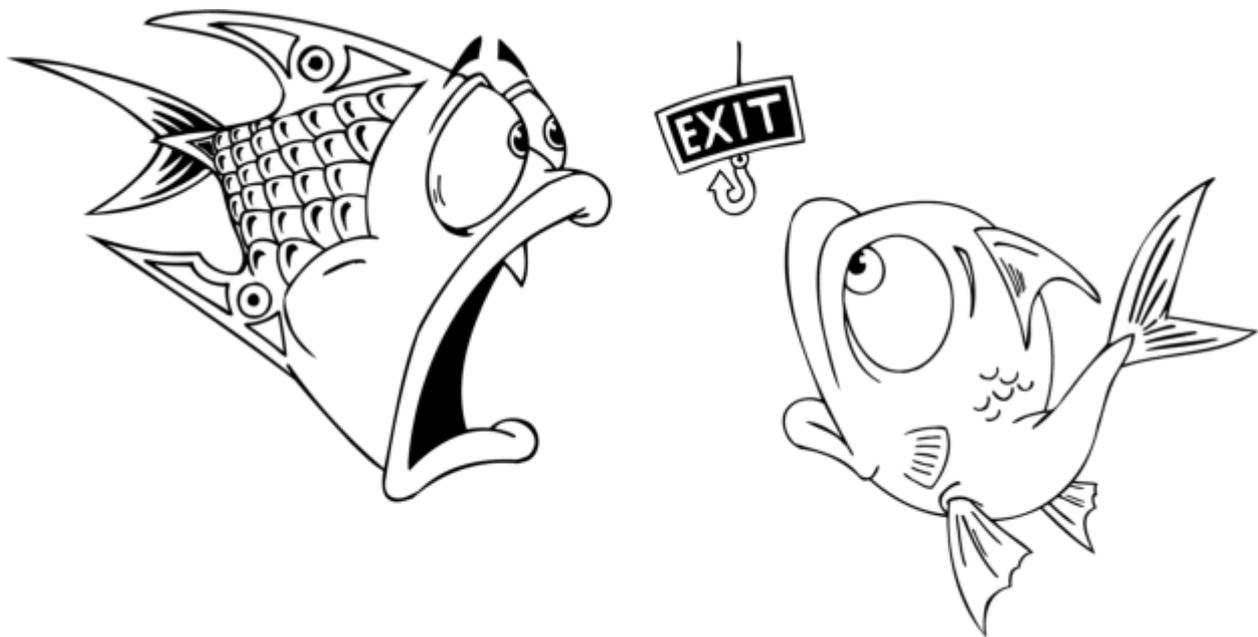


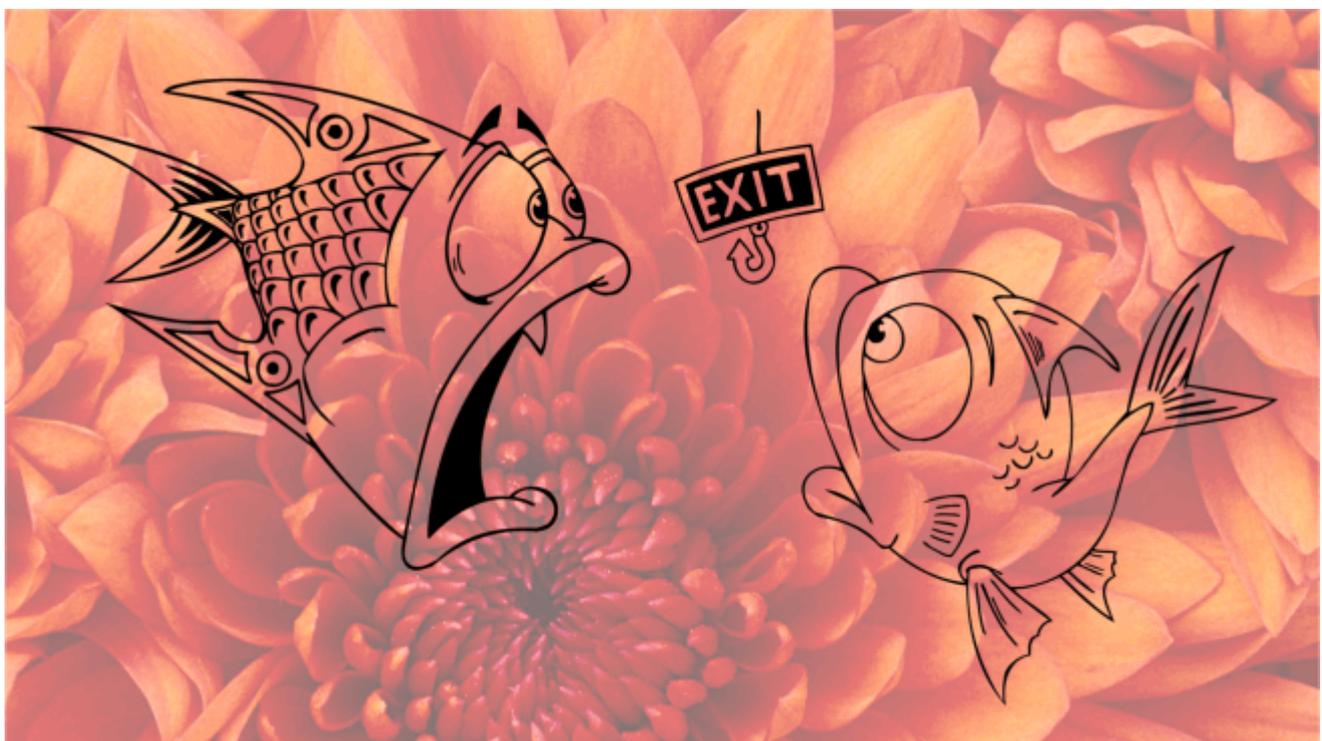
INTRODUCTION

This tutorial concerns cartoon line art. So first off here's an example of what that means:



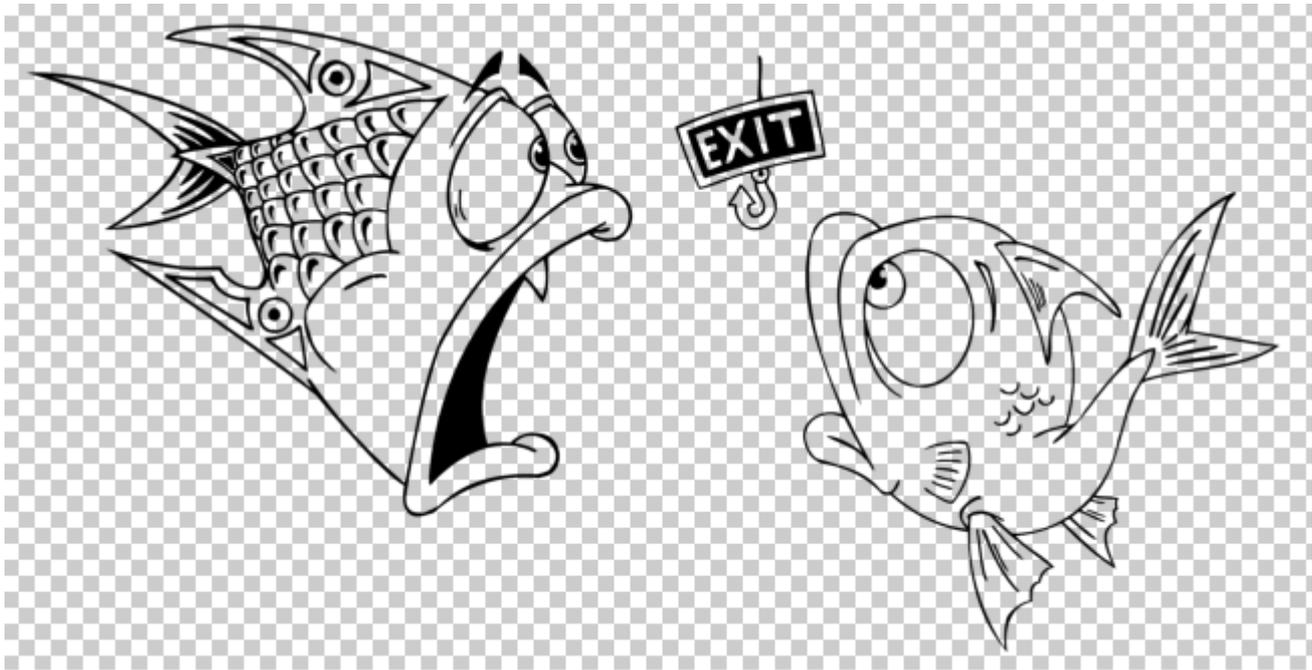
[pic001]

So what exactly are we looking at? Two things - firstly a drawing and secondly a background *that is not part of the drawing*; but we see it around and through the unfilled parts of the drawing which has to be placed over something. Lets emphasise that by changing the background:



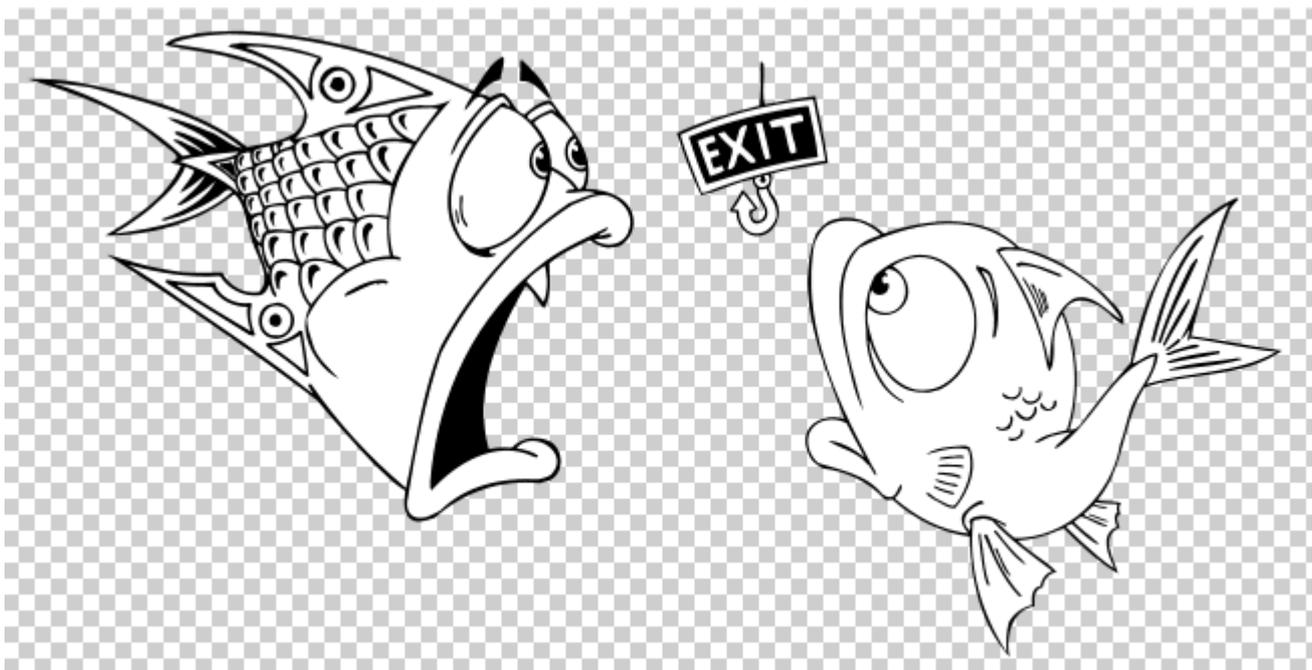
[pic002]

In computer graphics it is common practice to use a 'checkerboard' as the background for the 'see through' parts of a drawing, and so that's what I shall do in this tutorial, no offence to the Crysanth. :



[pic003]

Some of you may recognise these fish - they are two of the excellent clipart supplied with Xara Designer - if you go to the Design Gallery and then Clipart/Comic/Aquatic Animals, they are numbers 014 and 036. They are supplied with white fills as you can see:



[pic004]

Note though, if you ungroup and separate the shapes, you won't find the line art shown in pic003. To do that you instead select the groups and then 'Join Shapes' from the arrange menu [it may become white rather than black if so you can just recolour].

And by using 'Break Shapes' from the arrange menu, you turn line art into the clipart shapes, but note they will all be one colour and they will not necessarily be stacked in the correct order; that's a task the computer cannot determine for you every time, clever though it be.

I'm using Xara clipart in this tutorial so that you have immediate access to the art and can check out exactly what is being said, and experiment; we'll cover the basics of creating the line art and of using 'break shapes' to create the colouring shapes. In a second tutorial I'll walk a project through start to finish.

WHAT IS A LINE AND WHAT IS A SHAPE

Now here's the first complication... Line art needs to be a shape itself in order to generate the colouring shapes. We need to get clear what is a line and what is a shape in Xara Designer.

So what is the difference? - one way to look at it is that a line is an unclosed boundary - it can cross itself, but unless it is 'closed', that is told to merge with itself, it remains an open boundary. As soon as it is told to close it becomes a shape which is an area surrounded by a boundary. In the following examples note the nodes, which define the boundary:

This is a line:



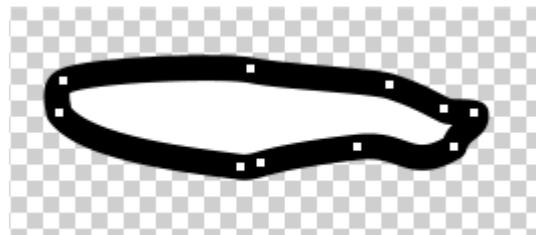
[pic005]

If you use the command 'convert line to shape' the line becomes a 'simple' shape:



[pic006]

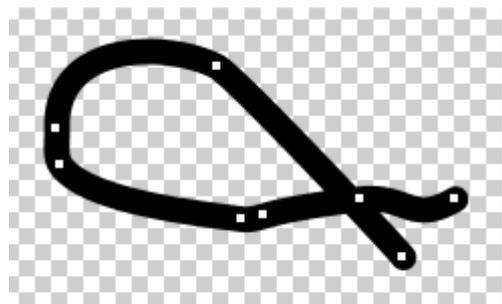
If instead, you extend the line and loop it round so that the end nodes meet, Designer will automatically close the boundary and it again becomes a 'simple' shape:



[pic007]

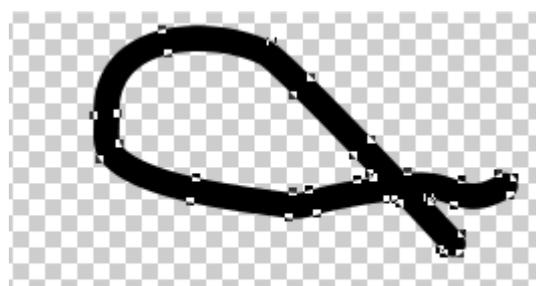
Note in this case it is an outline [black] with a fill [white], as opposed to pic006 which is a fill [black] without an outline.

If you extend the line so it crosses but the ends don't meet, it stays a line and there is no fill possible:



[pic008]

You can use the command 'convert line to shape' to convert it as before, but this time instead of a 'simple' shape you will get a 'complex' one:



[pic009]

In a 'simple' shape there is just one boundary, which surrounds an area that can be filled, as in pic007.

In a complex shape there is more than one boundary. In example pic009 there is the outer boundary and only one inner boundary. But there can be lots of inner boundaries as shown here in pic010:



[pic010]

When you use the fill tool on a complex shape it will only fill the area which is between the outer boundary and an inner boundary - if to reach an area would mean crossing an inner boundary it does not get filled. Another way of looking at it is any area surrounded completely by an inner boundary is not filled.

Remember it may look like a squiggle line, but it is actually a shape with [black] fill and no outline; again for emphasis, I'll show it with [a red] outline [but we do not actually want that here, things are complicated enough as it is]:



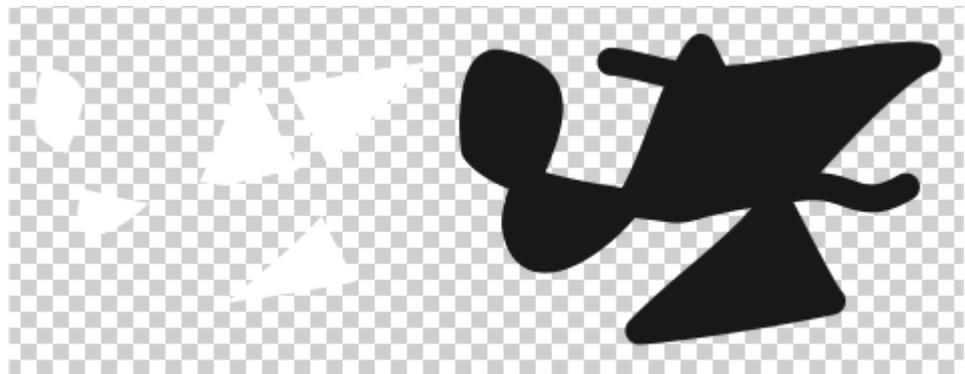
[pic011]

What we do need is to fill the areas that are enclosed by the inner boundaries. One way we could do that is to trace round the areas to produce a simple shapes. But that is redrawing what we have already done; maybe not too bad for pic009, but definitely unnecessary extra work for pic010.

Which is where the arrange menu command 'Break Shapes' comes in; what it does is to separate the selected complex shape out into simple shapes.

Here they are in pic012:

One shape each for the inner boundary areas, and one for the outer boundary area. I've shown the former white; and I've shown the latter black and separated it out to reveal the others. In practice they would be formed all one colour and in one stack.



[pic012]

[Yes alright, it looks sort of like a man in a pointed hat with a very large boil on the end of his nose.. a pure accident I assure you...]

If we put the black shape to the back of the white shapes, rather than separated out, then we get something reminiscent of the clipart, if lacking in artistic finesse:



[pic013]

CREATING THE LINE ART

The Tools

Xara Designer has traditionally had three tools for drawing strokes:

‘Freehand and Brush Tool’

‘Shape Editor Tool’ - now shortened to ‘Shape Tool’

‘Pen Tool’

and recently a new one was added:

‘Straight line Tool’

All of these produce a stroke, as in pic005 or pic008 - ie a ‘line’.

In Xara Designer Pro X it is now possible to also draw a stroke directly as in pic006 - ie a ‘shape’ - using the new ‘Shape Builder Tool’.

Furthermore, as the stroke automatically merges with itself as you cross-stroke, you can also draw the complex shapes in pic009 or pic010 all in one go.

It also merges with any shape it crosses as you draw, that is already selected. For example the stroke you just drew, but not exclusively. Any shape, or line, or quickshape that is selected when it is crossed will be incorporated into the new [editable] shape being drawn. It does not act on complex objects such as groups or clipview, but you can use ctrl+click to select shapes inside for it to act upon.

So it is very easy to ‘paint’ any shape into existence or modify any shape or shapes into a new one - hence the name of the tool ‘Shape Builder’.

[It does not incorporate photos[bitmaps] though, but what it will do is restore clipped out areas.]

To complement this there is also the new ‘Shape Eraser Tool’ which does the opposite of the Shape Builder Tool and removes the parts of the selected shapes/lines/quickshapes it crosses [or in the case of photos, clips them]. Note if no objects are selected then the eraser tool will act on everything it crosses. When the eraser acts on a complex object such as a group it creates an opacity mask object.

Important

What was just said above assumes that the softness setting for both these two new tools is left at 0%. Giving a softness value alters the behaviour of the tools.

In the case of the shape builder tool, it will still enable you to build a new feathered shape simple or complex, but it will no longer interact with selected objects that it crosses. In the case of the shape eraser tool it will create opacity mask objects for all objects it acts upon, regardless of type.

The general options for these two new tools were covered by Gary Priester in one of the previous XaraXone tutorials here: <http://www.xaraxone.com/tutorials/xara-designer-pro-x-first-look/3/>

Drawing

Lines have advantages - it is easy to reposition the curvature and the weight of a line, and they can be given a stroke shape profile.

If you want precision accuracy then the shape [editor] tool is the way to go.

However the shape builder tool is great for organic drawing such as cartooning and the ability to create complex shapes on the fly is a big bonus. Given a graphic tablet [I use a wacom bamboo] it can be very fast indeed. The strokes can be built up just like with a real brush and it can be one shape from start to finish. The eraser tool means erasing is equally as fast. Holding down the shift key as you draw toggles between the two tool functions which is great for speed.

COLOURING USING SHAPES

You can take a simple, or a complex approach to the colouring itself. Here is the clipart coloured:



[pic014]

The right hand fish has flat colour, done simply by selecting the white shapes one by one and clicking on the colour bar colours.

The left hand fish is slightly more complicated as shown in pic015.

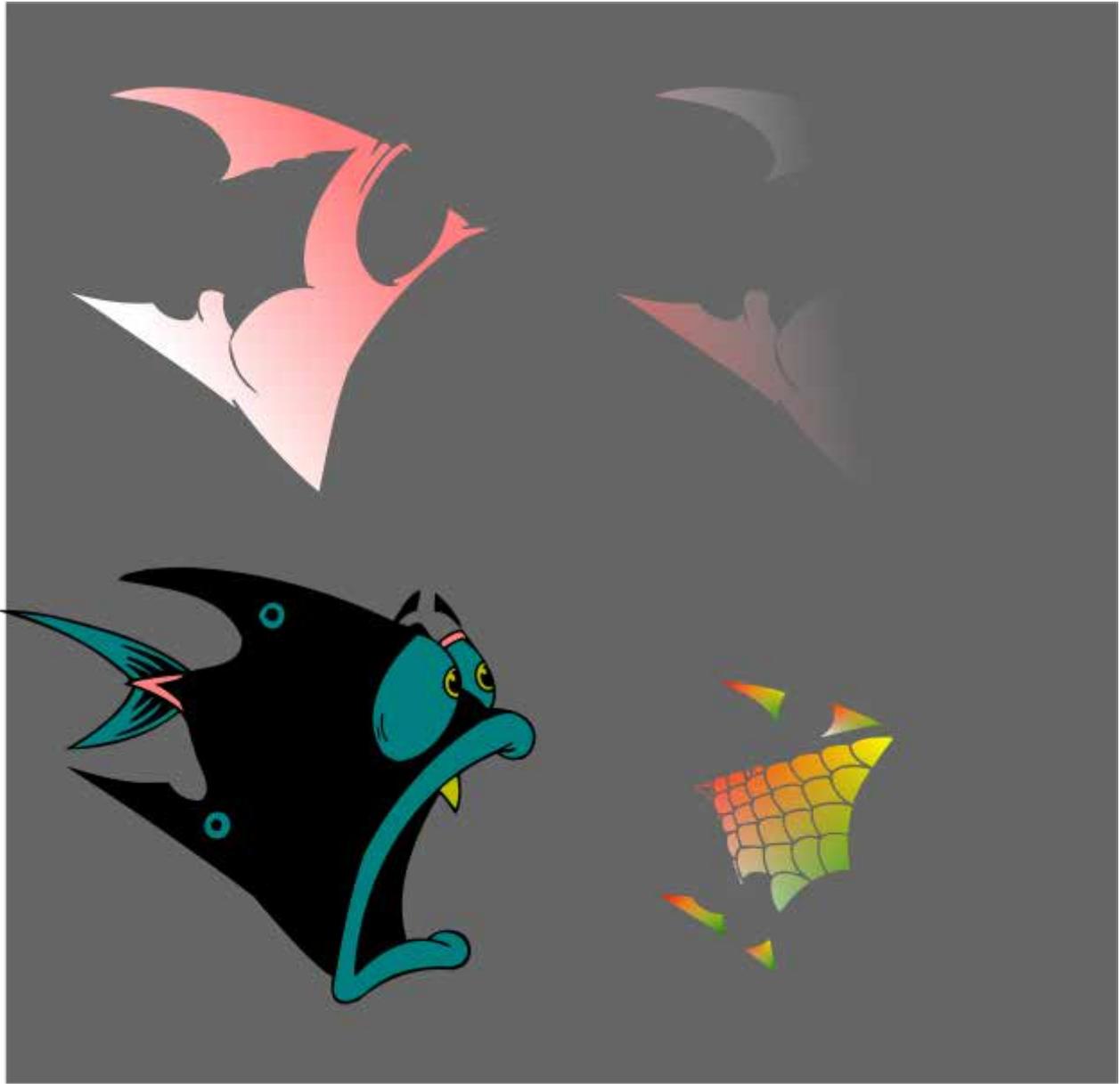
The body shape has a linear fill - in fact the filled shape was cloned and the linear fill on the clone was [approximately] reversed and a linear transparency applied - this avoided the bottom left bodyfin area being 100% white.

The central bodyscale shapes were grouped then given a four colour fill; the two upper and the two lower finscales were also given the same four colour fill individually.

The remaining shapes have flat colour fills.

When colouring like this it's easy enough without using layers - Xara Designer allows you to select, lock and hide each object individually in the Page and Layer Gallery, and also to move their stack order up and down.

But there are advantages to using layers, which we will come to.

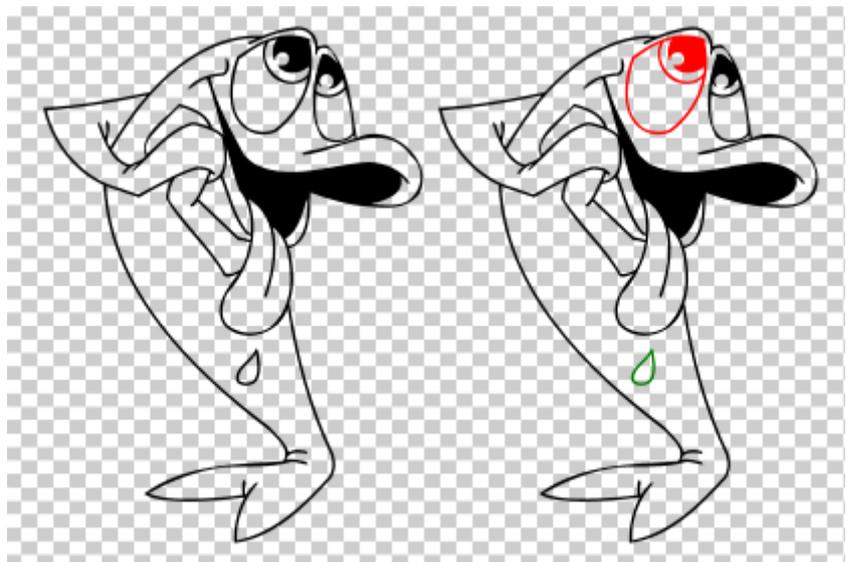


[pic015]

Here is more of the Xara clipart [number 101], as line art, in pic016.

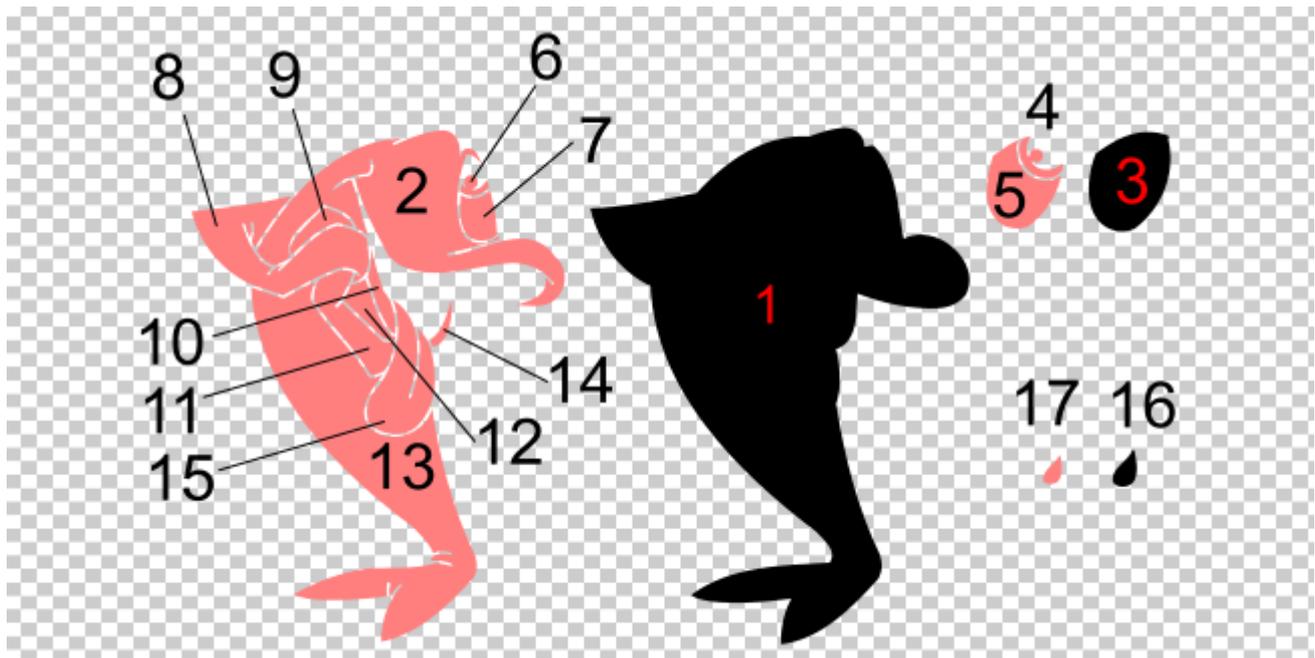
On the right I have highlighted two areas one in red and one in green. In effect there are then three areas in the drawing, one black, one red, one green. They could be thought of as separate shapes since none of them touch either of the other two, but they are not, as it is just one shape made up of three complex shapes, ie a compound complex shape.

If these areas were separate complex shapes, then you could apply break shapes to each and would get three sets of colouring shapes. [pic016]



With the compound complex shape you still get the three sets of colouring shapes, but you only need the one break shapes operation; however you will only get the one stack - you will need to organise them manually.

So here they are - the numbers refer to the stacking order, where 1 is top, and 17 is bottom:



[pic017]

[Remember when you do this all the shapes will be the same colour - I have recoloured them so that the 3 shapes that determine the 'lines' in the clipart are black, the rest pink.]

So here it is put in the right order to rematch the 17 shapes of the original clip art.

A two way process.

But it all starts with the line art.



[pic018]

In pic019 I have recoloured some of the line art. Red for one of the fins, green for [most of the] fin detail, and cyan for the dorsal scales.

Unlike the previous example in pic016 these recoloured parts of the shape are not complex, but simple, and that of course means that they do not result in shapes for colouring.

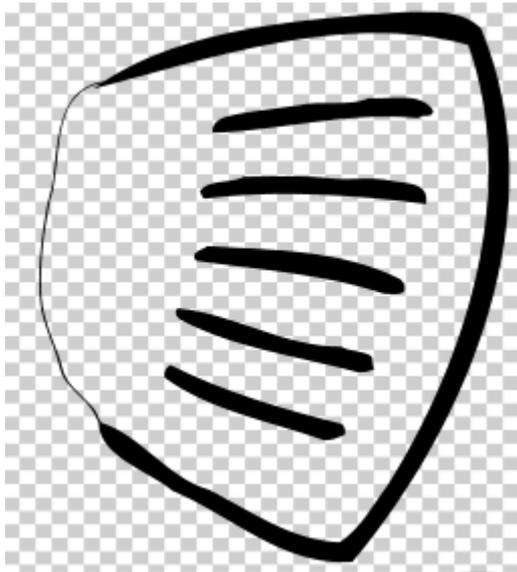
That's fair enough for the fin details [coloured green], but in the other two cases some colouring might be required.

So let's have a look at the fin [coloured red] as an example.

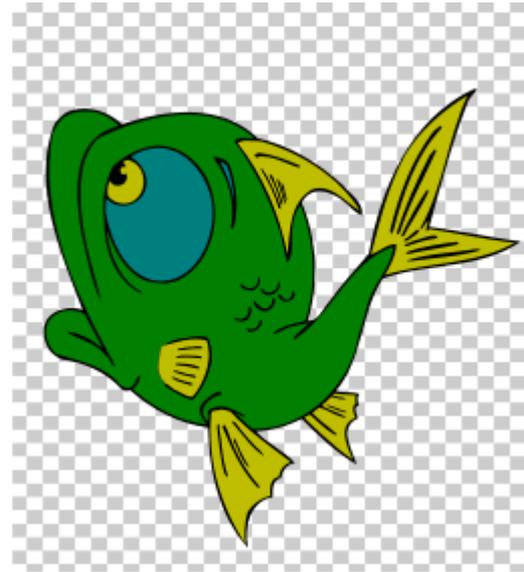


[pic019]

You can simply to put a very fine line across the 'gap' where we want the shape boundary to be, as in pic020, so that we get the extra shapes when we break that enable us to colour the fin separately:



[pic020]



[pic021]

This is very easy with the shape builder tool, all you need to do is make sure the line art is selected and then zoom right in and draw - it merges automatically.

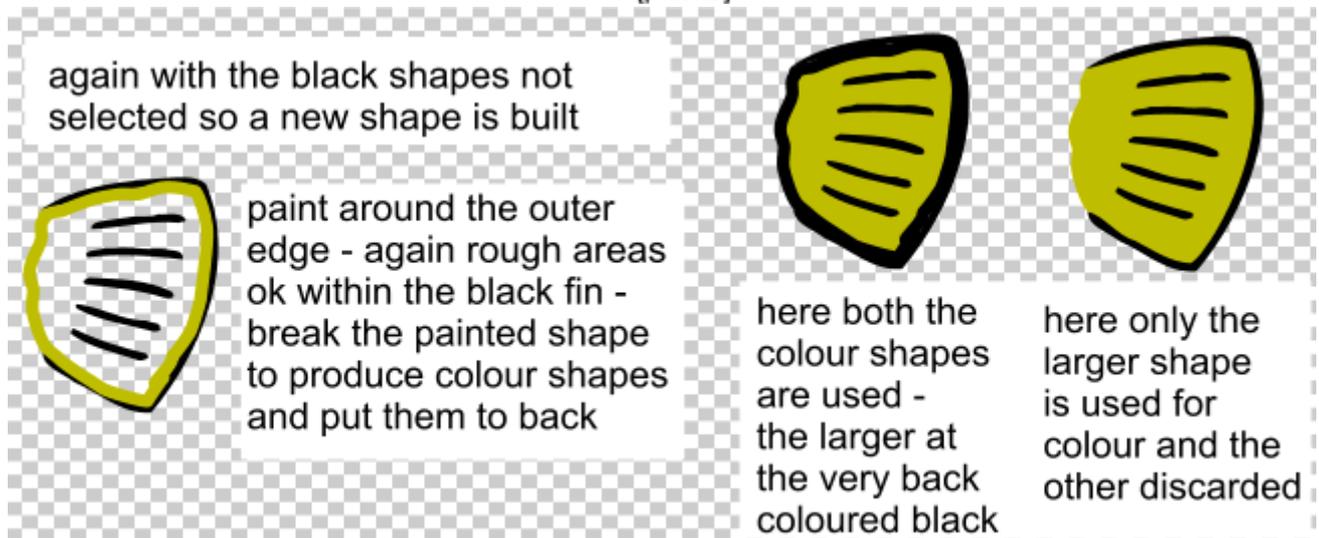
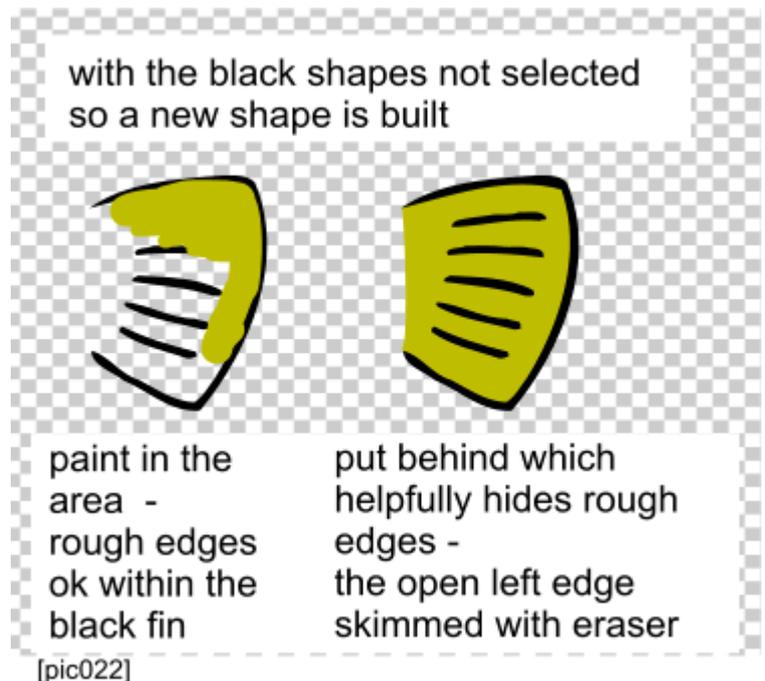
I used a wacom bamboo tablet and pen to get a very fine line which is [deliberately] difficult to see in the finished art in pic021.

Since the shape builder tool is ideal for painting you could use that as an alternative.

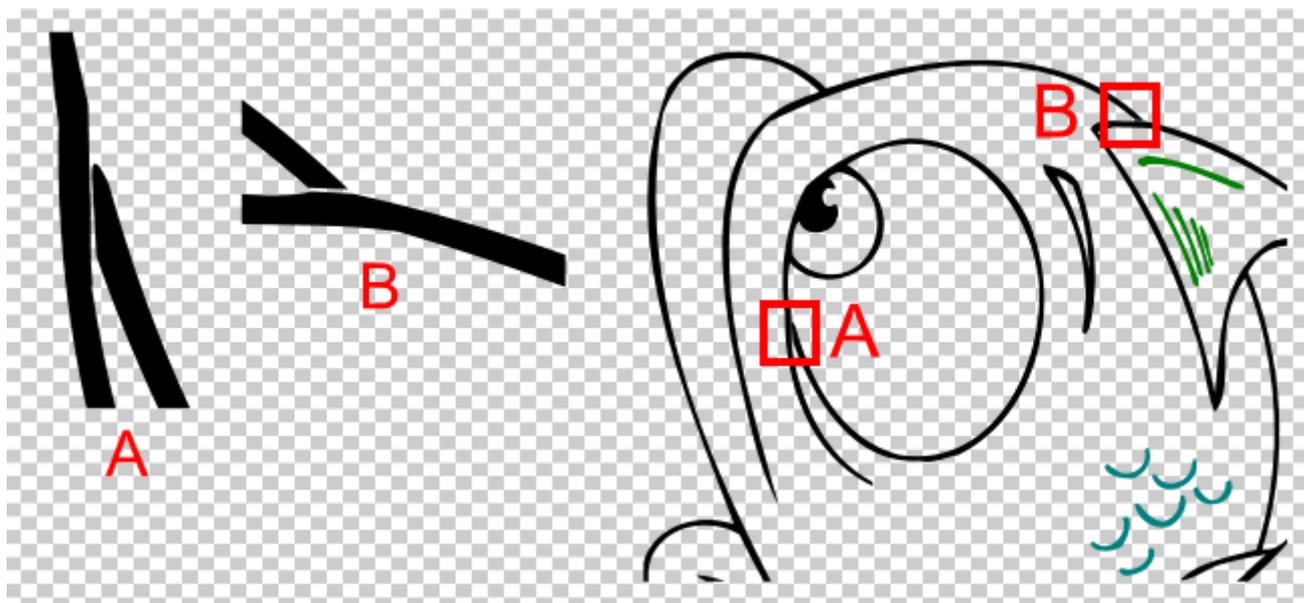
With small areas you can just paint it in as in pic022.

With larger areas you can paint around the outer edge of the area and then break that shape as in pic023.

Remember the eraser makes it very easy to very quickly correct, using the shift key to temporally switch the function.

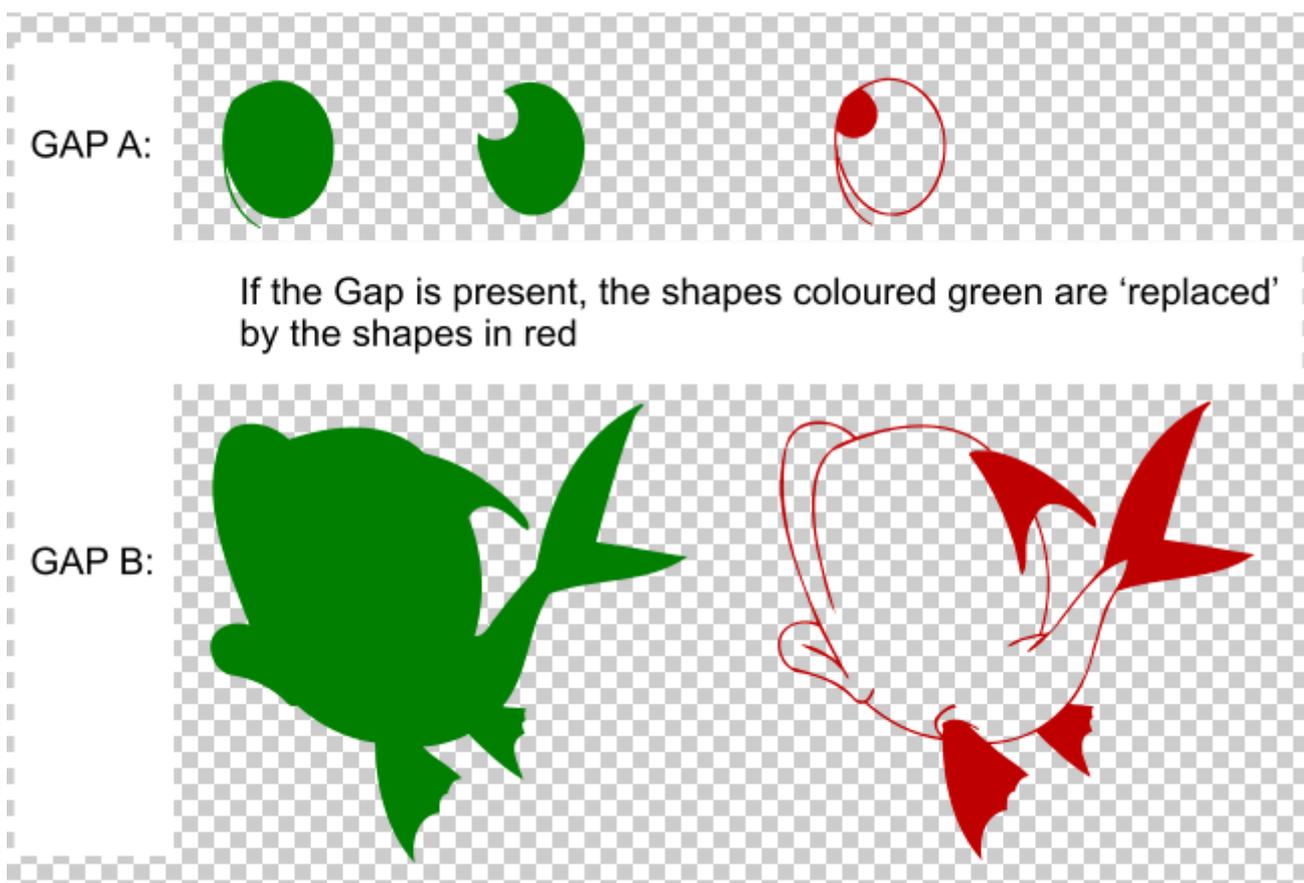


Sometimes, when drawing line art, gaps get left. sometimes by accident, sometimes on purpose. More about gaps on purpose in a moment, first lets consider two example accidental gaps, here labelled A and B:



[pic024]

Pic025 shows the effect these gaps will have on the break colouring shapes:



[pic025]

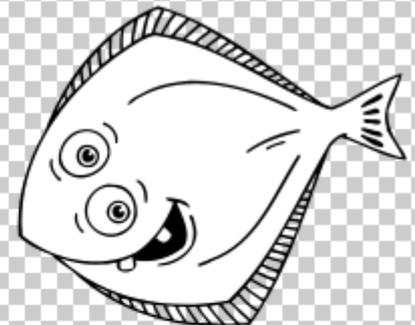
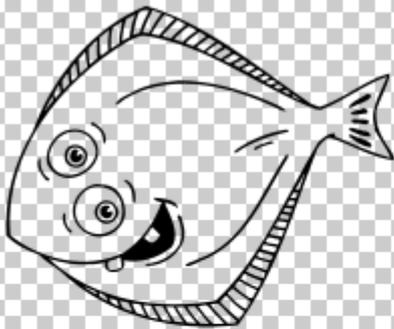
The shape builder tool makes it very easy indeed to correct gaps - just paint in across the gap, with the shape[s]/line[s] selected - gap closed, job done, that simple.

KEEPING THE LINE ART SEPARATE

There are some good reasons for doing this. So far we have been looking at either line art itself, or line art broken into shapes. Breaking into shapes, as we have seen, enables us to maintain the 'illusion' of line art provided we colour our shapes accordingly; in the case of the clipart we looked at, the illusion is created by a mixture of black and white coloured shapes, stacked in the correct order.

However another approach would be to duplicate your line art onto a new layer - this is then your line art in the final drawing. You then break your shapes on the original layer for colouring.

An advantage of the shape builder tool is that you can paint with fills, and I would think this best done with the lineart on its own layer, as in pic026. Afterwards you can soft group the art across the layers to keep it together if you wish. [the clipart is number 013]



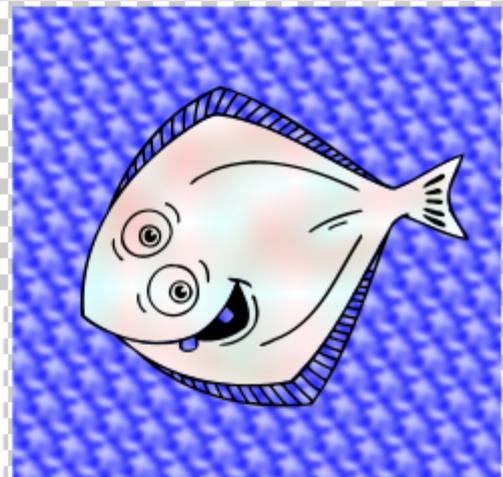
Place the line art on the top layer and the colouring shape in position on the layer below

Like so

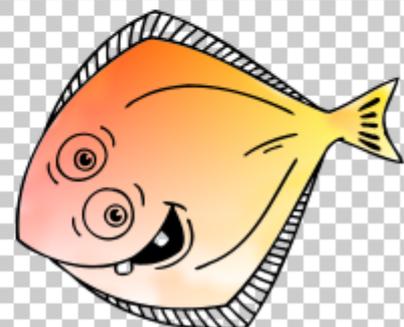
Create a shape with a fill - when 'give new object most recent attribtes' is selected then



this will be picked up automatically by the shape builder strokes. On the lower level paint your strokes with the shape builder tool above the colouring shape - make sure you have sketch mode enabled, using the button on the infobar. Then select all the strokes, and the colouring shape, and apply clipview. The result is shown above on a blue fractal plasma background. Sketch mode means that the strokes will all remain seperate - important in order to lay down seperate fill shapes. I used around 80% softness and smoothing to get the desired level of blend.



Another example with a different fill:



There is a key shortcut which toggles on and off the visible nodes when drawing; by default the keystroke is set to h. This is extremely useful, as free-form shapes tend to produce lots of nodes that can make it difficult to see what you are doing whilst working. One node will always be left visible, which is handy as it flags a shape as selected. This h toggle is particularly useful when painting.

It does usually make sense to spread colouring shapes over layers in order to organise a complicated drawing more effectively; and to make full use of soft groups in order to keep asset [drawing parts], that are spread over more than one layer, together when you need to move their location. More about this next time.

Finally for now, some additional advantages of keeping line art separate:

1. Its more intuitive since you keep the actual line art in the drawing.
2. You can leave any deliberate gaps in the line art on the new layer, and only close them on original layer for breaking.
3. You can easily recolour or add effect to your line art as it is the only object/group on the layer, and not mixed in with other shapes in a stack.

thanks for reading.... :)