trim. When you have done that, spray the tree a nice brown color. I then like to drybrush the trunk a bit just to add some highlights:

Step 7 Add more glue to the braches and sprinkle with foam. Now I only bought this stuff the other day and I have to say, it's pretty cool. I

bought it from www.plastruct.com, modelling suppliers. When dry, add more glue and sprinkle with flock. I find that this leaves little clumps of flock so when this is dry, I spray with GW varnish (hey this stuff does have a use!) and then flock again. Once this has been done you may want to trim the branches again:

And there you go!! A lovely tree. I personally add static grass to the base:

By modifying the technique, you can also make hedges.

Quality trees for less

by Tobias Kornemann

"Deltadog"

One of my favorite miniature hobby section is building of terrain and dioramas.

Unfortunately terrain with lots of trees is very expensive, especially if you use the nice looking GW ones (sorry for PR, but I like the GW-tree style).

So I began to experiment with different solutions of making my own trees, looking exactly as good as the one you can buy. Here is my result:

Materials needed

1. A couple of glass cleaning brushes, which you can get in every super market for less than 1 Euro!

2. something to glue, i.e. spray glue, wood glue or latexmilk

3. mikrofoliage in the color you like best

4. wrapping/modelling material for the bole, i.e. tape or green stuff

Production

1. Cut off the top and the bottom part of the brush, at the bottom just as much as you want for the length of the bole)

2. After this you need to retwist the cut ends of the brush with a gripper, to prevent the brush to loose hairs
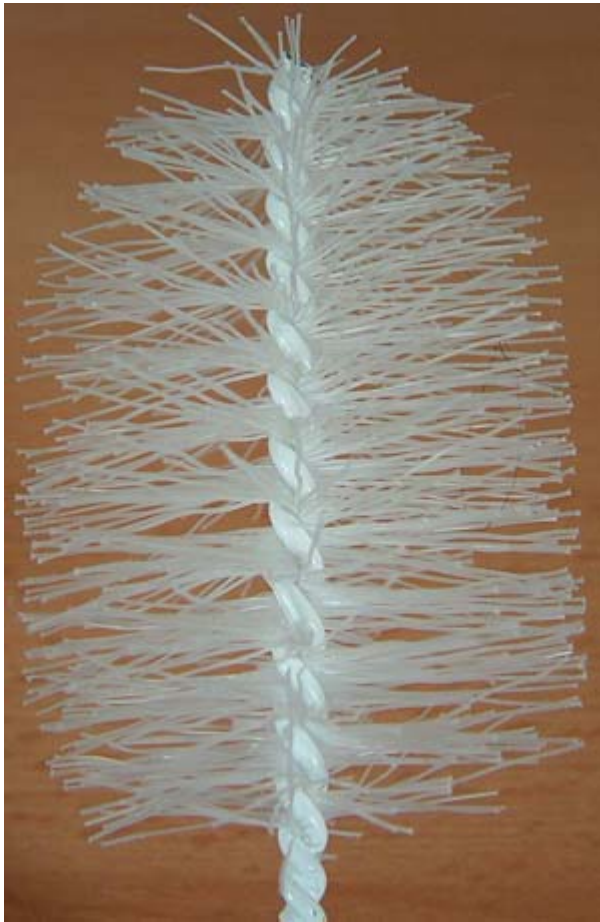
3. Now cut the brushhairs in the form you want the tree to have.

4. If you want you can spray the brush brown or green like branches

5. when ready apply the glue and put the brush into the microfoliage

6. Repeat the steps as often till you're content with the result

7. Next step is wrapping the bole with tape or applying green-stuff

8. The last step is painting the bole in the color you want.

Voila: a ready to use tree for less than a Euro

Making Plastic Banners
by Artem Vorobiev

"imperialforge"

Banners! We all love seeing beautifully painted banners in miniature units and armies. They add color, character and life to our meticulously assembled and painted creations. They occupy a special place in our armies, in fact, they define their character.

My primary interests lie with making plastic banners for plastic Warhammer Empire figures (although there is no reason why the same principles could not be applied to other races). I believe they hold some key advantages over both metal and paper ones.

1. They are sturdier than paper banners and will not winkle when transported in a case.

2. They are lighter than metal foil ones and do not add as much weight to the overall weight of the figure, which is of crucial importance should the figure be accidentally dropped.

So, where do we start?
First and foremost, we start with a nice workspace. Very important, your workspace. Make sure you are comfortable, have enough space and have all your familiar tools at hand. They will include a steel ruler, a hobby knife, a hand drill and a Sharpie marker (the kind we use for labeling CDs, the finest tip). Some good music (errr… "good" is relative, I know) will help a great deal.

Plastruct
This product is widely available in the US and I believe you can get it or something like it in other countries in Europe. They make a wide range of plastic products for architects, hobbyists and modelers. The number of item we need is: 91103. They are hard white plastic sheets, each one just slightly thinner that a GW Empire plastic banner.
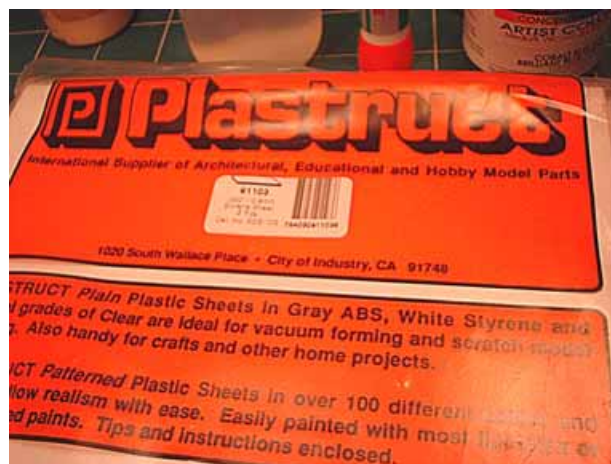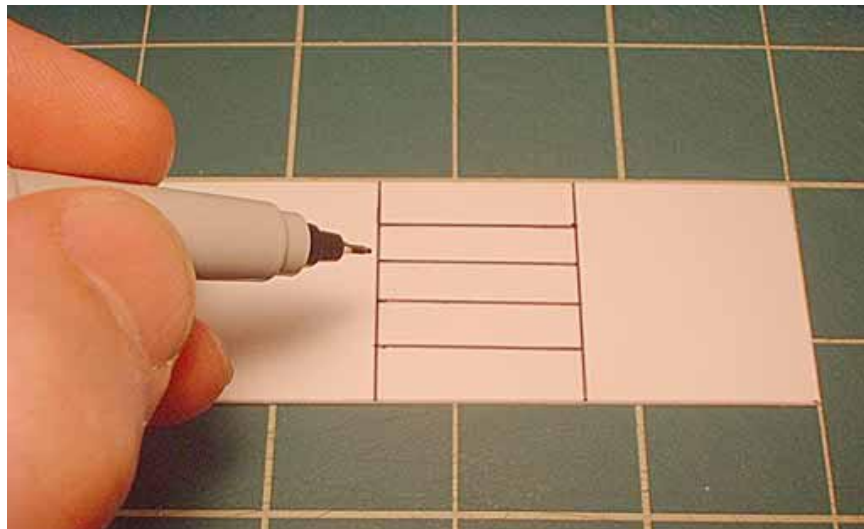
Stage I

First, we need to determine the width and the length of the future banner. That is fairly easy – I simply measure how wide the current plastic Empire banner is and make sure the new banner is no wider. It can be longer, or shorter, just keep in mind, that just like with the current plastic banner from the command sprue, the standard bearer will have to be ranked up in a unit. So, while it can be different in shape and length, it should not be too different, both for practical and for aesthetical reasons.
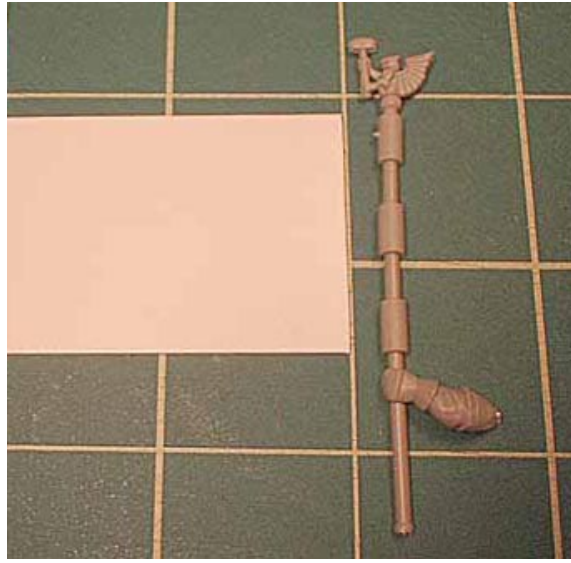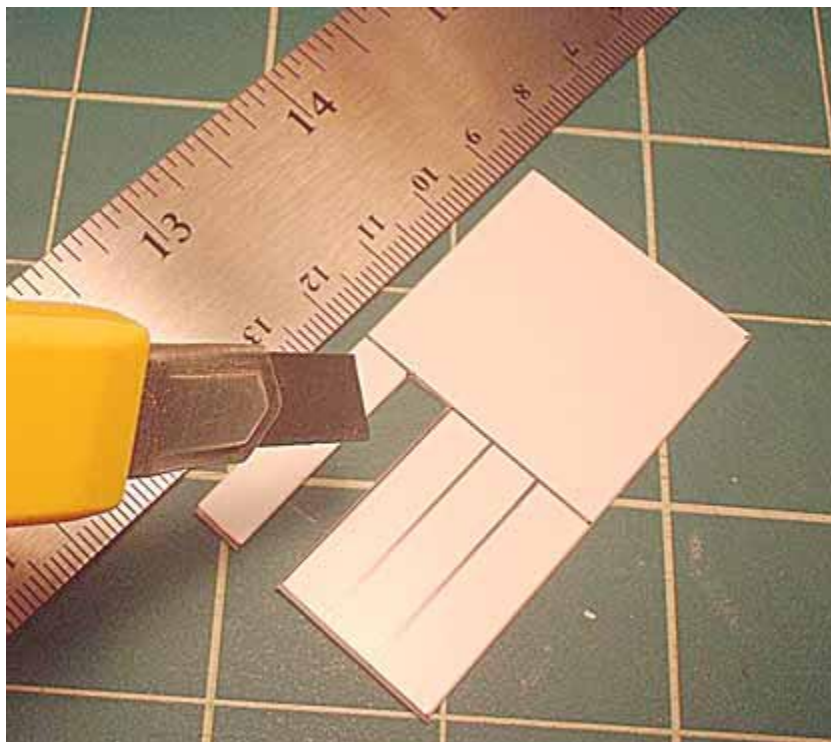

Stage II

Using the finest Sharpie marker, draw the shape of the future banner on the plastic sheet. Do not worry about smudging – this is what Sharpie markers are famous for – they dry nearly instantly. And the marker traces will later be covered by paint anyway. I was impressed by the new Bretonnian banner and decided that an Empire unit could benefit from something similar, so I opted for a three-streamer baner.
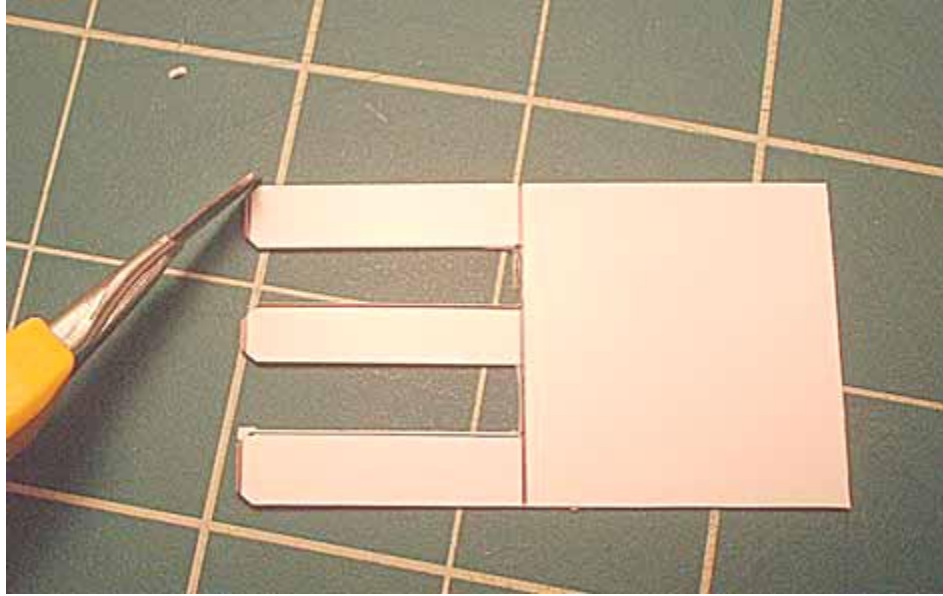
Stage III

Using a hobby knife carefully cut out the shape of the banner. Steel ruler is your friend – your cuts will be sharp and precise.
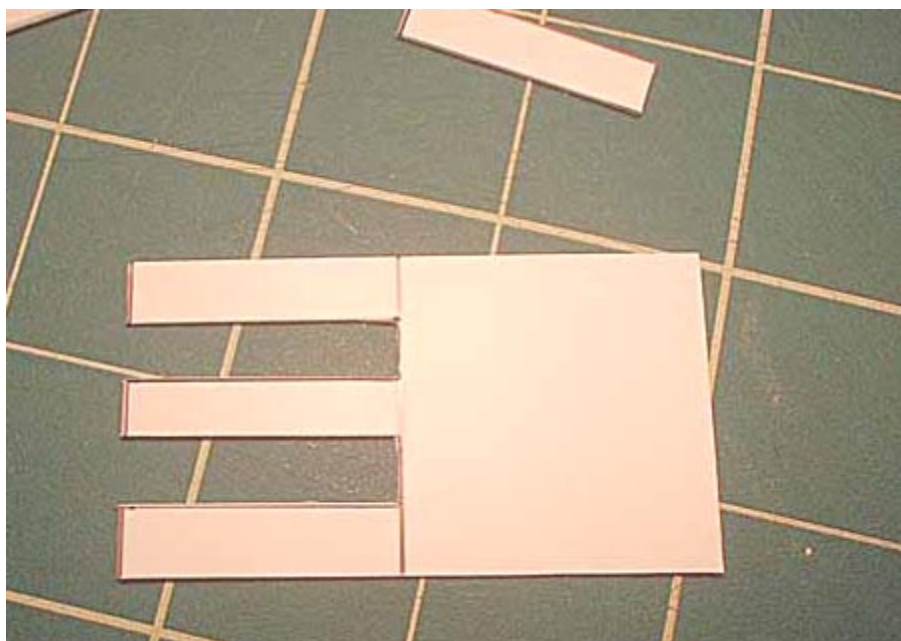
Stage IV

I also snip off the edges on the three streamers, in order to make the finish more rounded and smooth than just square endings.

Stage V

Next is probably the trickiest part of the process. I use my kitchen stove as a source of heat and holding the banner in homemade grips, hold it about 5-6 inches over the flame. You have to observe it very closely, lest it just melts into the flame. You will need to experiment with the distance and timing, but you will see, that the edges of the banner, closest to the flame will start trembling slightly and paradoxically, they will curl slightly upwards in the first fraction of the second, before bending down. This is the moment. Remove the banner and gently (carefully, the edges can be hot) bend it, into the desired shape. Just keep in mind that the shaft side of the banner should remain as flat and as straight as possible for later fixing it to the shaft.
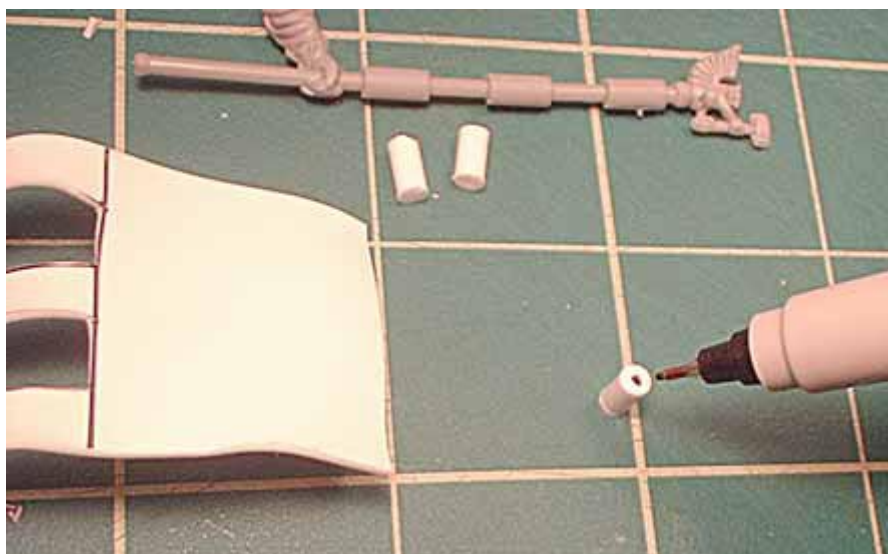
Stage VI

We have a decently shaped banner at this point and need to attach it to the banner shaft. I use Plastruct plastic rods, which are almost the same size as the plastic Empire banner hoist parts attached to the shaft from the sprue. Using a modeling knife, I cut off three pieces of the same length as the banner hoist parts from the box.


Stage VII

Using the same Sharpie marker, I mark the center of each piece on both ends, so that I would not have to drill blindly.

Stage VIII

I drill through all three pieces, one by one, making sure to drill halfway through each, before switching and starting from the other end. This way, the hole will be centered, since the center was marked on both ends. Even if there is a slight shift in direction inside, it will be insignificant. The drill should be about the same size in circumference, or just slightly larger than the brass wire that will later serve as the banner shaft.
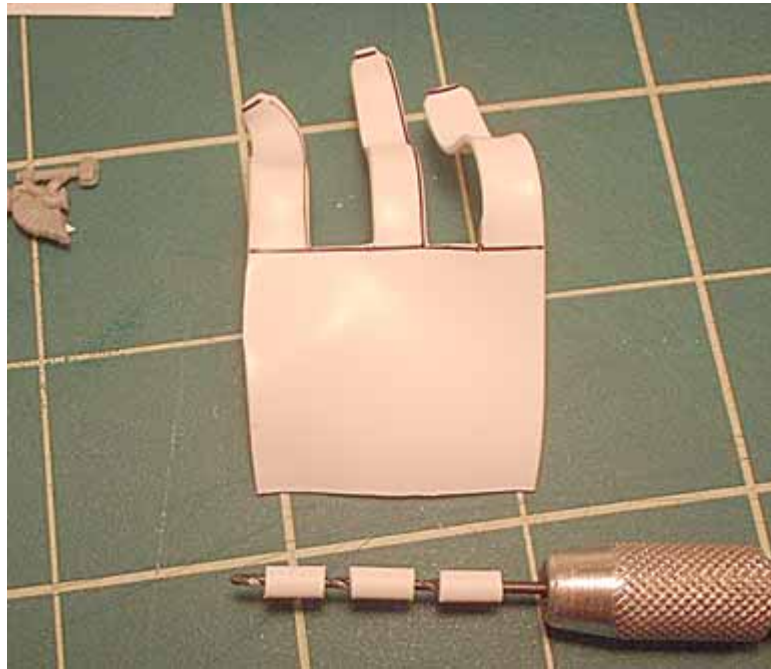

Stage IX

I then just glue the three pieces to the shaft edge of the banner, so it looks much like the standard GW banner. As you can see, I use Testors plastic cement, which is more than adequate for the job; it melts and fuses the plastic together, creating a very strong bond. Just like with any gluing, make sure that when you glue two parts of unequal size and weight, even something as light as plastic pieces, always handle your job by the heaviest piece and glue all the others to it.

Stage X

While the glue has not yet set, align the three hoist pieces by inserting a brass wire through them and making sure they line up. This is why it was important to have this edge as straight and as flat as possible – if it curved too much during heating, it would be next to impossible to align them. The brass wire will also serve as the banner shaft.
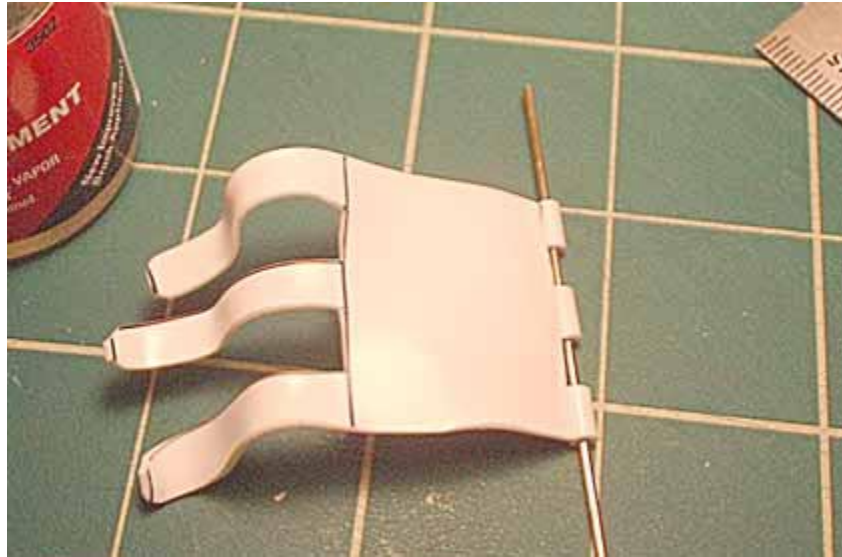

Stage XI

At this point I use a fine file and file around the streamer edges, which I had snipped off previously. This will ensure smooth rounded edges, which will be more pleasing to the eye and will be easier to paint, since the paint rubs off easier on sharp edges.
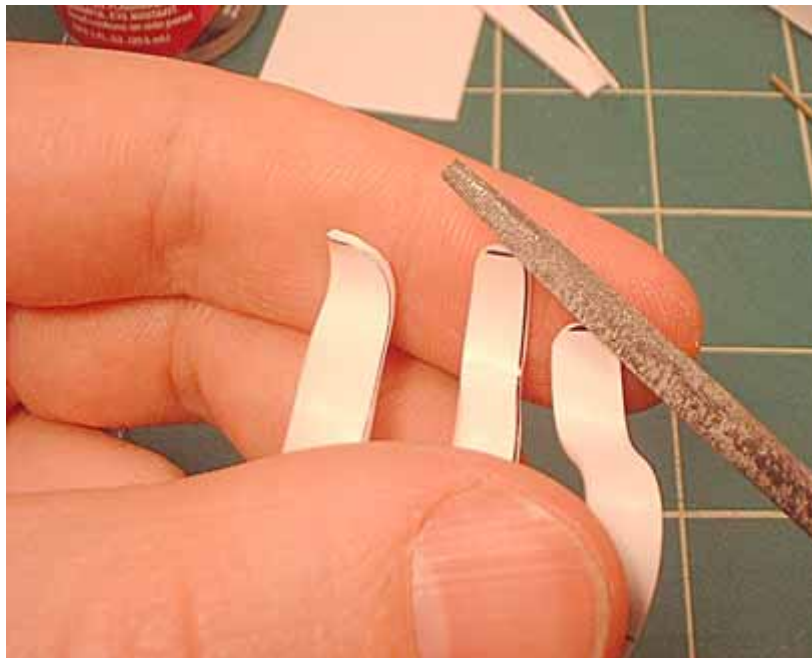
Conclusion

At this point the banner is essentially ready. Here you can see the different kinds of plastic banners that can be made using this method. As you can see, the bottom two banners have not yet been finished and need to be made attachable to the shaft.
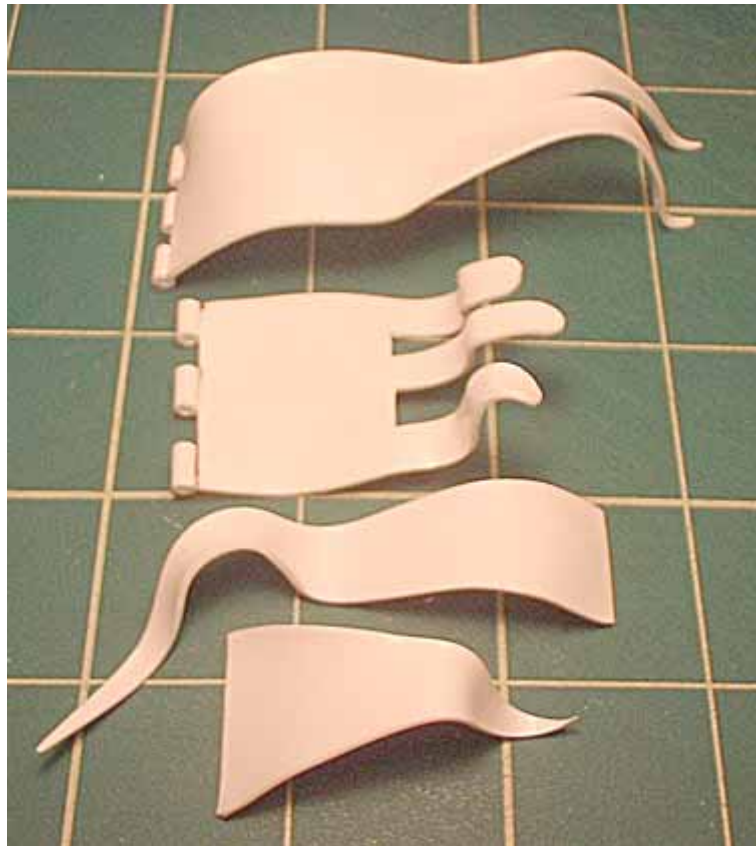
Simple slate
by Peter Lee

"Temperance"

I met up with Wappellious at a recent con and we talked about slate bases. I've been experimenting with the milliput slate techniques, but what I've wanted to do is give a better layered effect. What we ended up thinking about was sandwiching Sculpey and Super Sculpey. As they have different properties, they'll break in more realistic ways.
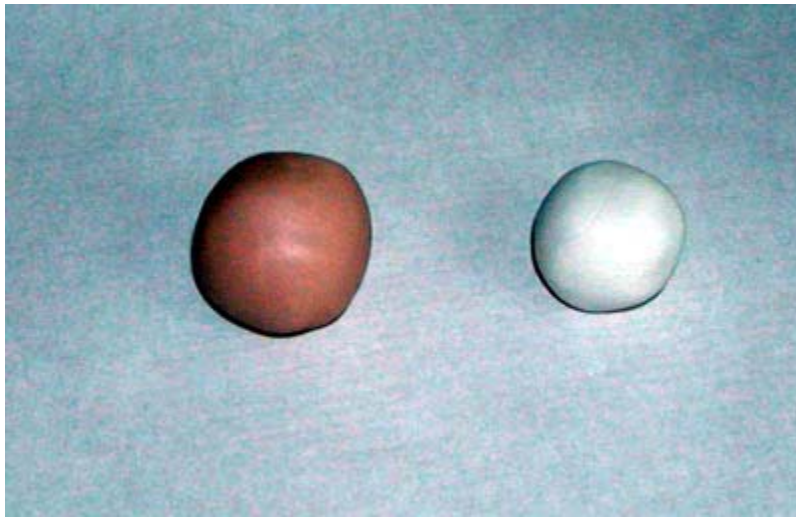
Roll out two approximately equivalent amounts of Sculpey and Super Sculpey. Stack them together, and continue to roll them flat and sandwich them together so you end up with several layers of Sculpey and Super Sculpey.

Once you get enough layers (I think 16, or 4 folds) bake it in the oven like the directions say. Try not to make the sculpey too thin, as it won't break but instead bend. You can always stick a knife blade and separate layers apart if you want a thinner piece after it bakes.

Break apart a piece. If the sculpey bends rather than breaks, you can stick it in the freezer or ice water for a little while to make it more brittle. You might be able to peel apart layers with your fingernail. By removing parts of single layers you can exaggerate the "slate" appearance.

Now you have a good piece you can use however you need to; the piece below is a quick drybrush job to demonstrate how the slate will look painted. This example piece is smaller than 2 cm x 4 cm.

One benefit of this method is that it's quick -- you can speed up the cooling period by dropping the sculpey in cold water. You can probably have working slate in 30 minutes, unlike the hours required if you use milliput. Also, one benefit is that this looks more like slate than the milliput method.

Good luck!

Making Wood Grain
by Ogrebane

I like the effect of wood grain on things like banner poles or the floor of a chariot or even on the house I make for terrain pieces but I'm not a good enough painter to paint it on. I tried a few methods until I can upon this particular method. It takes about 10 minutes to do and is quite affective. So what do you need. First of is a piece of round sprue or plastic rod or what ever you want the wood grain on. The next is something to make the wood grain. You could try a sharp pointy thing like a compass needle but I've tried that and it doesn't always work. (Depends on how steady your hands are. Mine are shocking.) So first pic is bits of sprue I used as example.

Second pic is the tool I use.

I got this saw from my local hobby store but Ive used fret saw blades (The thich ones not so bendy) to do the same thing. So what you do is run the blade along the sprue in a continuos motion to make the wood grain. Its better not to go too heavy but depends on the result you want. Heres an example. I went heavier than I usually do just so you can see the effect.

This really only works on thin strips say 1cm or ½ inch or less. So now to paint it. There are a couple of ways to do it. The fastest I find is to paint it black and then drybrush with Snake bite (or what ever your favourite wood color is) I water down the paint 1 for 1 and lightly dry brush. I do about 3 coats one after the other and go heavier towards the center. You can finish here or mix some bone in and do another coat. Making the center lighter gives it a more "realistic" look IMHO. Heres a couple of pics of the process.

The last pic has had a light wash of brown ink to redefine the grain. The Flat piece is a bit of sprue. I have used 5 or six of these to make a chariot platform or a door. Just glue them to a flat piece of plastic after you have done the grain and then paint them all at once as above. And that's it takes 10 minutes tops.

Making Barbed Wire
by tinweasel

Here's a fairly straightforwards tutorial on making custom barbed wire at tabletop miniature scale - many thanks to the Hobbyhawk site for original reference ideas, but I've adjusted the scaling and polished the process a bit, so I'm writing up my own step-by-step following making custom barbed wire for my Word Bearers Dark Apostle figure.

Tools required

- Wire - the narrower the gauge, the better. In this example I believe it was 28 gauge silver beading wire, but fine wire is available anywhere between 22 and 34 gauge commonly.

- A narrow pair of wire snips - you don't want the cutting end to be too wide or thick, as you'll be potentially be cutting in a limited space between loops of wire.

- Some sort of "rod" to use as a brace while twisting the wire - I used a wooden dowel, but a toothpick or similar could likely be gotten away with.

- A thin glue, capable of flowing into narrow gaps. I used cyanoacrylate Krazy Glue, but thinned Elmer's/Wood Glue would likely work.

- A pin vise/manual precision drill - you could likely use a pair of vice grips or pliers, but by using a pin vise you can keep it centered while twisting the wire.

- (Optional, but very useful) A ruler/tape measure with 16th" or millimeter measurement, by preference.

- (Optional, but very useful) A small, narrow pair of modeling "pliers"

Assembled tools, with the exception of the modeling pliers and tape measure (shown later.)

Fold length of wire in half, so you have a long "U" shape. Loop wire through itself over the dowel, with the two loose ends of the wire hanging free.

 Insert the loose ends into the bit of your pin vise and tighten the chuck so the wire is "gripped" and runs straight between the pin vise and dowel - you will be twisting, so straightness is a necessity.

In this picture I have started twisting the wire, with one hand holding the dowel and the other slowly twisting the pin vise - this is about halfway through the "tightening" of the wire, but I took the picture at this stage to demonstrate the process.

Continue twisting the two strands of wire until there are no gaps between them and the coiling is very neat - be sure to not "over-tighten," as the wire will start to twist over on itself. (This eventually makes a relatively good-looking "rope" or "cord" effect, but ruins the appearance for barbed wire.)

When finished twisting, take another length of wire and fasten it to the dowel - it doesn't need to be a "sturdy" fastening, but sufficient enough to keep this additional wire from shifting. Begin wrapping the new wire around the twisted length at regular intervals, as demonstrated in the picture. A little bit of planning **is** required, as there are numerous ways to wrap the new wire - multiple twists, variable gaps between wrappings, multiple wrappings so as to end up with barbs facing different directions, etc.

In this example, however, the new wire is wrapped 1 1/2 times so it finishes on the opposite side of the twisted wire from where it started, while looping the new wire so it approaches the twisted wire from alternating sides. Ensure that you are pulling each loop tight before moving on to the next, as any gaps between the wrapped wire and the twisted wire will ruin the effect!

For 28mm scale, I've found a distance of 3/16th" between wraps to be appropriate

appearance-wise, and a single wrapping to be sufficient - a ruler or tape measure is *very* useful to ensure consistency of appearance.

The second (but optional) step to this stage is going back over the finished wrappings with a pair of narrow pliers, pinching them together length-wise along the twisted wire and also flattening the wraps slightly against the twisted wire itself - not so hard that you deform them, but sufficient to limit free movement. Even when glued, they are still inclined to "spin" if jostled sufficiently, otherwise.

The next (necessary) step would be to apply a dot of free-flowing glue to each wrapping. I would recommend applying the dots of glue to the back/non-facing side of your eventual barbed wire, but this is fairly negligible if the glue being used is able to flow sufficiently into small cracks to "lock" the wrapped wire into place.
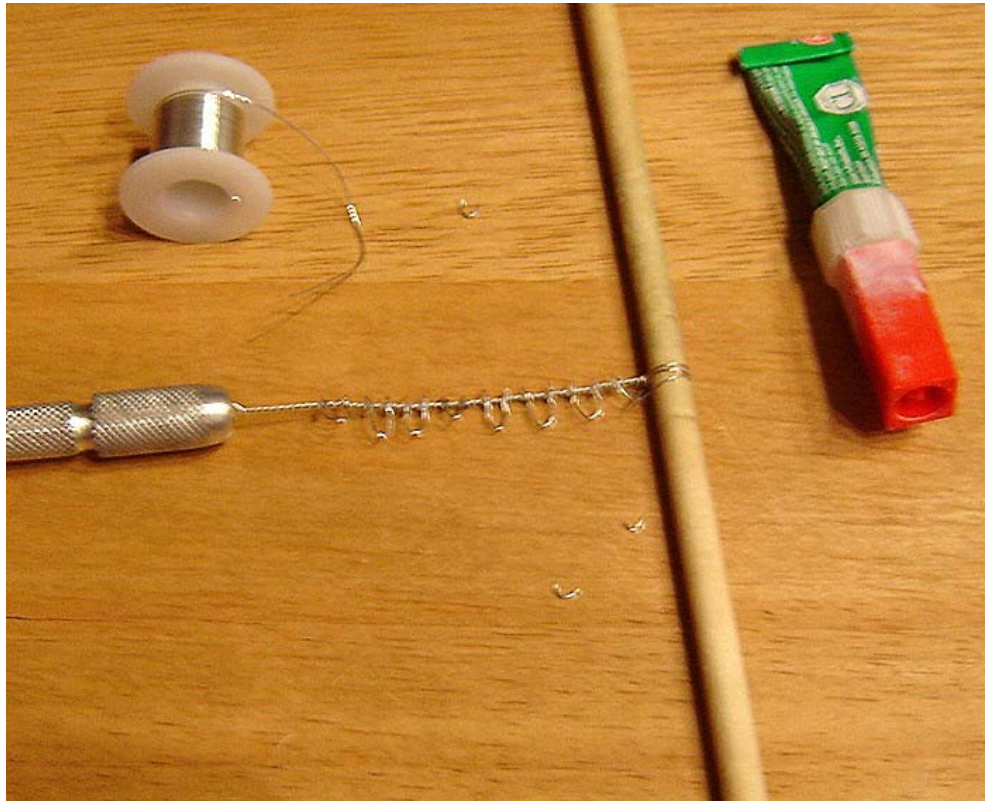
With wire snips, begin trimming the loops off at an appropriate distance from the twisted wire. A recommended approach would be to trim off the loops at a reasonable distance from the twisted wire, and then go back and trim them to a scale-appropriate length afterwards. In this example, I trimmed them off at roughly 1/16th", as I've found that if the length of the extended "barbs" exceed the thickness of the twisted wire by too much they don't look natural.

The final length of barbed wire - appropriately trimmed and separated from the dowel and the pin vise. It is highly recommended that you position your barbed wire on the intended model or scenery piece before that piece is painted - although possible, I've found it fairly difficult to "apply" the barbed wire after the fact without it getting caught on protrusions and potentially scratching a finished paint job. On the positive side: I guess the barbed wire works properly, even at miniature scale!

An example of the finished, glued version wrapped around waist and left leg:

In this example, the "barb" wrappings were spaced a little less than 1/4" apart. In the tutorial pictures, they were spaced 2/16" apart - 3/16" would be an appropriate happy medium and what I would personally suggest for 28mm scale, but again, that's where planning and the scale of the intended placement comes in.

Mud Huts

by Kevin Bressman

"airhead"

Today, we are going to make a mud hut for the villagers:

You will need several del Monte fruit cups, a hole saw and a drill (or an x-acto), paper towels, yellow glue, paint, disposable cups, paper plates, tweezers and water. Start with clean del Monte fruit cups. They come in packs of 6 so save them and wash them out.

Got what you need? Ok, drill out a 1" diameter hole in each one. (villagers have to have a door in their mud huts) Optionally, you could do this with a circle template and an x-acto knife, but it wouldn't be near as much fun.

Now if the noise and plastic shavings haven't gotten you kicked out to the garage, let's get messy. Take a disposable cup, about half an ounce of yellow glue to an ounce of water (15 ml of glue to 30 ml of water) for each 3 huts (your mileage may vary). Tear up a paper towel into little shapes about an inch to an inch-and-a-half square (25 mm to 40 mm). Use the factory edge along the bottom of the cup. One sheet of paper towel will do about 2 huts. Set you plastic mud hut on a paper plate. Dip a piece of paper towel in the glue

solution. Touch it to the side of the cup to drain out the excess, apply it to the hut.

Continue applying wetted paper towels to the hut. Overlap all your joints by half the width of the previous piece. You should have double coverage at least when you are done. Move up a row and repeat. This should put you about even with the top. Be sure to overlap the row below as well as the previous piece. There is a depression at the top of the hut.

Several layers of paper towel will build this up to a domed shape. Continue applying paper towels until the entire hut is covered and there are no thin spots.

If you have any areas that are standing out, smooth them down with your fingers. Take a paper plate and invert a disposable cup on it. Set the hut up on the cup to dry. This will let the excess glue drain out and not glue the hut to the paper plate. Repeat as many times as you have huts. Let dry overnight. Looks icky? Take them out and invert them. Spray the insides with flat black.

Let that dry a bit and prime the outside. I used a brown automotive type primer (rustoleum) to save a few steps here. Spray a fairly heavy coat. This will seal the paper towel and glue.

All that is left is the painting. I gave the brown primer a dark brown ink wash. About 50/50 brown ink and black ink very diluted with water. A large brush will help speed things along here.

Finally a couple of layers of highlights are added. I used a heavy drybrush of Oiled Leather (Reaper pro paints) but any medium brown will do. (I think a bit of red helps in the brown, but I grew up in red clay country). Finally, a lighter yellow/brown for the final

highlights is added. I used Hawkwood. GW could use Bubonic Brown and Vermin Brown. Feel free to change here. Your world's mud may be a different color than mine.

And here is an ettin ready to go home after a long day of pillaging adventurers.

BloodBowl Pitch
by Matt Stevens

"Rev"

At some point in our lives we all get back into bloodbowl. Its a given. Now were older though, and were allowed to play with things like power tools and saws we can go that little bit farther than we did when we were 13...

This article will give you a good idea of how to make your very own BLOODBOWL PITCH!

Before I write this article on how to build a BB pitch I want to say that I used loads of other peoples pitches as inspiration for mine. though the pitch is all my work, the ideas are taken from a whole host of other peoples sites and images found via google and the talkbloodbowl and specialist games forums. credit where credit is due.

The whole thing took me 6 days (on the 7th I rested) and cost about £60.

STAGE 1 - PLANNNING

I wanted my pitch to:

1) Be transportable (therefore fairly light)

2) Be 3cm per sq (see much forum debate..)

3) Be raised, so the dugouts can be sunken.

4) Make people gasp when they see it.

5) Have all the markers, counters and stuff included

I did not want it to:

1) Fall apart in a comedy fashion when picked up for the first time

2) give me splinters

3) look tatty

With these things in mind I scoured the net and found loads of pitches made by other people. most were fabulous - I had a lot to live up to!

I started sketching plans roughly, until I decided on a final idea, then drew scaled down on a sheet of A4.

After this, I did a scouting trip to B&Q to check out material costs. If it was too expensive I'd have a nice BB pitch but no wife...

With all my plans thought carefully through and researched (2/3 days later), I went shopping

STAGE 2 - THE CASE

bought::

1x sheet 12mm 3 ply @ £10 ish (B&Q) 1x brass handle £3 2x Brass clasps £2 2x 60cm brass hinge £3 ea bag 30mm screws

Firstly you need to take the massive bit of wood you just bought and take it down a peg or two.

Using your detailed plans, mark out in pencil the pieces you need, and carefully begin to cut them up. I recommend a jigsaw, but if you need a workout a normal saw is fine:

You're looking to end up with a pile that looks roughly like this:

First glue the long hinges to the two bigger sections which will form the base. This is because the side pieces need to sit on top of the ends of the hinges (according to my plans at least - you might be smarter than me..):

I used 3 screws and a splurt of woodglue to attach each side to the base - after marking out and drilling pilot holes for the screws. I also countersunk these holes, so the screws wouldn't knacker my dining table:

OK you now should be looking somehting like this, the hinges are on, the sides are either attached or ready to be glued and screwed into place:

Keep going until both pieces have 3 wooden 'walls' and a hinge on the open side.

When you get these 2 pieces finished, you are ready to attach the hinges to the center piece, which will form the bottom of the case when you fold it up:

Go into your loft and keep looking until you find half a pot of varnish. If you're a kid reading this, trust me your dad has one up there somewhere. If you're an adult - You know you also have one from that left over project you started last year.

Now wait for a sunny day (not too sunny actually, a dry day is fine.) and go and varnish the beasty case you have made.

Once its dry Paint the inside (I used black) being careful to mask off the areas you want to stay nice and clean.

et voila - one foldable case for your BB pitch.

STAGE 3 - THE PITCH

The pitch is the tricky (and expensive bit - styro foam is pricey) I decided to use styro foam (slightly denser than polystyrene, light but still hardwearing) to raise the pitch.

Its quite hard to cut in straight lines, but you need 3 pieces –
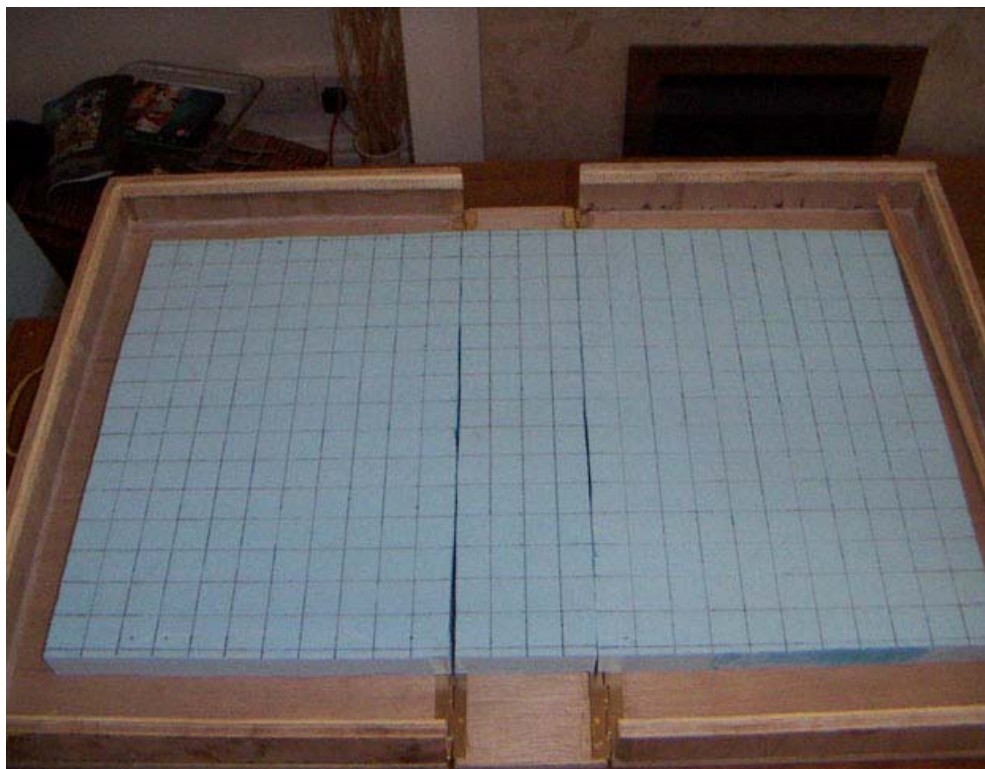
each square is 3cm sq.

the 2 bigger pieces need to be

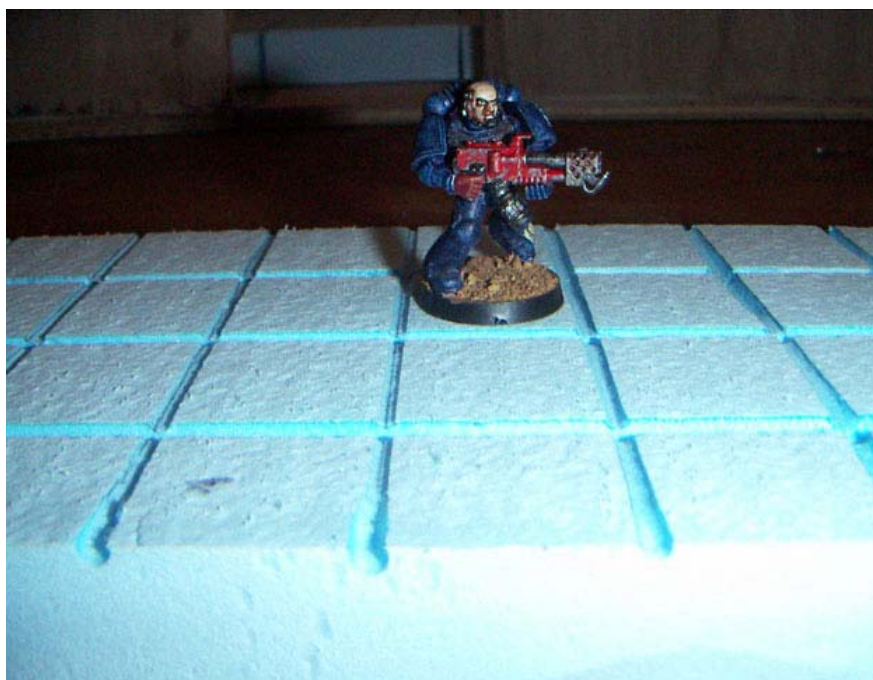11squares x 15 squares (the TOTAL pitch is 26x15 squares)

the center strip needs to be 4squares x 15 squares (this is a separate strip so it can be removed, so the pitch can fold.)

Once the pieces are cut, I marked out the squares with a ruler:

This next stage is a bit mental. I'd recommend NOT doing it my way and trying to find a safer way of doing it.

Basically I wanted the lines to be indented, rather than 'painting' the lines onto the finished pitch:

The reason its fairly dangerous is that I used heated skewers and bits of metal rod (sandwiched between two bits of wood to form a handle) to melt lines into the styro foam:

I used a ruler to keep the melting in a straight line.

This is really nasty stuff and gives of a really toxic blue/green smoke. I used a highly protective mask (a tea towel wrapped round my face) and sophisticated ventilation system (I opened the windows and got a deskfan) to keep myself from suffering respiratory failure. BE CAREFUL!

It is however the most effective way to achieve the desired result. I then painted the sections black.

After the sections had been painted black, I used a small brush and white paint to mark out the lines by painting in the indents. the Line of scrimage, the wide zones and the touchdown area. Dont worry about being messy with the white, you can always touch it up easily afterwards using the same brush and a pot of chaos black.
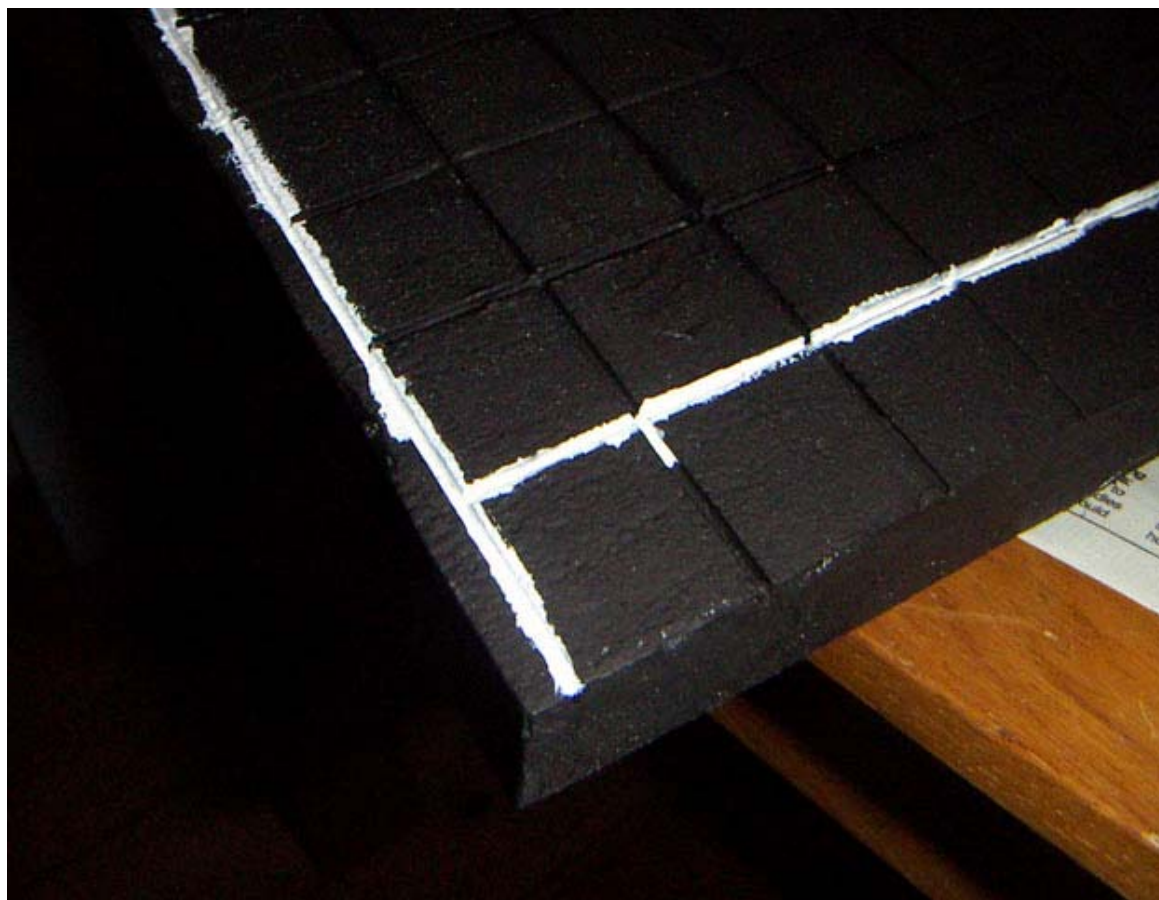
With the pitch undercoated you can start flocking. I used 2 different shades of static grass from my local hobby store. I got 2 bags of JARVIS 'summer grass' and 2 of JARVIS 'spring grass' to achieve what I hope looks like a 'freshly mown' look to the pitch.

I flocked in sections over 2 days, being careful not to get glue in the indented lines, (this will mean the black shows through to mark the pitch) and also being careful to put the right color flock on the right squares. I simply used PVA/white clue from the early learning center for this - the black provides enough backing for the little that shows through, I decided it didn't need to be undercoated green.
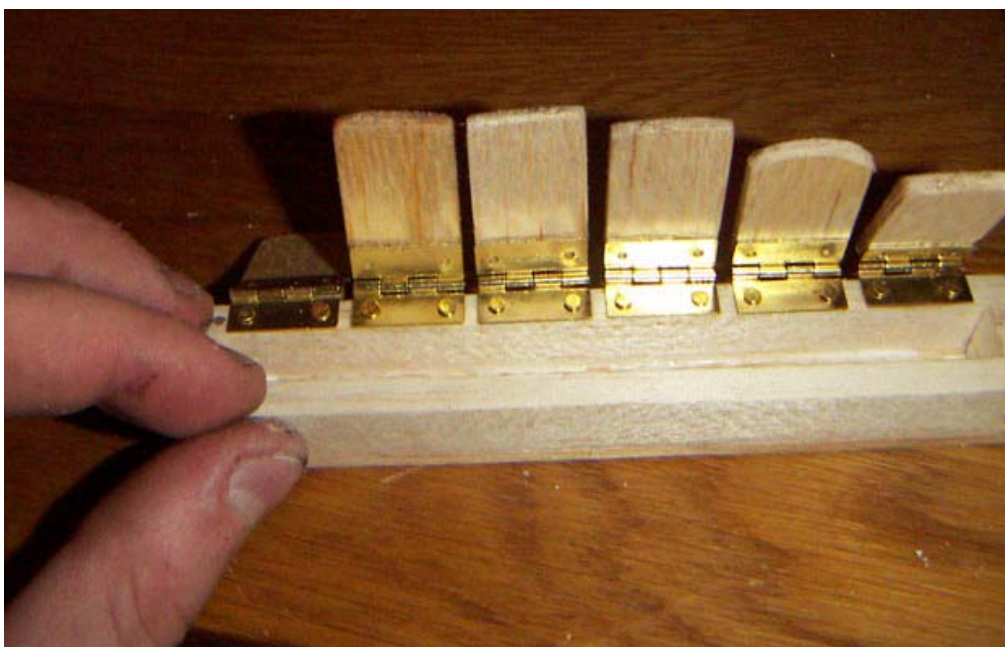
STAGE 4 - THE EXTRAS

my pitch needed to include

1) Turn counter

2) Re-roll counters

3) Score marker

4) Dugouts.
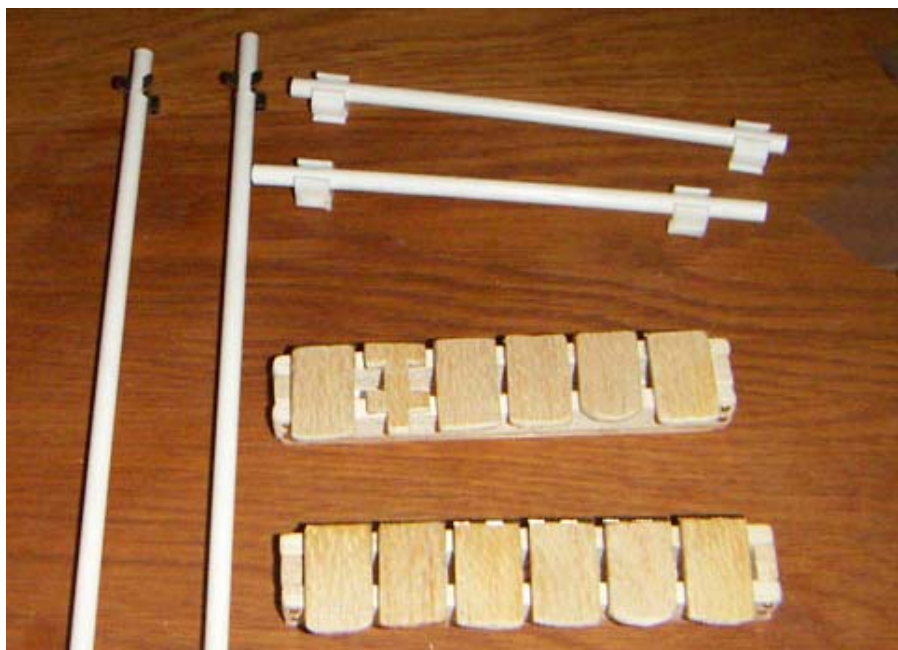
I made the re-roll counters first, because I'd had a good idea... I wanted to do 'flip up' counters like the game guess who from when we were kids - remember? I bought 12 tiny hinges (19mm ea) and some thin balsa wood and constructed 2 (one per team) little boxes:


which then got a bit of paint too:

These get glued (not now!) where you can see them in the finished pictures, either side of the dugouts.

The Score counter" I also had a firm idea for. I played loads of table football as a kid, and I loved snapping

the colored score beads from one side to the other after scoring a goal. I wanted to use a similar system - so I bought 2 hollow lengths of plastic tube from B&Q. one was 6mm thick , the other (to be cut up and used as 'score markers' was 8mm thick. see the master picture for these babies.)
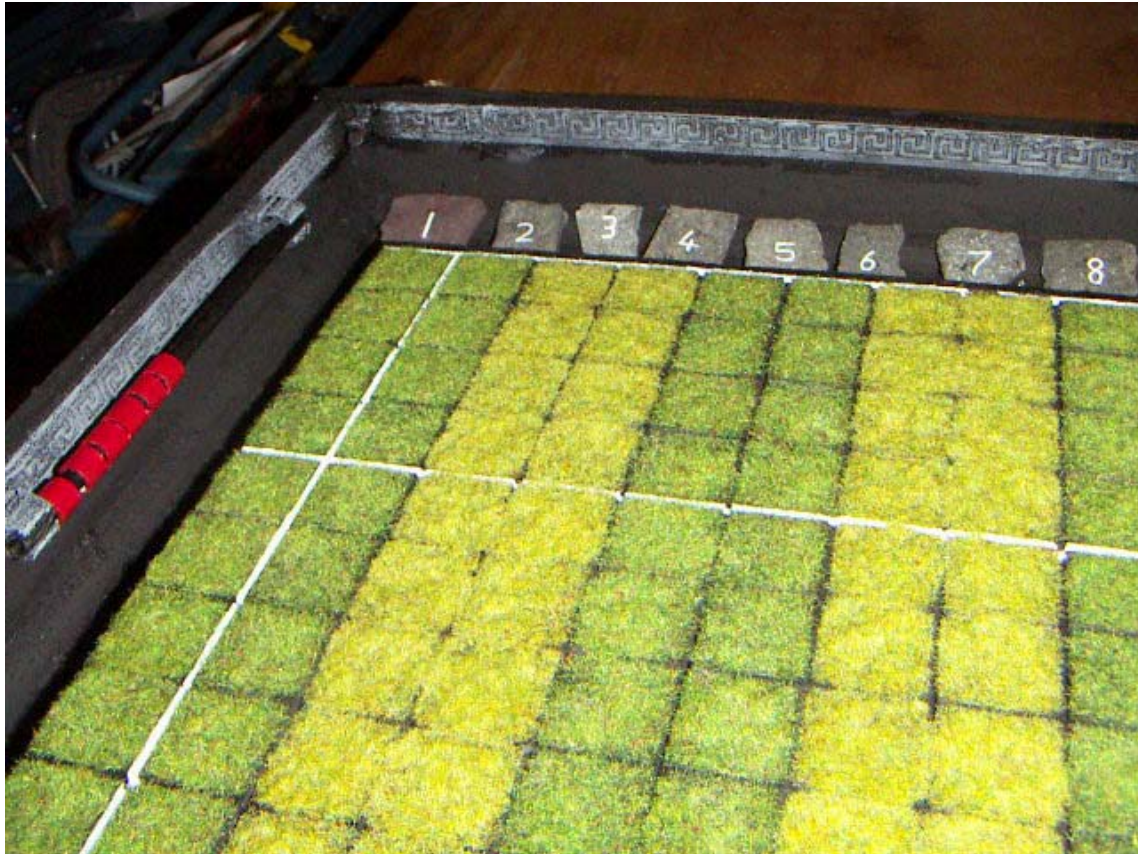
I also needed a way of keeping record of the turn. I've always found it a bit daft that GW use 2 rows of 8, one labeled first half, the other second half.

My first idea was to use one row of 8, with a counter that said first half on one side and second half on the other.

the problem with this, was that I didn't want to have loose counters in my carriable case.

I decided that I'd use the same 6mm tubing as I used for the score marker, but would use 8

pieces of flint with numbers painted on them. The tube runs over them and has a 'sliding severed head' which you move to keep turn. Cool huh!

The final stage was the dugouts. I used more melted styrofoam for these, and painted them black drybrushed grey. The floor I used modelling sand and PVA, painted black and drybrushed in stages of brown up to bleached bone.
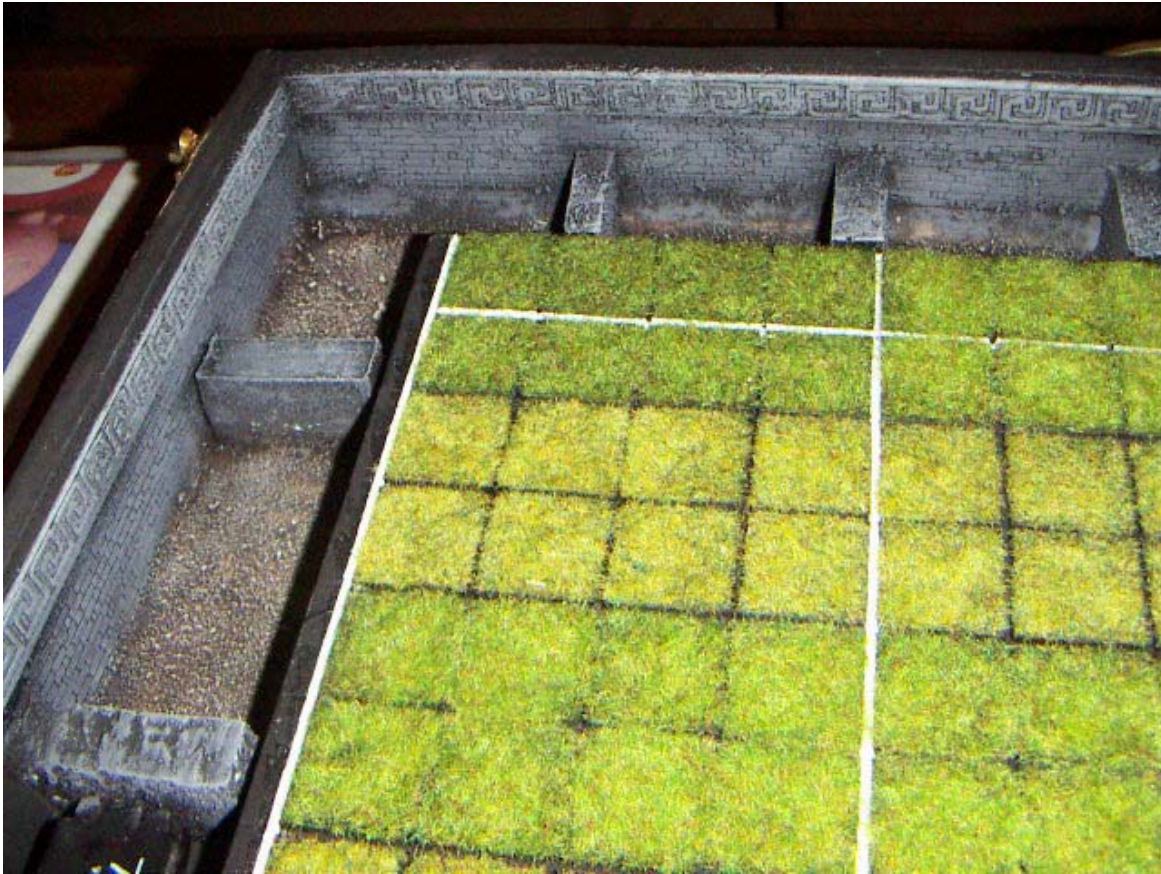
STAGE 5 - NEARLY FINISHED!

OK nearly done.

All you need to do now is glue the pitch sections in place, and add any more details you fancy. My human team is called the ESTALIAN STALLIONS, so I wanted a cool stallion in the center of my pitch. I used a famous car manufacturers horse design, printed it and made a template which I then sprayed CAREFULLY:
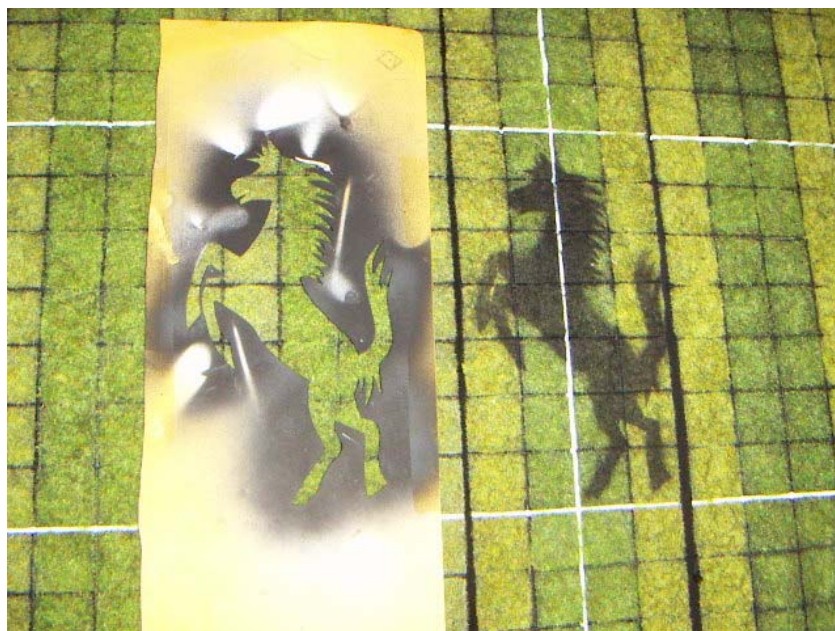
And there you have it, a blood bowl pitch in one week. GO FOR IT!

TOOLS AND MISCELLANEOUS

References and guides to make your own painting aids

We present series of articles that make a miniature painter's life a little easier. Make your own wet palettes easily from blisters instead of buying them, pick your best brush, figure holders and more follow!

Paintbrush selection and care
by Bobby Wong

A paintbrush is probably the most important tool that you will purchase in helping you bring a miniature to life. With proper selection and care, a good quality paintbrush is an investment in the miniature-painting hobby, and can make the experience all the more enjoyable. With a fine tip, you, the painter will have more control in the application of paint, exactly where you want it to be. So take extra time in choosing and caring of your brushes, as they will result in your best possible work.

Anatomy of a paintbrush

In general most paintbrushes are still assembled by hand with brush tips made from either natural or synthetic hairs. These hairs are bound together with cord or nylon rope and then set into the metal ferrule with a wax based adhesive. The wooden or plastic handle is then pushed into the back of the ferrule and held in place with a crimp. Knowledge of how a paintbrush created is important, because it allows you to properly care for your brush. Because the adhesive that holds the brush hairs is wax based, you should never rinse your brushes in hot water. This can melt the adhesive, causing the hairs to unseat themselves, losing the valuable pointed shape necessary for fine control. Also, the contact point between the handle and ferrule is not waterproof. Any moisture that collects within this area from indiscriminate washing will cause a wooden handle to swell and then contract, resulting in loose paintbrush handles.
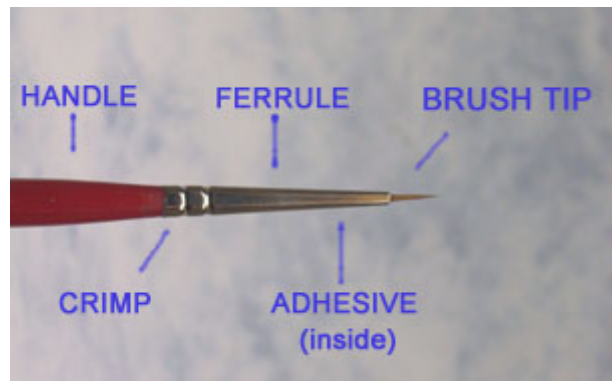
Brush hair types

Traditionally paintbrushes were made with natural hairs. Today we have synthetic nylon bristle brushes specifically designed for use with acrylic paints. Sable brushes are generally regarded as the best material for natural hairs. Red sable is considered a good grade of material obtained from weasels, and the type of hair most novice painters are familiar with. Kolinsky Sable is the most expensive and highly regarded natural hair from tails of weasels found in Northeast Asia. It has an almost unnatural ability to hold a pointed shape due to the natural taper of the hair fibers. Paintbrushes made from ox, badger, goat, horse, or mongooses are not suitable for use in miniature painting, mainly due to their inability to hold a fine point.

Synthetic hair paintbrushes are a more recent innovation, made primarily from nylon or polyester fibers. They can also be manufactured with a tapered shape, and can have a stiffer feel compared to natural hairs. They are also more resistant to solvent damage, and do not wear out as easily as natural brushes. Low grade synthetic brushes will eventually curl at the tip, forming an annoying hooked shape.

Regardless of what kind of brush hair you choose, make sure it is the best quality you can afford, and be prepared to spend some time picking and choosing the best brushes available to you.

Where to purchase brushes

One of the best places to purchase paintbrushes is your local art supply store. Invariably they will have a larger selection of brushes, allowing you to choose from handle length, hair type, hair style, etc. I'm not trying to put your favorite hobby shop out of business, but if you are serious about painting to the best of your abilities, you owe it to yourself to broaden your horizons. One benefit of an art store is that you can actually "try out" the brushes. Better grades of brushes will come unpackaged, point up. A good art supply store will have a pot of water, and special brush paper for you to test the point of the brush. By dipping a brush in the water and painting several lines onto the paper provided, you can accurately judge if the brush has characteristics you desire. Don't worry, the water evaporates off the brush paper, and can be reused. In addition most art supply stores offer frequent sales and discounts if you have a student ID.

Brush selection

When purchasing a paintbrush, you have to keep in mind what you are really paying for is the brush tip. This is really important because you are looking for a brush that comes to a fine taper, with no frayed hairs, and a sharp firm point that doesn't waver when you apply a brush stroke. When you find a brush without any visible damage, (such as bent hairs, etc.), dip it all the way to the ferrule into the water, flick off the excess, and form it to a sharp point with your fingers.

(Left to Right) pointed, "fishtail", stray hairs, hooked tip

Now test the point:

1. "Paint" several straight lines on the paper provided. Does the tip fishtail or break up?

2. Now paint little swirls on the brush paper. Any problems yet? If not you probably have a good brush.

3. Finally lightly "stab" the tip onto the paper, as if you were painting many tiny dots.
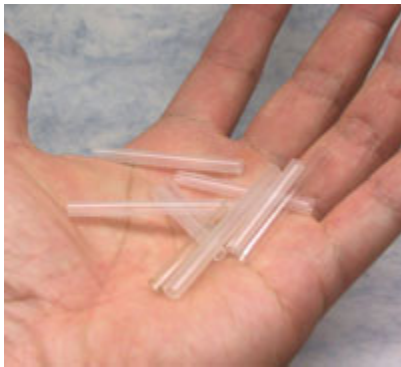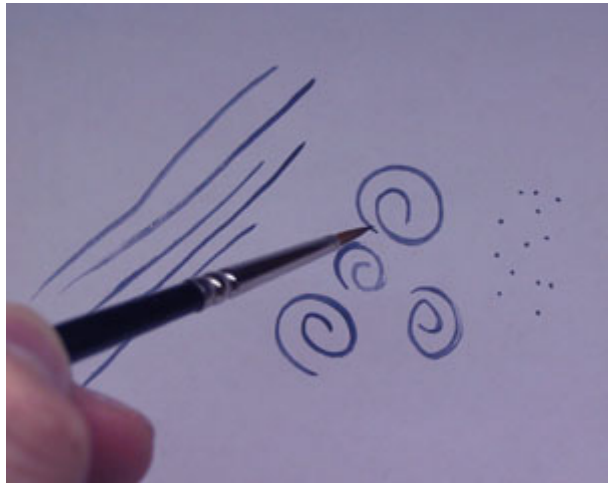
Does the brush still have a good point? If so, perfect! You now have a brush that exhibits good snap (ability to retain a pointed shape), a quality much desired by artists in their brushes. Now make sure you find another paintbrush with similar properties and purchase the best one. Don't forget to pick up a few caps to protect the brush hairs.

Care of your brushes during use

There are a few rules that I follow when using my paintbrushes. I never use the brush tips to mix paints. I never dip the tip of the brush into paint so deep that it gets into the ferrule. Any buildup of paint in the ferrule can cause the brush hairs to splay out, ruining a fine tip.

If I notice paint collecting near the ferrule, I stop painting immediately, and rinse the brush in warm water and soap. This is inevitable, because capillary action will draw paint up into the ferrule no matter how careful you are. The key is to stop and clean it out before paint has a chance to dry inside the ferrule. You can use this time as a break to change your water pot, and stretch out you back. In addition, wash your hands frequently when the brush feels slick after hours of painting.

Brush cleaning

After each painting session, take the time to carefully inspect your brush. Look for frayed hairs, and carefully tease them out if necessary. Purchase specially prepared "brush soaps". Various manufacturers sell these, and they safely remove the rings of paint under the ferrules easily. In addition they replace natural oils removed in most cleaning processes. Use brush soap to remove any paint you find between fibers and under the ferrule according to the instructions. If you paint frequently, condition your brush one a month or so. I use shampoo with conditioner on them. Swish your brush in some hair conditioner, wipe off the excess, shape to a point then leave it upright for an hour or so. Rinse off well with lukewarm water, then with a little brush soap, shape to a perfect point. Let it stand upright with a cap on them. I actually put my brushes in the same cabinet as my miniatures, so they will remain dust free!!!!!

A newer product you should try is liquid brush cleaner. Liquid brush cleaners do an even better job than most bar or tub style brush soaps. Being quite viscous, liquid brush clean actually works its way up the bristles into the ferrules, dissolving trapped paint. Even previously cleaned brushes (using brush soap) will rinse out with dirty paint flecks.

These days, I clean my brushes with liquid brush soap, and condition and shape the tip with bar style brush soap to get the best of both worlds.

My Favorite brushes

My preferred brushes are the vaunted Winsor and Newton Series 7. The are alleged to have been commissioned by the queen of England herself back in the late 1800s. I've been using these brushes for 3 years now, and haven't found any better for my painting style. Be warned, they are extremely expensive. A 3/0 can run $14USD or more. But are certainly worth their price. They hold a fine point, have the desired "spring" when laying on paint, and are very resilient to wear. They have the right balance between a fiber that is too limp (cheap nylon) and too stiff (hog hair bristle). I heartily recommend them if you are willing spend the money. I have also tried various brands of fine sables with success from Raphael and Isbly. Regardless of the brushes I prefer, every miniature painter should find a brand of brush that suits their

particular style of painting and requirements. If possible, experiment with different manufacturers and hair types; I'm currently trying out various synthetic/natural blends to test their suitability for my purposes.

I hope this article has been of interest to you. There are many more articles on the Internet that deal with brush selection and care; I hope I have succinctly provided all the necessary information to help you choose and protect your investment. Proper care of your finest tools is not a guarantee for painting excellence! It can certainly make things easier while painting; for you can now concentrate on technique, rather than make due with a poorly maintained brush.

Quick and simple wet palette

by Scott Spieker

"scspieker"

A while back, I had been poking around the Mini-painters yahoo group and found a quick little snapshot of someone's wet palette. I had always had a problem keeping my paints in a liquid form long enough to make a difference. So I had tried this little bobble and found that it helped tremendously - not only with keeping the paints wet, but also with my overall painting - since I was able to blend colors and keep them wet long enough to keep the same color consistent over the whole miniature.

So I had started with the back half of a Rackham Confrontation blister. I had separated the front and the back along the hinge. Now the blister would open and close with a separate lid rather than like a clam shell. The original wet palette (from the mini-painters group) called for a wet paper towel and a cut sheet of parchment paper. This method worked well enough, but the paper towel would not remain wet for more than a day or two and the parchment allowed the water through to easily. So I began looking for a new

solution in the same packaging.

I visited my local craft store and found an honest-to-god wet palette made by a company called Masterson, but at 15" x 11" and $20.00 US it was far to large and costly than I was willing to pay. However, the supporting elements of the palette were more of what I was looking for anyway. The palette included a compressed sponge and some acrylic palette paper. Naturally these items were the size of their retail palette, but being only paper and sponge they were easy to cut and apply the way that I needed them. With the expenditure of $7.50 US I purchased one package of the Sponge and one package of 30 sheets of palette paper. Not bad in my opinion.

I had taken the items home and decided that the proper size to fit my blister would be 2.5" x 3.5" - about the size of a normal playing card. I determined the best use of the sponge and paper was to measure the longest dimension along the longest edge of the paper. I drew the

appropriately sized lines on the paper and sponge then used a metal ruler and a new sharp hobby knife to cut the pieces into the appropriate sized rectangles. With these measurements I yielded 12 sections of each paper and sponge. With 30 sheets of palette paper, I was going to be in business a very long time. The sponges will last a long while also, so I have yet to discard the first piece.

Now that I had all of the pieces cut to a uniform size, all I had to do then was to prepare the palette for its first use. First I ran some hot water in the kitchen sink then lain the palette paper in the sink with the water running directly onto the paper for about a minute. At this point the paper became semi transparent as it absorbed the water and became saturated.

The next step was to wet the sponge. At first I wasn't sure that the sponge would fit into the palette once it was expanded. So I needed to try and figure it out for myself. So I moistened and rinsed the sponge in water in the sink. There are some form of chemicals or adhesives that keep the sponge compressed, so rinsing it released these chemicals and allowed the sponge to expand to about a quarter inch in height - perfect for the blister container I wanted to use. After rinsing for a few minutes, I lain the sponge in the sink and ran **Cold** water directly into it again for about a minute. The sponge was saturated at this point. I picked it up by a corner and let some of the excess water drip off without ringing.

I then laid the sponge in the blister backing, then the wet palette paper on top of the sponge and neaded any air bubbles out from under the paper. I used a a paper towel to wipe of excess water dropplets from the top of the paper and VIOLA! I had a brand new wet palette.
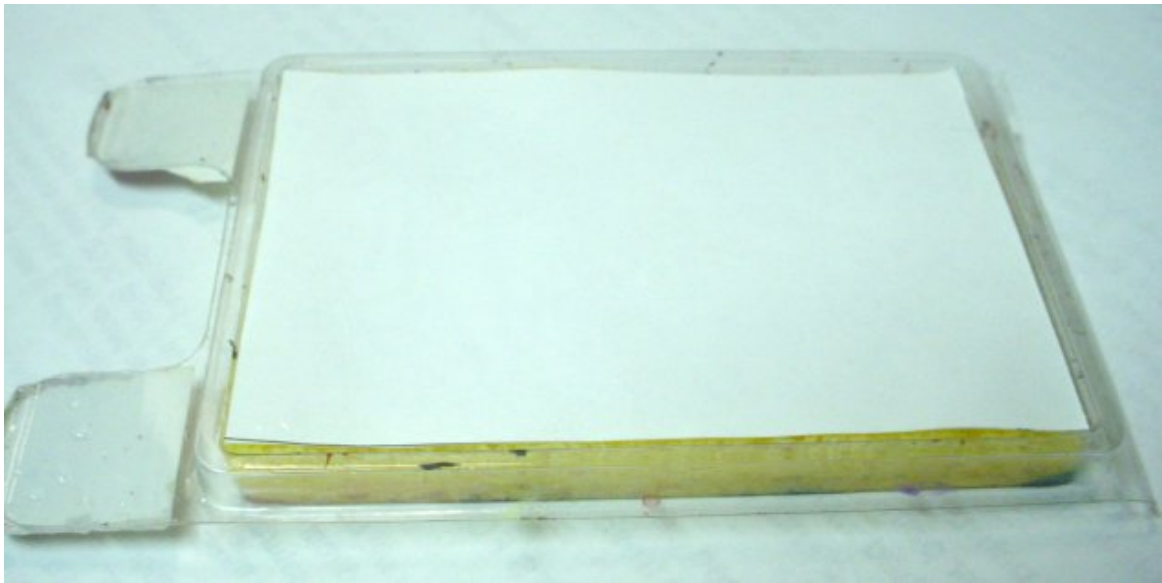
After using the palette for a couple of days, I would throw out the paper and wash the sponge to help remove any mildew or paint that managed to soak into the sponge while mixing. I have also found that **Distilled Water** helps to keep mildew out and also keep the paints from pooling - often a trick to remove the pooling effect is to add a few drops of dish soap. Also a 1/4 teaspoon of ammonia added to the blister will remove any possibility of mildew buildup or smell. The ammonia does not effect the sponge, paper or even the paint.

When I was finished painting for the day, I would just place the lid of the blister over the backing and store it in a safe place. Obviously blisters are not water or air tight so evaporation or spillage is a possible problem. Keeping the palette level and replacing the lid when not in use will reduce the amount of evaporation tremendously.

In cases where the palette had to travel with me, I would slip it into a zip-lock storage bag and place it in a location where it would most likely remain level throughout the trip.

Stackable Wet Palette

by Ginny

"Gin1906"

I have seen articles that talk about using a blister pack, but you can't hold a lot of different paint on one. I came up with an easy stackable plan. So with out further ado… Ginny's mini's stackable wet palettes. Items needed Wet palette paper Sponges (I used compressed sponges) Round stackable containers, I found these at my local craft store and at Wal-Mart, in the beading area.

Using just one of the containers, trace circles on wet palette paper, cut out circles, set aside. I always cut extra and store them in the bottom container.

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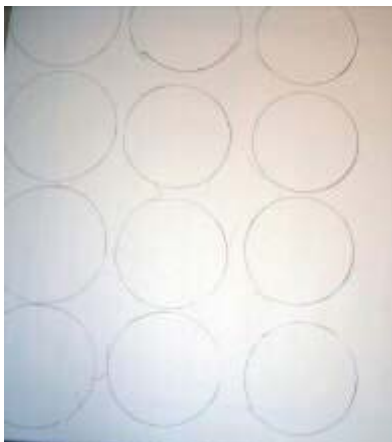
Next using same container, trace circle on sponge. I find compressed sponges are easier to trace on and to cut out.
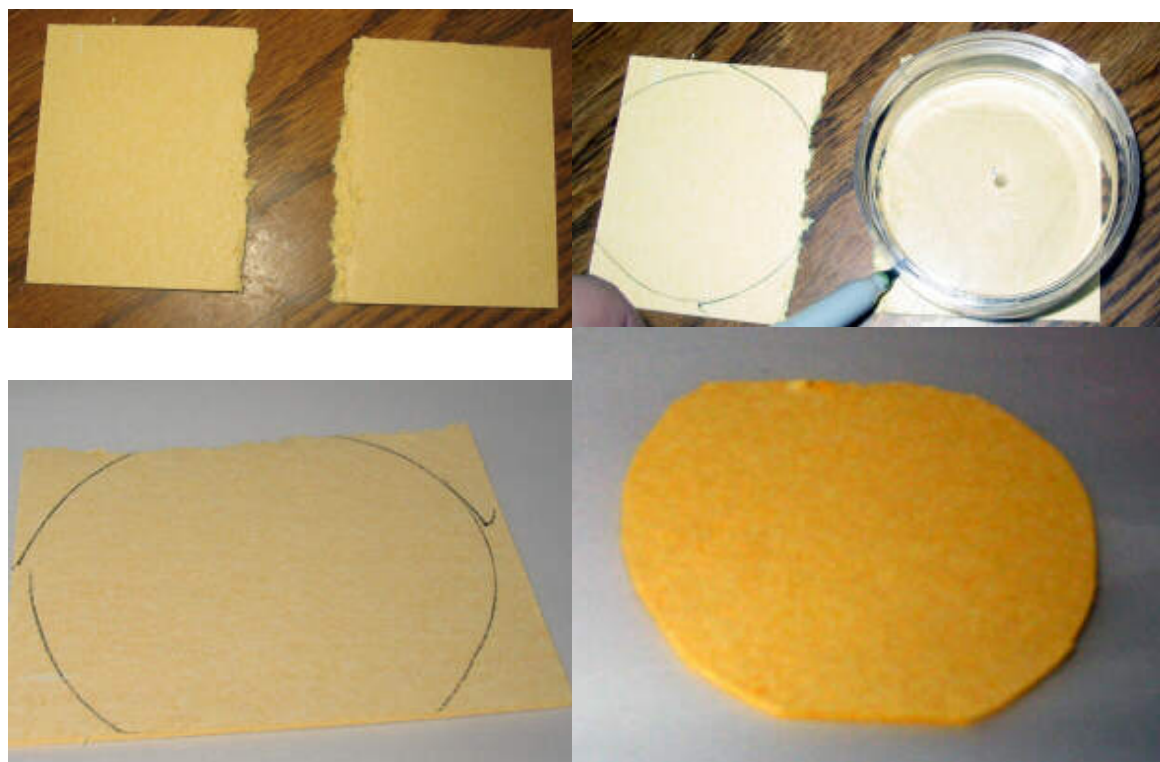
Then get sponges wet insert into round container.
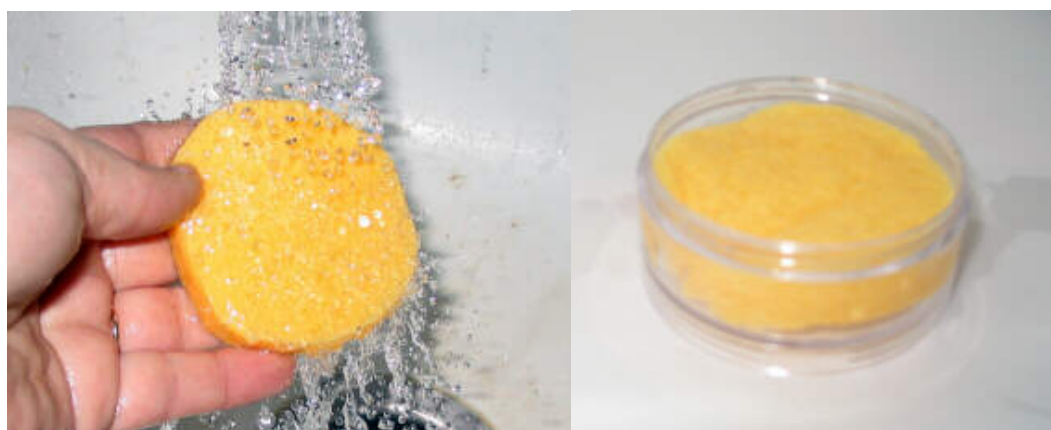
Next wet the wet palette paper per manufacturer's directions, then place on top of sponge.

Now stack round containers. You have a four level wet palette. And there you have it one very easy, fairly inexpensive wet palette; I have found that it is nice to have flesh on one level, armor on another, clothing on another…and so on.

I hope you have enjoyed my article and found it useful.

Cheap Figure Holders
by Elliot Saunders

"ejsaunders"

Essentially, there are two good ways, one cheap and some-what Do-It-Yourself, the other already assembled but slightly dearer. The former I started making myself a few years back when I found a place to get very cheap X-Acto copy handles. All the companies mentioned in the article will be listed at the end of the article so interested parties may get their own handles.

First up is my favorite handle and its extremely cheap - the X-acto copy handle and a crocodile clip. Both can be obtained fairly easily and cheaply from the UK company CPC (US versions will be listed at the end of the article), who stock both crocodile clips, and X-Acto handle copies. Although you can buy the handles in a set of three (with blades and one of each the big 'red', the medium metal, and small metal handles) from Warehouse Direct for only £1 (the postage is slightly expensive however if you don't order much).

The cheaper handles come with a plastic collet rather than the metal one in real X-acto handles, but so long as they have a hole down the middle (that is just the same size as the croc clips incidentally), you'll be fine. I find some figure are slightly too heavy for the plastic collets - which are no good for use as knives because the collet doesn't stand up to force, which is needed to cut, but is fine for holding the croc clip and figure, even a metal one, because you don't press hard on the figure while painting, unless you're really ham-fisted - in such cases, a suitable handle can be found in the real X-acto with the metal collet. The Games Workshop Ogre Kingdom models are too heavy for plastic collets for instance but can be held fine in the metal ones.

This holder is easy to make, just get a crocodile clip, often available from science supply stores, online or you may have luck and already know where to get some. If you're still in school you're school might let you have a couple for free if you ask the science technician teacher or you could arrange to buy some from them when they next order with their supplier. The crocodile clip is the most important piece, because a few of these will allow you (with a piece of wood with suitable holes drilled in it) to use one handle, but paint up many

figures at a time.

I made a small Medium Density Fibreboard (MDF, also sometimes referred to as Masonite in the US but it is slightly different) water-pot and croc clip holder so I could let my figures dry while I moved on with something else. Any piece of wood off-cut would work; I even made a small covered shelf out of some off-cut pine at one point so that I could paint up my Space Wolf army (covered it with a box made of cut acrylic, stuck with plastic cement so the dust couldn't get in).

Because you aren't handling the figure, you're not likely to get any oils or greases from your fingers on the piece, making the paint stick better, and of course, give you a better finish.

I converted an old swivel vice I had lying around (I tightened it too much and, well, it broke, so I abused it slightly) and made it into a holder suitable for painting freehand - my 'student' (i.e. my brother in law) uses it for painting eyes or when he starts to shake after a few hours of holding a figure as still as possible (we all do it, don't worry, its not just you). Using the swivel vice allows him to move the figure to a suitable position, re-tighten it and start painting! The vice was originally from Warehouse Direct.

Mostly all figures will happily fit into the crocodile clip holder, although some figures can be too top-heavy and some Games Workshop figures, or those with suitable tabs can better be held in a machinist's vice.

This allows you to clamp the tab and hold the figure firmly whilst painting. Both handles allow access to every part of the figure, so they are extremely handy.

For those who want to use the small knife handle for something, consider putting in a small drill bit. I find sometimes it slips about, so adding in a small amount of epoxy glue will keep the bit tight, and give you a holder suitable for small parts - rather like a 'free' pin-vice, because the handle isn't suitable for cutting (if it has a plastic collet) and has no hole for use as a croc clip holder. You can see I've added a drill bit (also from Warehouse Direct, which do small boxes of 10 drill bits for £1 too, a great way of getting lots of tiny bits [they start at 1mm which is suitable for most small pieces] and go up from there. 3mm is about the biggest you'll probably ever need if you only paint 54mm or under. For some figures such as large Forgeworld pieces or those over 54mm larger bits are probably recommended, but they may be too heavy to be held in the plastic collet. If you routinely paint large figures, consider getting a real X-acto handle with a metal collet, or a pin-vice. CPC sell pin-vice much cheaper than Games Workshop does or try Wargames Foundry.

Both of the large, 'red' and medium metal handles work fine for holding figures however, so out of one box of handles you'll get two suitable holders - remember, its just a few crocodile clips you need, not holders.

You can also use a haemostat, which is suitable for holding pieces that have a flat area on them (like the tab on Games Workshop figures). I bought mine from CPC and Proops.

Search Google (or try Froogle) for crocodile clips for the holder piece (they are on the far right in the first image and look like little serrated clips). Try Xacto or knife handle for the handles themselves, you ideally want either the one with the red bottom (mid first image) or the medium sized one (second in from far right in first image).

Searching for it locally

Machinist's vice or hand vice is what you want to search for for those two handles suitable for holding Games Workshop figures (or others with tabs, thought the croc clip type will hold them fine too, which are on the far left in the first picture, the metal one is slightly larger than the black one. The metal one was from CPC and the black one from Poops Brothers, both in the UK). Haemostats are available online from dental or medical suppliers and electrical

suppliers, such as Radio Shack in the US also often carry the crocodile clips and haemostats for holding PCBs or solder work.

UK Suppliers

http://www.proopsbrothers.com - sell machinist vice, pin vice.

http://www.cpc.co.uk - sell pin vice, Xacto handle copies, croc clips and machinist vice.

http://www.whdirect.co.uk - sells Xacto handle copies, cheap superglue, drill bits, tools and cheap nails (suitable for pinning). Most things are about £1.

US Suppliers

http://www.sciplus.com - sell croc clips, Xacto handles (might be metal collets) and occasionally sell machinist vice and pin-vice.

Scale comparison

by Jennifer Haley

"haley"

I've been told that the scales used in miniature gaming (25mm, 28mm, etc.) are a measure of the distance from base to the mini's eyes. Don't know how precise this is, but there does seem to be a fairly well established difference between them.

Many miniature sculpted before the 1990s, as well as a few of those produced today, are in true 25mm scale. Some of Reaper's earlier pieces are 25mm, though the bulk of their newer pieces are 28mm or 'heroic' scale. Most Games Workshop, Ral Partha, and others are also 28mm scale. Rackham's Confrontation line is sculpted in 30-32mm scale, a size toward which many other manufacturers seem to be moving with their newer pieces.

Reaper 25mm   GW 28mm   Rackham 30+mm

Different makers can often be mixed for gaming purposes by changing the basing on the figures. The Foundry and Reaper pieces below have stacked on regular 20mm square bases to lessen the height difference.

Foundry 25mm   Reaper 28mm 'heroic'   GW 28mm   Rackham 30+mm

Foundry 25mm on base   Reaper 28mm   Rackham 30mm   GW 28mm   Rackham 30mm monster

PHOTOGRAPHY AND IMAGING

Show off your work to the rest of the world

Our book would not be complete without a section on taking good photographs so that your figures can get a better price on ebay, or more admiring gasps from other aficionados.

Resolution explained
by Ng Chern Ann

"Chern Ann"

If you're taking pictures primarily for the Internet, you may be a little confused by the word "resolution", which is thrown about a lot. Resolution may refer interchangeably (and confusingly) with two things:

1. The number of pixels on your computer monitor (e.g. 1024 x 768)

2. The density of pixels or "dots" of a specific image.

Technically, photographs of the Internet have no resolution, they merely have a size. Pixels/inch, picas/inch is a printing/scanning term for translating images onto paper.

Let me explain. A 72x72 pixel square image would have 5184 pixels in it. This is an absolute amount of information that does not change. If it were printed out with 1 inch sides, it would be 72 pixels per inch on paper. If it were printed out with 2 inch sides, it would be 36 pixels per inch. If it were printed with 0.5 inch sides it would be 144 pixels per inch. Although the size of the print outs differ, they all have the same number of pixels in them, just packed closer together or more spread out.
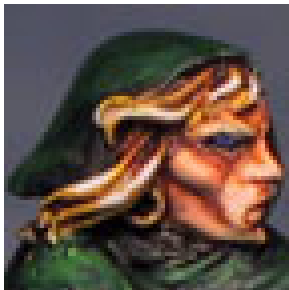
72x72 image. If printed out at 72 dpi (dots per inch) it would occupy 1inch square

Same 72x72 image, stretched out to fit a 144x144 space. This is what the image would look like printed out over 2 inches square (ie 36 dpi). It's a bit blurred because it's still the same 72x72 image stretched out to do the work of a 144x144 image.

144x144 image. Since it's occupying a 144x144 space, it looks sharp. If printed out at 72 dpi it would occupy a 2 inch square. If printed out at 36 dpi it would occupy a 4 inch square.

If you're taking photographs with a digital camera, the resolution doesn't come into play at all. You merely need to decide how much real estate on the webpage you want your image to take up, and then resample the image to that size.

For example, using my digital S20 my pictures come in at 2048x1536 pixels. This would roughly be two to three screenfuls for most average web surfers (your computer is probably set at 800x600 or 1024x768 resolution). I will need to resample my image using an image editor to reduce the size by reducing the number of pixels in the image. A good rule of thumb for "man-sized" figures is 300 to 400 pixels in width.

From this   To this

This will involve throwing away pixels and information, so if you blow the picture up again to it's original size it will not be as sharp since information is lost. It is always good to keep a backup of your images with the original number of pixels, in case you need to do close-ups of specific areas later.

On top of this, JPG (JPEG) files can decrease file sizes by compressing images using built-in algorithms, that make compromises with color information and image clarity in order to reduce file sizes. The pixel size of the image remains the same, it will however lose more and more color information as the image is compressed, and may exhibit artifiacts(strange squares, jagged edges) as pixels are rearranged into an optimum position. So you end up with a picture taking up less space, but not looking as good.

144x144 image with medium compression.
File size is 15kb

Same image with maximum compression. Note the deteriorated appearance, clarity and the artifacts. However, file size is only 2kb, an 87% savings in space (and hence transmission times).

There are a number of image tools that are discussed in the following articles, which you can use for your image editing needs.

Miniature Photography

by Danny Grimes

"DNAGrim"

I have received some compliments and comments on my photos so I figured that others might benefit from a setup like mine. I have a standard inexpensive digital camera and nothing special in terms of equipment. I should start by saying that I am a voracious scratchbuilder (on a budget too), so my setup is also very affordable and easily assembled at any hardware store. I am not a pro, so my terminology may not be pristine. Real photographers, my apologies. ;-)

Equipment Canon s100 Elph Digital Camera - 200.00 (used eBay)

This camera is an excellent choice for model photography and an incredible bargain. While it will NOT capture the individual pores in your skin, I find that level of macro is rarely useful in model photography. Most folks (excepting the McVey's, Haley's and Wong's) do not want a 1024x768 shot of their models eye. It wouldn't be flattering ;-) Everyone has a favorite choice and camera geeks make computer nerds look tame by comparison...

Lightweight Tripod - 40.00 (Best Buy)

Look at all that they have and buy the cheapest one that will be relatively steady. You should shoot with the timer on the camera so steadiness is not that critical as you won't be touching the tripod while the shot is being exposed.

2 Pipe Clamps - 20.00 each (hardware store)

½" pipe clamp heads and a 60" length of black pipe creates these versatile clamps that have about a million uses besides model photography. These are the verticals for mounting lights in our lighting setup.

3 Shop Lights w/clamps - 5.00 each (hardware store)

Cheap aluminum clamps lights with shades. The shades help focus the light on the model and the matte aluminum finish helps to diffuse the light and eliminate hotspots.

6 Reveal Bulbs - 1.00 each (hardware store)

These bulbs are quite good at simulating daylight. They are cheap and replaceable. They do have a noticeable pinkish hotspot, but rotating the spot off your model is pretty easy and it doesn't show up much against the background.

Adjustable Model Stand – Scratchbuilt

I built this so I had a stable platform to shoot models on. I wanted it wide enough that I could move the model all around to get the right angles. I curved the leading edge so my camera/tripod could move around it easily and still maintain a 4in macro range. Another tripod with the L-shaped piece attached to the top would work well too.

Base can be a piece of plywood (12"x12"), vertical can be a 2x4 (24"-36") and the L-shaped top two more pieces of plywood (8"x8" each). Glue the base onto the end of the 2x4 and run a couple of 2" drywall screws through the base and into the 2x4 to secure it tightly and let dry. Glue and screw the L-shaped piece together and let dry. Glue and screw the L-shaped pieced onto the top of the 2x4 and let dry. Voila! Instant model stand.

Get as fancy as you like, but here is the most basic version.

Fade Backdrop Photoshopped on Matte Inkjet Paper
Use your image editing software to create a gradient that is full page sized to print out as a backdrop. I like blue because it tends to brighten the appearance of the photo, but you can use whatever color you like. I would avoid reds, oranges or other super bright colors as they may distracting from the model. My gradients run saturated blue to white on an 8.5x11 sheet (11x17 is better, but my printer won't do it). The top 25% is pure blue, the bottom 25% is pure white and the middle is a gentle gradient. Print this on good matte paper or card stock and it will last a long while.

Tip: If you know someone with a color laser printer or Fiery printer at work, ask them to rip one for you. These printers can usually handle 11x17 paper and print at a much clearer quality.

Setup

1. Find a open place to work where you can connect to power easily and without tripping over a bunch of wires. Trust me. When you snag a cord and it brings down your lights, camera and painstakingly painted models you will curse, LOUDLY.

2. I use the end of a table and place my tripod as close to the edge of the table as possible and my model stand just beyond that. I put pipe clamps on either edge of the table and tighten them down securely. Attach the clamp light to the upright pipes.

3. Adjust the lights to flood the area with light. It will look really bright but trust me too much light is rarely a problem as long as you adjust the exposure on the camera to compensate. With this setup I am still setting to a positive value for exposure. Just goes to show that as bright as this seems…it ain't that bright.

4. When taking your shot don't worry if it does not fall dead center in your screen. You will

probably crop the photo in the end. Try to think of the cropped shot you will end up with and try to take the best framed shot of that. This is easier on colored backgrounds than on photos or landscapes as things do not need to line up. Practice and learn.

Place your model and line up the preview screen. I never use the viewfinder. Mark the stand where you model is placed. This makes it easy to remove your model and then place it back at the same point. A number of issues might arise that cause you to move the model: shadows/hotspots, dramatic angle, autofocus sensor not aligned, etc.

5. Set your camera to macro mode, turn off your flash, check your exposure settings, frame your model, set the timer, take your shot. Ahhhhh Art….Now it belongs to the ages!

Camera Specs and Settings

Macro

4in this is more than enough for amateur model photography. Serious photographers will disagree, but the point for me it to get good shots on the cheap.

Zoom

Who cares? I do not use zoom as it typically degrades the picture quality. An important rule of thumb for me is to NEVER use the optical or digital zoom feature of a lower end camera. However close you can get with the lens in normal mode is about as good as it is going to get. Just try to find a camera with a decent macro (which is difficult on the low end). This does not apply to digital SLRs, but if you have one you probably don't need me telling you how to use it. ;-)

Exposure

Experiment, you're not paying for film. Your camera is bound to be different than mine. If you have an Elph I set mine to 0/+1 and I still do a little correcting in Photoshop (which I will detail below). Just to reiterate: In really bright light (daylight) you will want to set a negative value in the exposure setting to allow less light onto the CCD (the digital equivalent of the aperature). In dim light you will want a positive value number to allow more light in.

Flash

Turn it off and use the light setup. Flash is pretty intense as close as you will be with the camera and it will tend to overexpose

Auto Focus

Use it. Most low end cameras will not give you an option of manually focusing anyway. The way this works on my cam is that an autofocus sensor projects a light to gauge the distance from the lens aperture to the model. This sensor is offset from the lens, so sometimes it does not hit the model but passes by it (above left or right). What this does is cause the camera to focus on the background which leads to really blurry pics of the subject model. You can handle this in two ways.

Spoofing your autofocus

Method One: move your model until your light sensor is flashing visibly on the model (or even the particular area of the model that you want to be in the absolute sharpest focus). You may need to turn your light off and take a test shot to be certain where the sensor is flashing. This works in 99% of all cases.

Method Two: use another object (a pencil works well) and place it in your shot next to the model, in line with the sensor light and in the same plane as the model. This method is trickier but fools the autofocus into adjusting to the same depth of field as your model and results in clean, clear photos. In photoshop you will need to paint this object out, which takes patience. This method is a last resort as it requires the additional photoshopping.
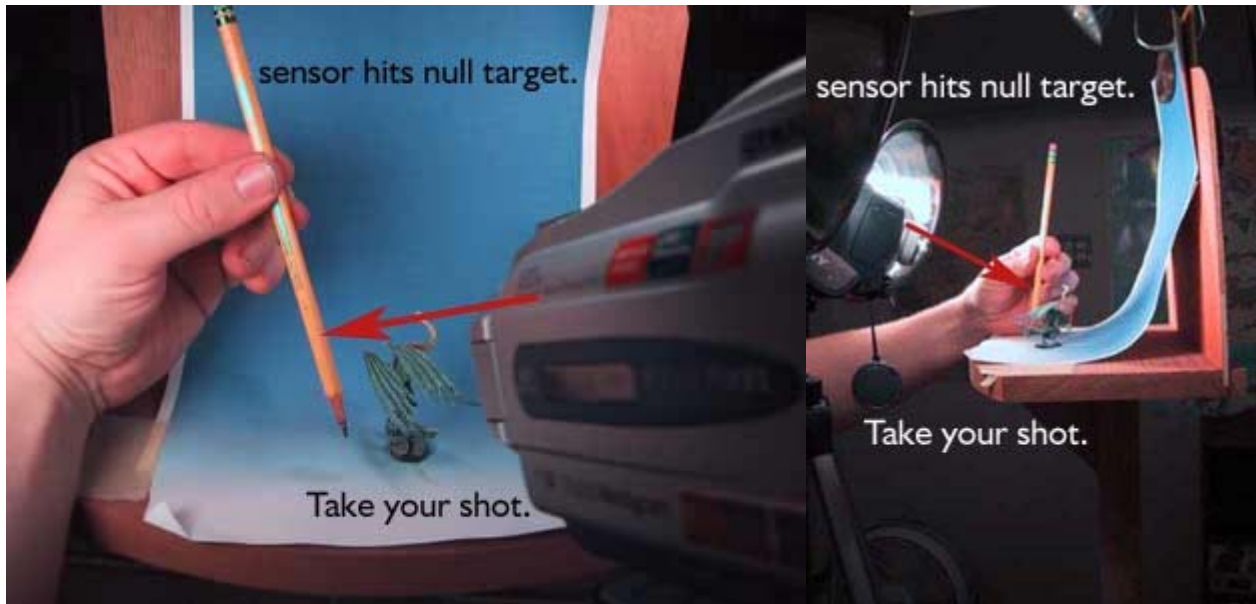
Photoshop 7.0, PaintShop Pro, GIMP(Linux), Photoshop Elements will also work.

I use Photoshop because I have it for work as a graphic artist, but any program that will allow: creation of gradients, adjusts contrast and light levels, color corrects and allows you to "paint out" artifacts and unwanted elements will work. Take your pick Photoshop is damned expensive and the others are all a lot cheaper. How to use these programs is whole other article ;-)

Some Examples

I took these shots with this setup. For not much money I think they are pretty crisp and have a decent depth of field.

Lukhan Cypher - Detail Halberd
www.bandofeight.org   ©2002.warpt impressions.danny grimes

Hope that this helps and thanks to others that have helped me!

Photography tips

by Martyn Dory

"War Griffon"

On numerous occasions I have seen people go completely blank at the mention of aperture settings and other technical terms so at the end of this article I will list and try to explain some of the technical terms.

Owning a camera is just the start of the game to get some good shots of the mini that you have just spent hours painting, you will need to go that little bit further. Nobody likes looking at fuzzy pictures ater all.

Tripod

Primary amongst these is a tripod, the type of tripod you will need will depend on the type of camera you have and what you intend to use it for as well as shooting pics of mini's, they can range from small pocket size table top tripods to huge beasts used by professionals.
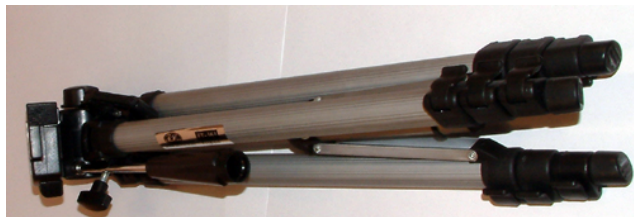
A quick note on tripods here if you will bear with me a few don'ts to think of.

Don't over extend the centre column, one third of it's total length is as far as you should go. Any higher than this and you're likely to get shake.

Don't extend the bottom section of the legs if the middle sections are unused. Most tripod legs are in three sections, but most people extend the bottom section first to gain height. These are the thinnest and therefore, flimsiest sections and should be extended last. Always use the middle sections of the tripod first.

Don't set the tripod unevenly and then make all corrections with the head. Vary the length of the legs and make minor adjustments with the head.

Do get the tripod as level as possible. Keep the centre column right down unless absolutely necessary and always tighten both leg and head locks to ensure maximum stability.

Cable Shutter releases

This is a length of spring loaded cable that will screw into the shutter release button on your camera. They can be acquired in various lengths but for taking pictures of our beloved mini's a short on is all that is required.

The one in the picture below is approx 30 inches long but you can get them longer or shorter than this

Don't panic if you haven't got a release button on the camera capable of taking this though as most camera's come with a timer option and you can use that method instead although you might have to wait a minute or two each time for it to take the picture.

Both the tripod and either a timer or cable shutter release are essential to prevent camera shake.

Lighting

Next up is some lighting, the flash on your camera in this case is not going to help you, in fact it will make things a lot worse, the best light you can get is natural daylight however not all of us are that lucky especially those of us in the UK where most of the time the weather is dull and S*****.

When I first started I used to use 2 halogen desk lamps and my painting lamp which had a daylight simulation bulb positioned around a piece of paper/card.

This is OK if you didn't have a dedicated area in which to make something more permanent. I also found that it can give harsh lighting and unwanted shadows if you are not very careful.

As a more advanced set up I now use a light cube and three lamps with daylight simulation bulbs.

These light cubes can be acquired on EBay quite cheap and come in various sizes, they can also be folded up when not required to save space and help keep them clean. The one in the photo is approx 12 inches square and ideal for single figures or small figures and I own another of approx 20 inches square for photographing larger subjects. Alternatively you can make your own.

The purpose of the light cube is to defuse the light evenly across your mini rather than have direct harsh lighting. I also put a small box inside the light cube to raise the subject up and you can either use the back drops that come with the light cube or use sheets of colored paper/card.

For photographing mini's I always use my camera in an aperture priority mode, this means that I can set the size of the aperture and the camera will set the shutter speed after all the mini

is static and the camera is on the tripod so the shutter speed is not important the aperture is, as this allows you set your depth of field (the amount of mini that will be in focus).

Once you are set up and ready to go you can then take your photo, making any adjustments you need as you go.

For this I have used a Reaper guardian Angel that I am currently working on as part of a little diorama that I started for ME3 (yep that long ago) I want to see how the Angel is looking with the progress made so far on the flesh and the bottom robes so once it was loaded into Photoshop I used the quick method to adjust levels of shift+control+L (auto levels) here is the result shot on a white background.

Jargon buster

Shutter Speed

This is one half of the exposure equation, the other being the aperture. Shutter speeds are measured in fractions of or whole seconds. A typical auto focus has shutter speeds running from 30 seconds to 1/2000 sec, a manual focus will typically run from 1 second to 1/1000 sec.

What does this mean? Well if you wanted to take pictures of a helicopter but you wanted to see the rotor blades stopped then the higher the shutter speed the better, or for instance taking pictures of joggers or racing cars, ever wondered why they looked blurred when you took the picture? Well that's because your shutter speed was to slow.

Shutter Priority

This is a semi-automatic mode where the user sets the shutter speed and the camera sets the corresponding aperture for the correct exposure. This is handy for those times when you need to take control over subject movement. On most camera's dials this is the setting marked S.

Aperture

This is the size of the hole in the lens which light passes through to create a picture. Apertures on most non digital camera's the apertures are found on a ring called the aperture ring. These numbers are called f/ numbers as each number has a value double that of it's previous number. F/ numbers go from f/1.4; f/1.8; f/2.8; f/5.6; f/8; f/11; f/16; f/22; f/45; f/64

Aperture Priority

This is the other half of the exposure equation. Aperture priority allows the aperture to be kept the same while the camera's computer calculates the optimum shutter speed needed for a correct exposure. On most camera's this is the A setting on the dial.

Depth of Field

This is the amount of sharpness there is within a photograph. This is controlled by the size of the aperture in the lens and is also affected by the lens's focal length. Wide angle lens's offer more depth of field than a telephoto lens, for instance.

The best way to explain this is if you took several pencils or other objects and lined them up one behind the other and you then focused your camera on the centre object, with a low aperture setting of say f/2.8 the objects in front and behind the centre object will be out of focus in the final picture. If the f/ number was changed to a higher number for instance say f/11 or greater then all objects would be in focus.

Bracketing

This is the process of taking a series of different exposures of the same scene. Most commonly done in threes: one exposure under-exposed; one correctly and one over-exposed.

Some digital camera's will have this facility built in. Bracketing can be done in either shutter or aperture priority mode. For instance in aperture priority if I have an f/ number set at f/5.6 I would take one picture at this then one with the f/ number set at f/2.8 and a third set at f/8.

ISO/Film Speed

This is not really applicable to digital camera's as they do not have film loaded however the camera still needs to fool the system so most digital camera's will have a facility whereby you can set the ISO/film speed to fool it. In the old days before digital each type of film had a sensitivity rating. This is the sensitivity of a film to light and was calibrated in numbers. The bigger the number, the more sensitive to light the film is. The bigger the number, the lower the quality of the image (image became grainy). Film speeds range from ISO 100 up to around ISO 600, in photographing your mini the ideal ISO setting would be around ISO100 to ISO 200, these are the normal light type films whereas ISO 400 or greater would be used for poor light situations.

# Post processing

by Jan Skýpala

"Honza"

OK, now look at the picture we get from the camera (it is already cropped for this article)

Well, this is quite dark and not that fancy. So we have to do something about it. OK, to tell it technically, the problem with the picture is that the camera captured wider range of light that we would want.

Now get any image processing program - I use Adobe Photoshop, but nearly anyone will do. From the commercial range the other famous and good ones are Corel Photopaint or Jasc Software PaintShop Pro, from the shareware and freeware range ACDSee and Gimp can do this thing as well.

In the imaging program of your choice, open the dialog called Levels. This is a magic dialog, usually explained as "most used dialog by a Photoshop expert, but beginner doesn't understand this dialog at all." You will see a histogram, something like that:
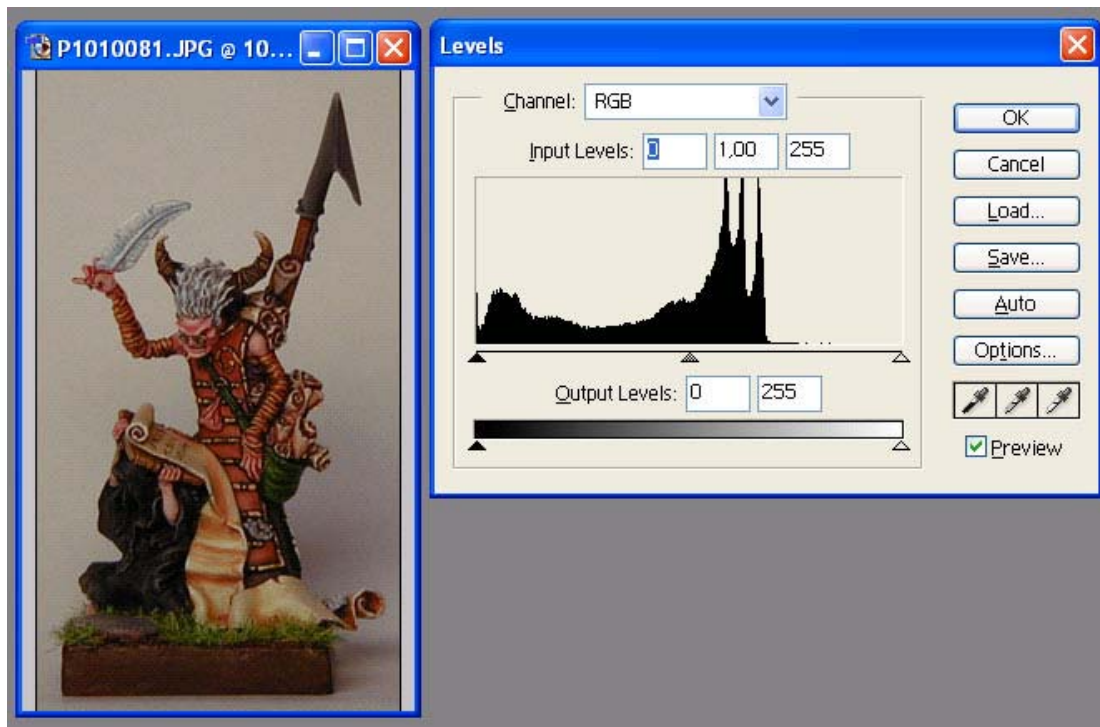
And yes, as I said, in the histogram you see the range of light that was captured by the camera. And if you think about what you see, you'll find out that the camera didn't get much of the very light and lightest light (lightest light, I kinda light it, oh I wanted to write I like it...). All right, we know that the camera got all the light, even the lightest one, but it simply expected even lighter points and this is why the image is darker, because the lightest light the camera got was not processed as the lightest one, but like it was somewhere in three quarters of the rage.

Enough of theory! Let's do something about it. Fortunately the image software is able to define new range for the picture:
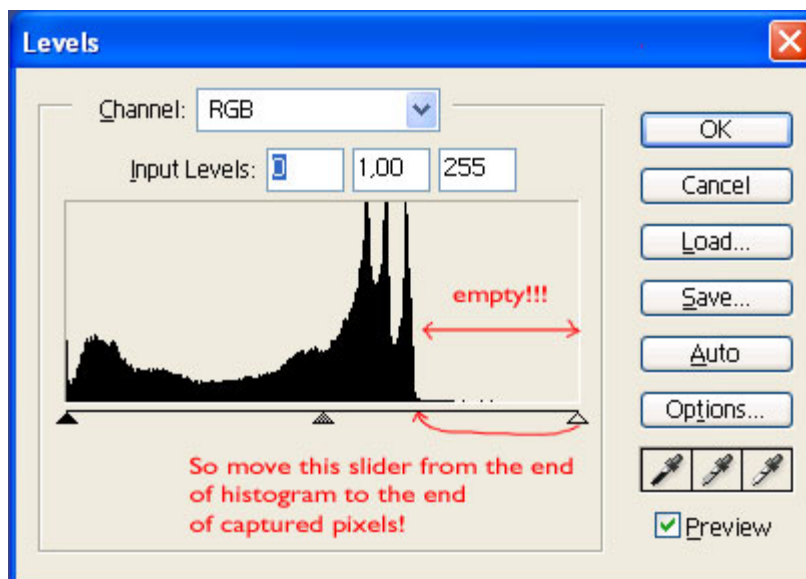
So move the slider representing the lightest point to a sensible place and whole picture will look much much better. Easy trick, isn't it!
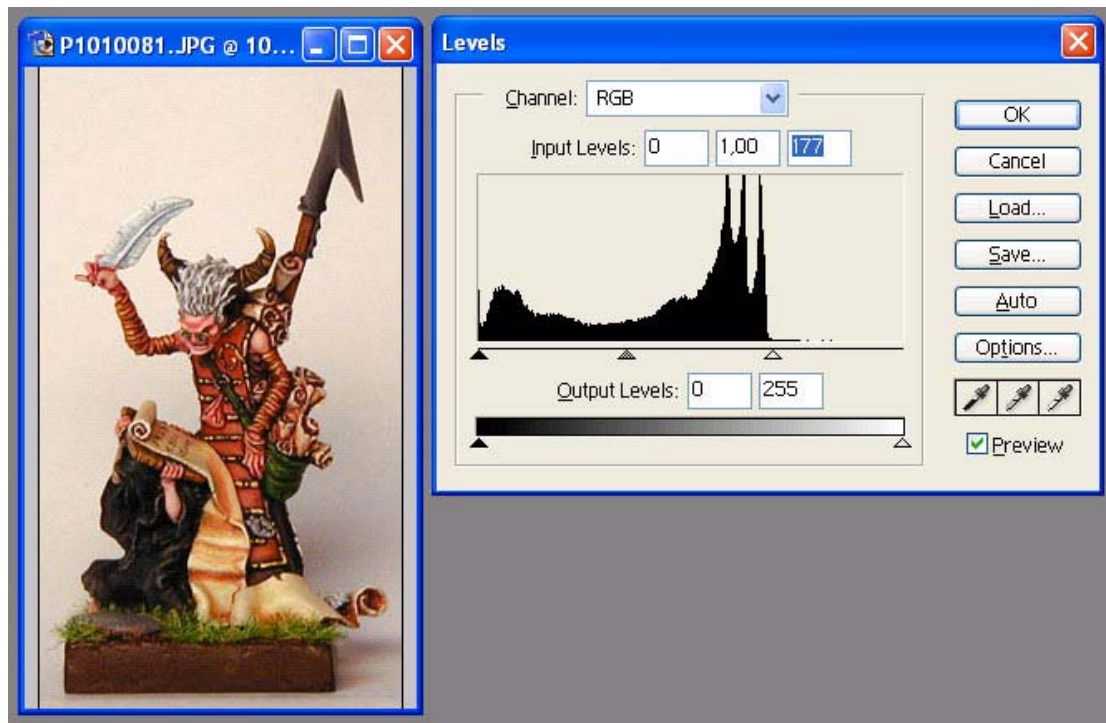
Voila! We've got perfect picture for our presentation on web. One last note to the Levels dialog: sometimes it happens, that the picture has a bit more of one color (green for example), or it misses some parts of colors (red, for example). With my camera, sometimes violet ends like a blue. Also this can be easily corrected with the levels dialog: on top of the dialog there is a combo, from which you can choose only a single part of spectrum in which you'll do the corrections. You can play with it and you'll quickly understand how to do this.

Now, if you want, you can add other effects (lights from laserguns, motion-blur, flares, etc.) and get the final picture. And the last thing: Always scale the picture a bit down! With my camera, I'm able to get a picture of miniature that is larger than the screen of my monitor. This is very good for processing in Photoshop, it gives better results. But for presentation, the mini looks much better if it is scaled down.

Well, that's it! It was a quick guide and I hope you liked it. Now I expect much better pictures of minis to appear on the web 😊.

Basic picture resizing and creation of multiple views
by Michael

"GunjiNoKanrei"

I would like to present a basic step-by-step guide to 1)resizing pictures and 2)creating panoramic views. To do this I will look at two programs you can use for this purpose.

The first is Irfanview. In short Irfanview is a picture viewer on steroids and it is free so anyone can use it. You can download it from http://www.irfanview.com

The second program I want to present is Adobe Photoshop, very expensive but simply the best graphic editing software out there. With Photoshop everything is a bit more complex compared to Irfanview but on the other hand PS is much more powerful and offers advanced features (which I am not going to detail 😃).
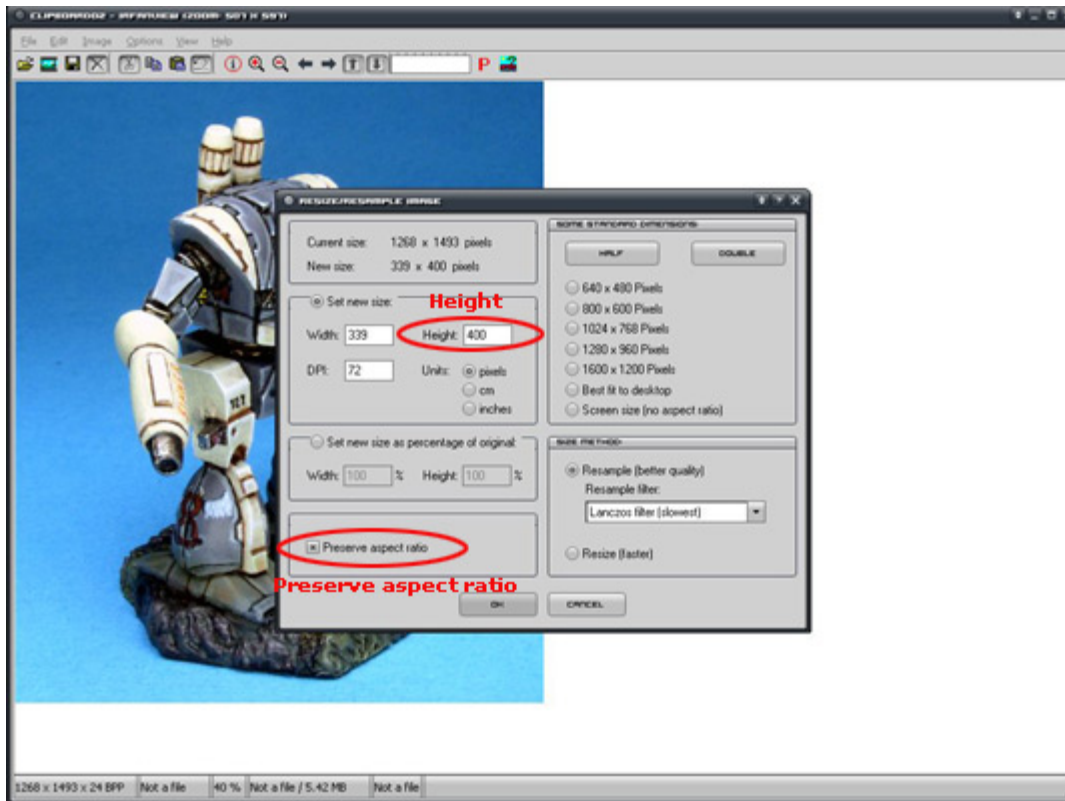
Resizing pictures with Irfanview

1. Open the picture with Irfanview, then use the mouse to make a selection of the miniature (simply press the mouse button and drag a rectangle around the part you want to select, see screenshot below). If your picture is too big to see the whole miniature zoom out a bit. The current zoom factor is displayed at the bottom. Personally I prefer pictures where just the miniature is shown since this is what the picture is all about. Also you can create smaller pictures sizewise by eliminating unnecessary background.

2. Select *Edit->Copy* or just press ctrl+c to copy the selection to the clipboard.

3. Select *Image->Create new (empty) image* to create a blank image. Just click OK in the pop up dialogue (alternatively you can open a new instance of Irfanview without a picture to display).

4. Select *Edit->Paste* or press ctrl+v and the selection will be copied into the blank picture.

5. Now that we have only the miniature it is time for the actual resizing. Select *Image->Resize/Resample* or press ctrl+r. In the pop up dialogue enter the new height of the picture. Make sure that 'preserve aspect ratio' is checked, otherwise your picture will be distorted. The new height will then automatically be recalculated. Press OK and your picture is ready. Select *File->Save As* and save as .jpg. The default settings for compression are ok and usable.
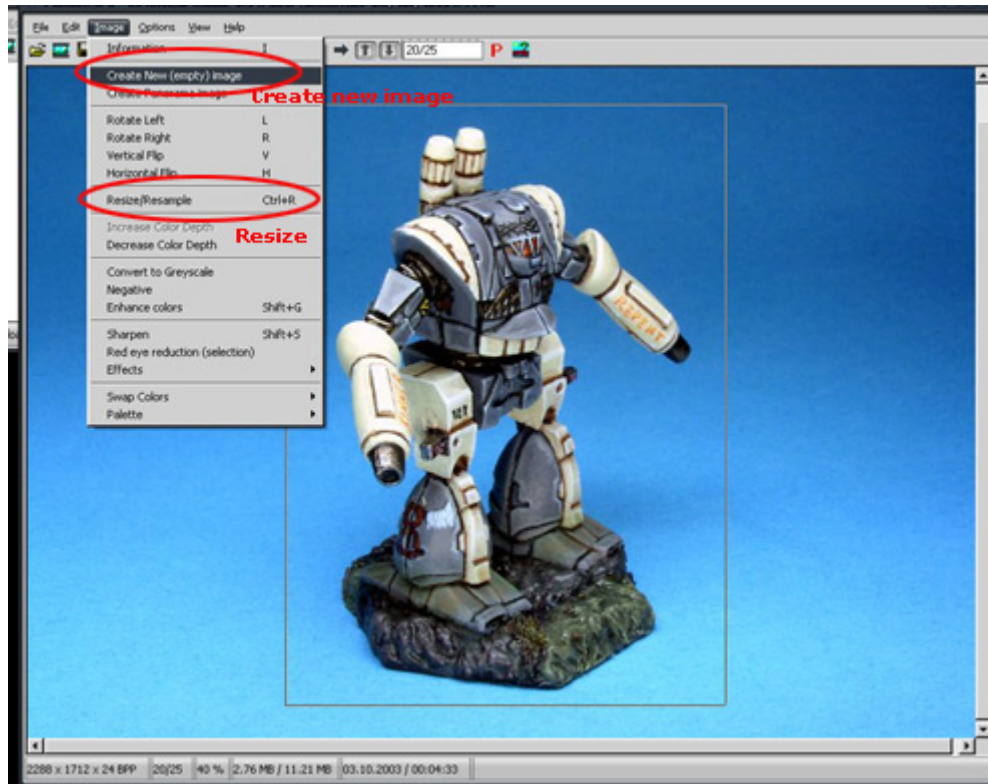
IMPORTANT: When resizing pictures make sure to never enlarge them. Enlarging pictures makes them blurry. Reducing pictures in size is never a problem since no sharpness is lost but do not enlarge or risk losing sharpness.
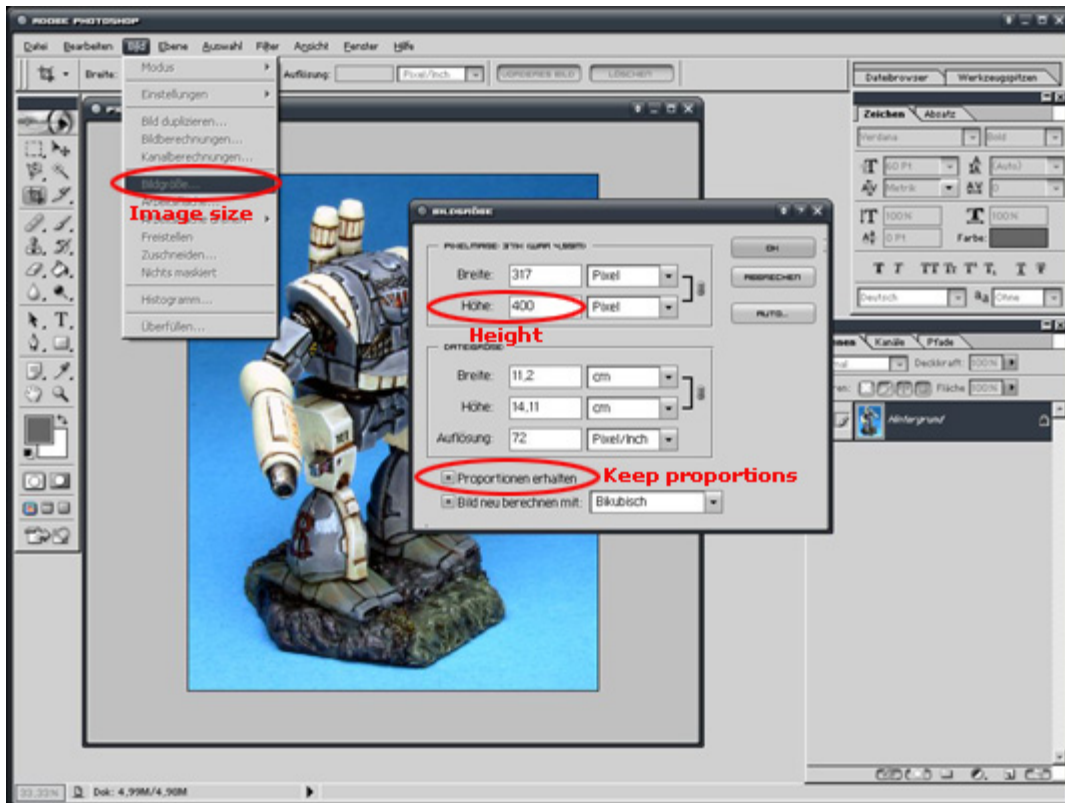
Resizing pictures with Photoshop

I hope this is will be understandable since I have the German language version of the program so my English designations for tools and menu items may not be 100% accurate.

1. Open the picture with Photoshop, then use the tool I marked in the first screenshot below (I *think* it is the crop tool) to make a selection of the miniature (simply press the mouse button and drag a rectangle around the part you want to select) and press Enter. If your picture is too big to see the whole miniature zoom out a bit. The current zoom factor is displayed at the bottom or in the title bar next to the picture name.

Personally I prefer pictures where just the miniature is shown since this is what the picture is all about. Also you can create smaller pictures sizewise by eliminating unnecessary background.

2. Now that you only have the selection left you made in the previous step it tis time for the actual resizing. Select *Image->Image size* and enter the desired height in the appropriate field in the pop up dialog. Make sure that 'keep proportions' is checked. The new height will then automatically be recalculated. Press OK and your picture is ready. Select *File->Save for web* and save as .jpg. The settings here are more advance than what Irfanview has to offer but to keep it short, setting the quality somewhere between 70% to 80% should be good (check the image size and make sure to keep it below 100k if you want to submit it to CMON).

IMPORTANT: When resizing pictures make sure to never enlarge them. Enlarging pictures makes them blurry. Reducing pictures in size is never a problem since no sharpness is lost but do not enlarge or risk loosing sharpness.

Creating panoramic views with Irfanview

In order to do this you first have to prepare the different views of your miniature like shown above (create selection and resize).

1. Open Irfanview and select *Image->Create Panorama view*. In the pop up dialog you only have to select the images you want in the Panorama view with the 'Add Image' function. You can create both horizontal and vertical panoramas but with an eye towards size restrictions on CMON (no more than 600px wide) I would recommend horizontal for two different views but vertical for more. Now just click create and your image is ready. Again chose *File->Save as* and save as .jpg.

Now that was easy, wasn't it? 😊
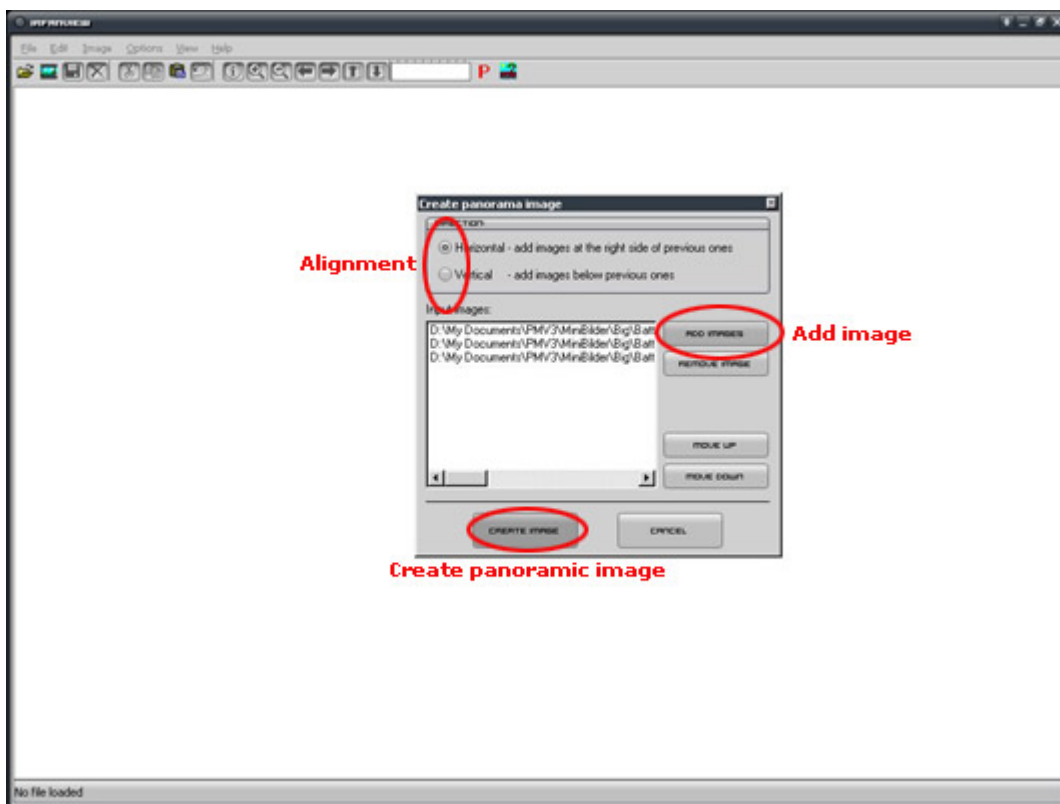
Creating panoramic views with Photoshop

Again you need to have all views you want to use in the panorama ready (create selection and resize as shown above). With Photoshop creating panorama views is a bit more complex but also far more advanced and powerful and easier if you want to create panoramic images extending both horizontal and vertical or having thumbnails or detail views included.

1. Open all images you want to use in Photoshop. Select File->New to create a new image. Enter height and width if you know the exact dimension your image is going to have otherwise select big values, you can trim the image easily later. Also select 'transparent' as content for the new picture.

2. Use the tool I marked in the screenshot below to drag the individual images into the new image you created in the step before. With this arrow tool you can move the images around (just press the mouse button and drag). Repeat this until all individual images have been added to the new one.

    Photoshop uses layers, so each image is in a seperate layer. Layers are hierarchical. If you want to change positioning make sure to first select the layer you want to move. With the help of the layer structure you can have the pictures overlap each other to a small extend to reduce the overall width or height or to place detail views 'inside' another view (layers will be hidden by layers above them).
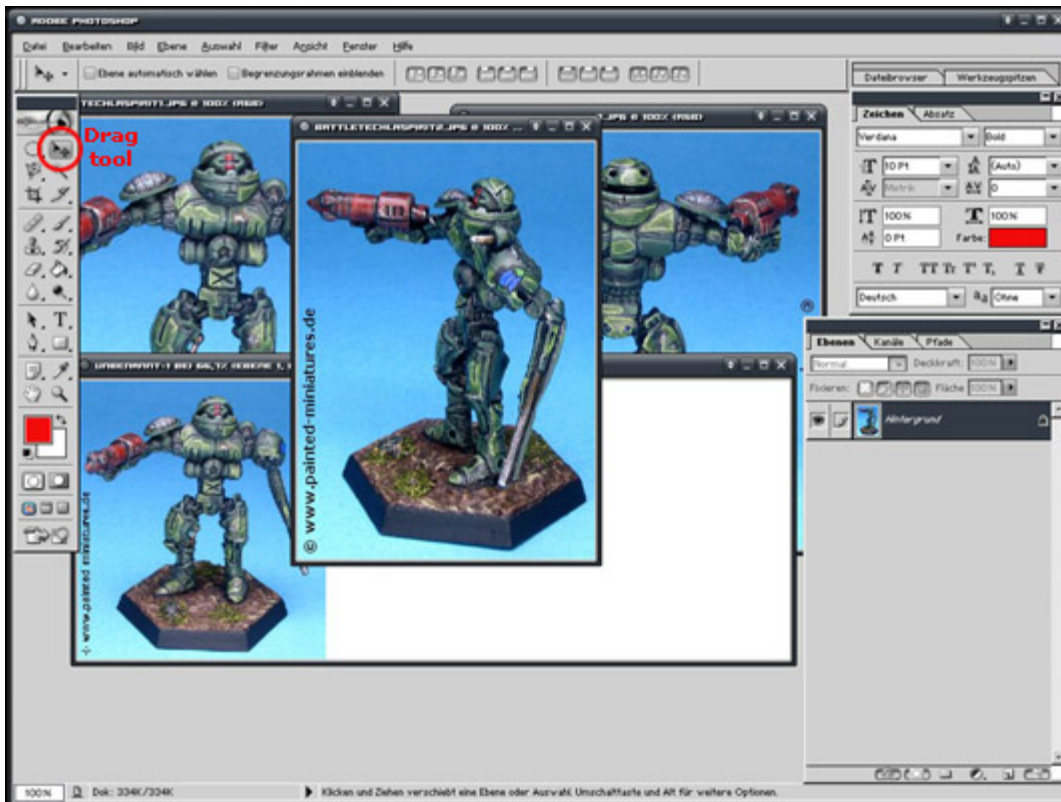
3. The last step is to crop the image so it is only the combined size of the individual images. Select Image->Crop and in the pop up dialog select transparent pixels. Now select File->Save for web and save your panorama as .jpg (remember to keep the size below 100k if you want to upload to CMON).

    (ignore the fact that I used 3 views horizontally, for CMON submissions I advice using not more than two views horizontally because of size restrictions (no more than 600px wide), but this image was created for a gallery with vertical size restriction and I was too lazy to make a new screenshot 😄)

NOTE: If you did not chose transparent for content in step 1 when creating the new image you have to delete the layer titled 'background' before using Image->Crop. Simply drag the layer on the trash can (see screenshot below).
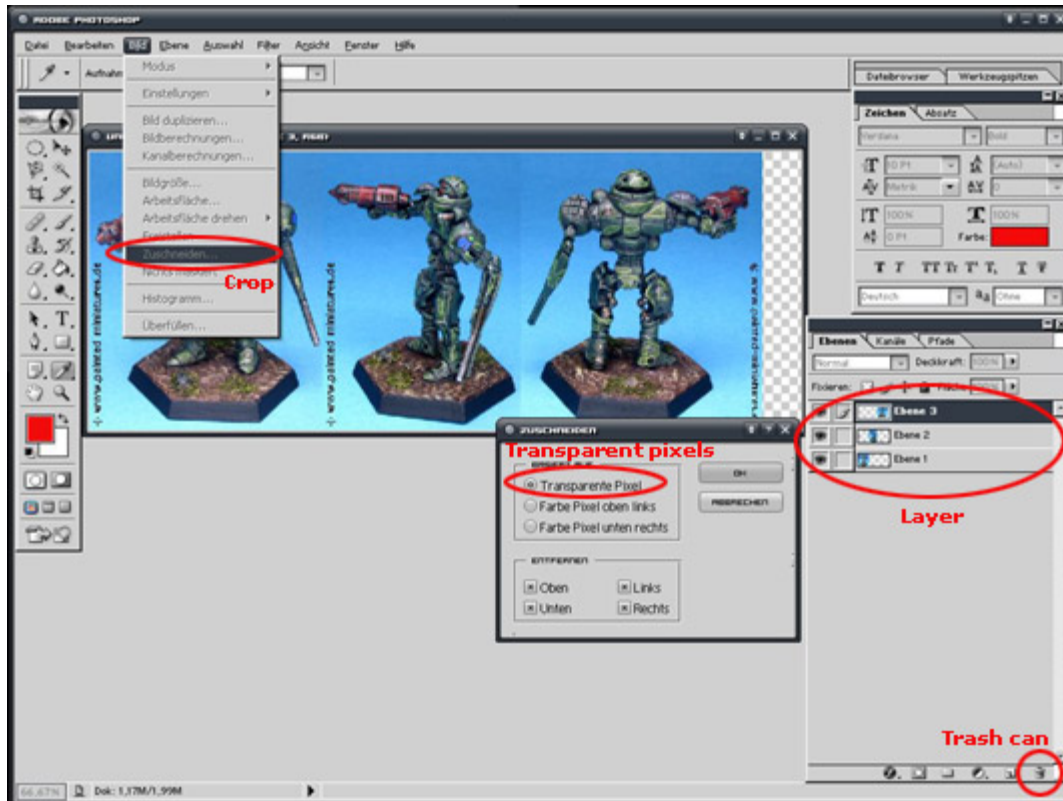
Now I hope you find some of this stuff helpful.

With Irfanview you have a very easy to use and for a viewer very powerful tool to resize your images for web presentation and it is free so anybody can use it. Photoshop is (of course) even more powerful but also more difficult to use and very expensive.

For basic resizing and creation of panoramic views Irfanview is more than enough so use it (I never again want to hear excuses like 'I have only MS Paint and can not resize/crop my pics').