Fur Foundation

Bringing Mammals to Life
with Walter Briggs

The *Mammals* Art Course
1: Fox

Our editor asked me to look at the possibility of depicting fur using vector graphics. Having decided to accept the task, and made a start on the young fox, it's now too late to moan about how time consuming it is. The program I'm using is **Artworks** - but the same tools are also available in Xara and similar programs on any computer system.

Crafty Blending

A vector program like ArtWorks and Xara, because of its very nature, cannot easily simulate the *fuzzy* appearance of fur or hair. The great advantage of vector packages is the very clean, scalable, mathematical approach to shapes; as such it creates very sharp outlines. The only real alternative to generating all the individual hairs which make up the fur, is to create a series of *blends*.

A Little Sly

Of course, to make matters just a little more difficult I chose to illustrate a young fox whose fur was not uniform, and still had a lot of dark hairs visible.

Once the decision was made the task, as always, was very enjoyable. The first item on the portrait was to get the outline right, (Fig.1) and for some time I felt the proportions were not correct. I knew the ears, as with most babies, would be largely out of (adult) proportion, but

they seemed extremely so; however after a couple of re-starts I decided to wait until I had a few more details drawn before scrapping the outline again and, low and behold, it was right all the time. I should have trusted my own criteria - judging work before it's complete can lead to never seeing it at all!
Outlining the eyes and nose helped to *see* the face more clearly, but I still felt that the face was too small.

Fig 1
Fox cub outline

Remembering my problem with the ears I decided to wait until more features were finalised. Further work proved me correct. The proportions were right from the outset.
Perhaps I **can** get it right all the time!

The outline of the little creature was created with lots of points to allow a fine *zigzag* fur-like effect. The basic outline was correct, and I wasn't too bothered if it varied a bit while adding the *spiky* effect.

The eyes were judged by aligning them with a place on the outline and, though they seemed a little low, I persevered. Once the inner ears were defined the measurements began to look better. After the eyes were done, they became the hub of the illustration - all other features would be based on the position, and size of the eyes. I usually work this way - getting one feature right (or nearly) and then taking
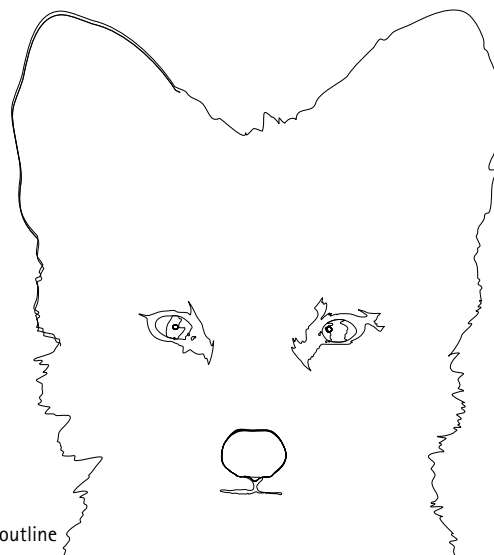
various measurements and proportions from that. Even if not entirely right the image will be in proportion. This of course is why I needed the outline to be correct before I started. The great thing about vector art packages, compared to any other, is that it's so easy to alter a single shape without affecting the other lines.

The Eyes Have It

I tend to follow one feature to completion before I move on to the next item. This is my way - not necessarily the right way. If you want to build up a picture by filling in all aspects of the image and then gradually adding the details to each, then do so. Perhaps you have another variation on this theme? If your way works it's the right way. The eyes, like most features in this illustration are a fairly simple representation of what is actually there. You will see in Fig. 2 that there are three

Fig 2
The eyes
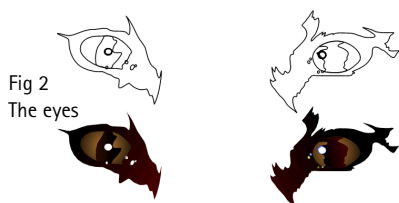
shapes to each eye, and the inner part of the left eye is a copy of the right (flipped horizontally). All that's needed to give a little variation is to alter the fill of the iris and add different highlights.

The pupil has been **pulled** a little to give a slightly different shape but, as with most paired features eyes, ears, nostrils , teeth, &tc, I use a copy of the first and just tweak it a bit. An advantage with the fox cub's eyes is that they are very dark, and so few details are needed. The two parts of the eye, the pupil and iris have a simple circular fill which is lighter in the centre to give it a rounded appearance.

All That Smells

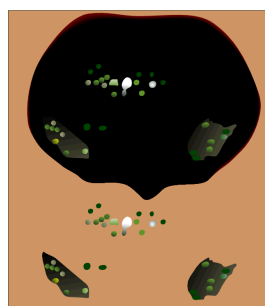The next logical feature for me to develop was the nose (Fig.3) which is

Fig 3 The nose

another very simple set of shapes. To get an overall feel for your subject, and see just the basic forms and hues then squint! What you see are the basic shapes and colours - and it is these that you want to represent. As you can see above, the nose itself is solid black (actually a very dark green) and the highlights are merely coloured dots.

It was by squinting that I was able to decide that the nose had a green tinge. It's not that the fox cub was unwell, but that it helped give the correct, **wet** appearance. To complete the wet-look I added a lighter, bigger bright spot near the centre of the nose, and a series of dots filled with a straight linear fills. These highlights.. bright spots of reflection. were composed of fills of light green contrasting with the dark **nose**. These were arranged around the brightest highlight in an oval sequence giving a distinctive shape to the tip of the nose. The dots of bright highlight gives the impression not only that the nose is wet, but also that it has that dimpled texture like a dog's nose.

The inner nostrils had another set of filled ovals (copied from the nose) which gave the same wet look and can be seen in the lower section of Fig. 3.

Muzzle Velocity

Creating the snout was one of the easier blends, and was produced very quickly, though I have to say with a measure of, as another artist says, *happy accidents*.
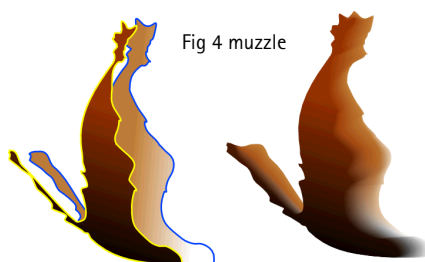
Fig 4 muzzle

As you will see from Fig 4 the fox's muzzle was produced in two parts. The left side of the snout (the fox's right side) was created and used to produce a duplicate for the left side.

It's very difficult to predict the way a blend will turn out. You can have a basic idea of what you want, and have produced the shape and the fill, but blend the two shapes and the result can be a surprise. In this instance the shapes seen on the right in Fig.4 show the two shapes that were blended together. The starting point is shown on the left to show the gap required to achieve the balance of colour in the finished object. The pale outline colours are there to make the shapes easier to see in print. Results differ depending on which shape is pulled into which; you must experiment. To get a smooth transition the number of steps was increased to 25. Controlling the amount of white in the finished blend meant the left-hand shape had to be altered a couple of times, making it narrower where white was needed. The other side of the muzzle was a copy of the shapes seen in Fig.4; except the linear fill of brown to black in the outer shape was reversed, so it appears darker at the top, and can be seen in the final version.
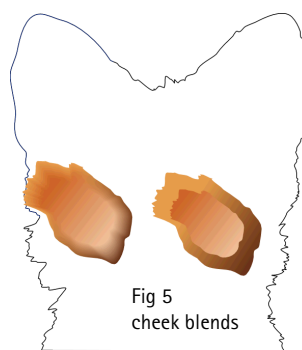
Cheeky Chappie

Fig 5
cheek blends

The rest of the blends that make up the head are all variations on a theme and, as you can see in Fig. 5, the cheeks were produced with just two shapes, though it is possible to blend a blend into a third shape for more complex effects. In general the inner shape should be the lighter fill (or colour) to create an area with a highlight, whilst a darker inner section will produce a concave surface, as can be seen on the top of the muzzle

in the final image.

The only problem with such blends is that the resulting shape seems quite smooth, totally unlike fur - the main problem I was referring to at the outset - and the only viable option was to add whiskers and hairs round the eyes to cover the smooth blend of the cheeks. It would be possible to reproduce all the hairs on the fox, though more than a little time consuming. If you want to go ahead, I'd love to see the result!

Heads Up

Though the succession of blends in Fig. 6 was produced in the same way, I included an image of them to show you what can be done to simulate dense fur. It's possible to make a blend more predictable by producing shapes with the same number of points. Simply copy the first and reduce the size of the copy.
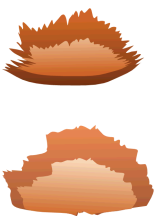
Fig 6 dense fur from blends

In this case the copy was lightened and placed at the bottom of the original and, because they were very irregular along the top, the blend created ridges of colour where the points of the two shapes met, producing a reasonable facsimile of fur.

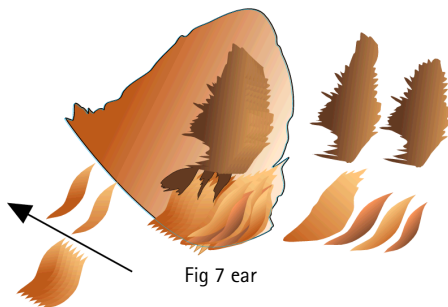The ear in Fig. 7 below shows what can

Fig 7 ear

be done if you blend two identical shapes, with one reduced slightly in size. The inner ear has a lighter centre, though the two shapes both had a linear fill from light on the right to a dark brown on the left, creating a blend that

was now dark on both sides.

The series of feather-like tufts at the base of the ear were fashioned with the shapes you see in the lower right corner of Fig. 7. They are not blended, simply laid one on top of another. This allows more careful placement of the shapes, and you can copy, clone and duplicate until the shape and density looks right.

The concave section of fur - Fig 7 bottom left - was formed by blending the two shapes above the arrow which generated the multiple steps below to give the pointed, hopefully fur-like, texture to the lower edge.

Because the fox was a juvenile, it had quite a mix of coloured hairs amongst its fur and the numerous black hairs on the muzzle and forehead caused some problems.

It took some time analyzing the colours involved and approaching them from various directions. The aspect of just the right combination, variety, and overall view of the snout meant there was only one way I could get the right black-fur look. That was to create simple lines.

There really was no alternative - see Fig. 8 below - to producing numerous lines varying in colour and thickness. I made the whiskers more abundant than

Fig 8 There's no substitute for lines for simple hairs

reality as they helped to break up the white of the face which could have appeared rather stark without them.

The few lines on the top of the ears were there just to give a feeling of 3D, to make the outer ear look curved. It really

is not practical to draw all the lines of fur to show the way the coat lies on the fox; it's all a matter of impression.

The final image above shows the combination of blends and hand drawn lines used to produce a reproduction of our fox cub.

Some of the blends work better than others, and it simply needs a bit of experimenting to get it right. At the end of the day it's you, the artist, who must be pleased with the final image; if so then that's all that matters.