Selection : Introduction

Selection is the most useful thing you can learn in Photoshop.

A selection enables you to choose which areas of a photograph you are working on which will allow to do hundreds of very useful things, here are just a few examples:

1) adjust the colour of somebody's T-Shirt without affecting the rest of the photo
2) Removing an unwanted object from a photograph
3) Removing the whole background from an object (isolation)

A selection is the basis of nearly every project In Photoshop.

This tutorial will start in a very basic manor, and will build on knowledge you have gained. As a result the sections towards the end are a lot shorter as a more knowledge is assumed.

Even if you have knowledge of Photoshop it would be worth Skim-reading from the beginning to make sure you know the building blocks to proceed to the next level.
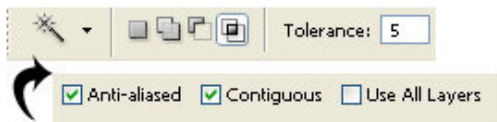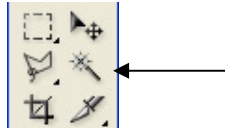
I am using Photoshop CS for Windows XP, although if you are using something slightly different then 95% of this tutorial will probably still apply.

Each section is dedicated to one tool, and will only take 5– 10 Minutes to read. Hopefully this tutorial is quick and easy to follow.
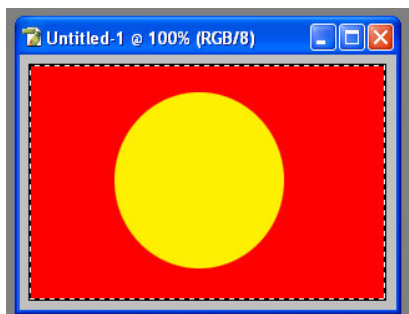
The Magic Wand

The easiest and quickest way to make a complex selection is the magic wand. Unfortunately its also the easiest way to make a *bad* selection.

This is a great tool to start your selection with, but results can be shocking so its normal to combine the magic wand with other selection methods.

Step 1

Load up Photoshop and click the magic wand (shown left) If your not sure what a tool does leave your mouse over it for a short while and a helpful tool tip will appear.

Step 2

You will see the menu opposite appear at the top of your screen. This is the place all the tool options appear. I have split the menu here so it fits on the page better.

Make sure that "Anti-aliased" is ticked, the will create a smoother, better selection. Also check "Contiguous" is ticked, this means only pixels in the area you clicked will be affected
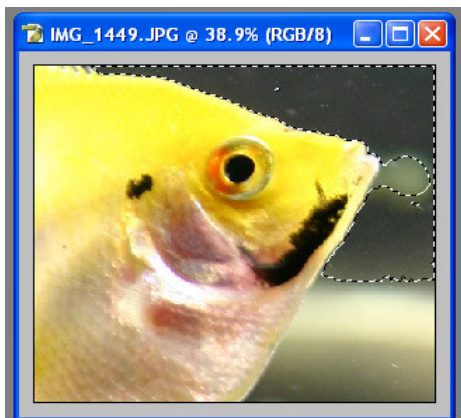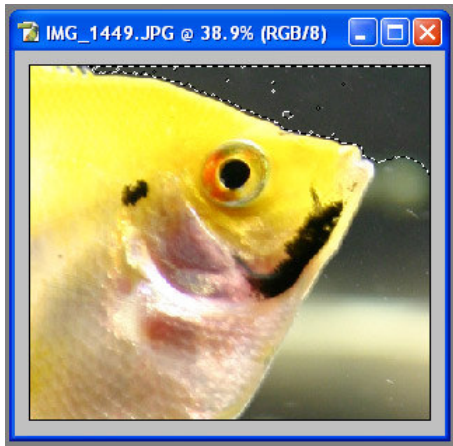
Tolerance : 5 only yellow is selected

Step 3

Click the area you need selecting, and the magic wand does its best. The wand analyses the area you clicked, and selects all the similar colours it finds from the colour you initially clicked.

You can adjust how much it selects by typing a number between 0-255 in the tolerance option box. A higher tolerance will include more colour hues, and will select more. (see examples on left)

Tolerance : 200 red included in selection

Step 4

Getting a good tolerance setting first time takes practise, keep adjusting until you get the best selection you can. You will soon get a good idea of how much tolerance to use.

The
Magic Wand

Okay, so that the theory. In reality those simple steps will only work if you have taken a picture that is on a single colour background.

I'm going to show a few tricks to improve the usefulness of the magic wand for making selections on an average, background.

Step 5

I clicked once on the background with a tolerance of 25. Not a bad start, but if you look closely you will notice a few bits in the middle of the selection that have been missed.

I'm going to deselect and try again **(image > deselect)** or **(Ctrl + D)**

This removes the current selection.

Step 6

This selection with a tolerance of 50 included more of the background. This is a good start.

Did you know you can add to a selection, or remove areas of a selection with the magic wand? The tool menu screenshot on page 1 has 4 icons, that allow you to subtract, and add to selections. I'm going to teach you the quick way so you wont be using these.
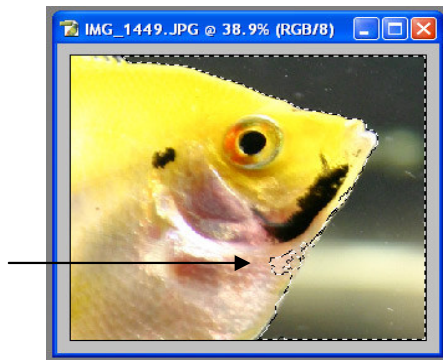
Step 7
Adding to a selection :
Holding down "SHIFT" when you click with the magic wand will add you your current selection

Removing from selection :
Holding down "ALT" when you click with the magic wand will remove part of your selection

Each time you add or remove parts of a selection with the magic wand you can change the tolerance level !

The
Magic Wand

Step 8

I continued to add to the selection, holding down the SHIFT key, I did not change the tolerance, so the selection spilled onto the light area of the fish. (left)

I soon fixed this by changing the tolerance to 25, then holding down ALT and clicking the part of the selection I needed to remove.

Step 9

Okay, you have learnt how to add and remove from a   selection using the magic wand. The truth is, that on this image the magic wand didn't do a great job. The edge between the water and the fish is not different enough to be very successful.

You can tidy up this basic selection, using other selection methods, like the "mask". Most people will mix and match selection methods until they get a final result they are happy with.

Although I have in no way finished the selection for the above fish, The tutorial on the magic wand will end, you will learn how to improve on this initial selection later in the tutorial.

NOTE :

It often makes more sense to select the background with the magic wand, if you want the object selected then go to
Select > Invert
With this in mind it does not matter what you decide to select, the object or the background. Which ever is easier.

Improving
The selction

I will go into more detail about manually improving the   selection, But I thought this would be a good place to give a few hints about automatically getting a better selection.

OPTIONS

Select > Modify > Smooth
This option, as the name suggests will make sharp corners more gradual.

Select > Modify > Expand or Contract
Makes the current selection become bigger or smaller by a stated number of pixels. If I have selected the object with the magic want I always expand by 1-2 pixels before I delete the background

If I have the background selected I always Expand the selection by 1-2 pixels. This is to make sure all of the original background colour is removed, you will get a "halo" or the old background around your object otherwise.
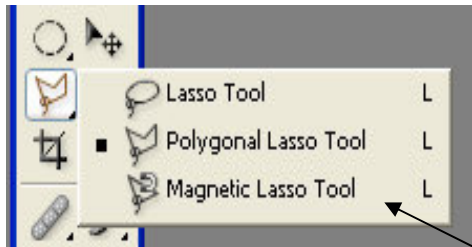
Select > Modify > Similar
This option looks at the selection you already have, then guesses at any stray pixels that should also be selected. Also useful, and often worth doing.

Select > Feather
You can make the edge of the selection softer using this option, Put in a value (about 1-2 pixels is all you need normally) before you delete the background. This will allow a nice smooth anti-aliased edge.

The Magnetic Lasso

Another quick selection method, this however allows more control over the area than the magic wand. It will create a crude "working selection"

Step 1

By clicking and holding on the lasso button, a sub-menu will pop up containing the magnetic lasso. This tool again relies on the contrast of two objects to automatically make a selection.

Step 2

When you select the magnetic lasso tool, the tool options menu again changes. Lets have a closer look at what all these options are.

The first part of the menu is the same as the magic wand, the four icons that we wont be using that allow you to add and subtract from selections (we will use ALT and SHIFT to get the job done quicker)

Feather, although we have not commented on it yet is available on all selection tools, It allows you to adjust the softness of the selection—In this tutorial I will be teaching you to use masks which allow you a lot more control but do the same job.

Width, is the amount of pixels each side of your initial click that Photoshop will analyse the contrast of.

Edge Contrast, For subtle images that do not have a lot of contrast between the edges use a low number.

Frequency, the higher the number the more fastening points Photoshop lays down, about 50 is a good number.

The
Magnetic Lasso

Another quick selection method, this however allows more control over the area than the magic wand. It will create a crude "working selection"

Step 3

Okay here is a high contrast image to try it out on. The background is a nice dark blue, and the object is white. Perfect for the magnetic lasso.

Click at the edge of the petal to make a start, you do not need to hold the mouse button down.

Step 4

With your selection started move around the petal, Photoshop automatically draws a selection. Try and move your mouse pointer around the petal as closely as you can.

If the selection start to "stray" (go where you do not want it to) then you can click the mouse button to add a fastening point.
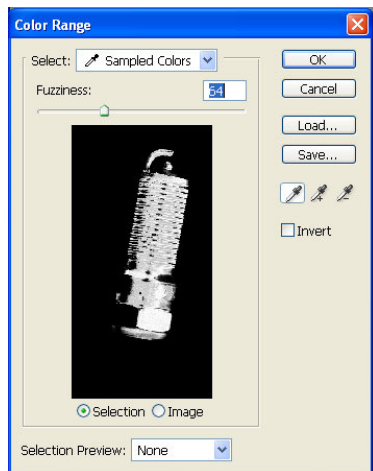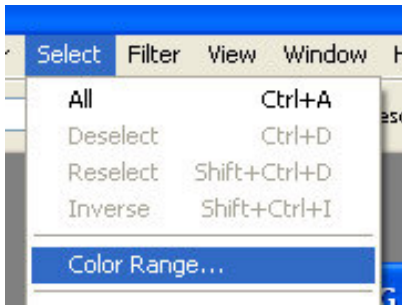
Step 5

A selection can be finished by double clicking, or by going all the way around an object and then clicking on the first fastening point that was created.

Step 6

You will normally find a few areas that need correcting (tip of the leaf for the image on the left) , But this tool is useful to make a fast and easy selection.

Keep reading to find techniques to correct and improve a magnetic lasso selection.

The "Colour Range Selection"

The final semi automatic selection tool before we move onto making manual selections, and correcting the results achieved with the automatic selection tools.

Step 1

The colour range menu can be found in **Select > Color Range…**

This tool is similar to the magic wand, but gives you a preview of what will be selected. It works over the whole image, so could be used to select everything blue in an image.

Step 2

On this picture of a spark plug that was isolated on white, I have clicked once on the plug. The area that shows up white is what will be selected. You can adjust the slider called "fuzziness" to include more or less of the object. You will see a live preview as you work.

Make sure the drop down menu reads "Sampled Colours"

Step 3

Clicking Ok I got the selection on the left. As you can see all the dark colours on the spark plug have been selected, however the highlights on the metal have been missed off.

The "Colour Range Selection"

Step 4

You can fine tune the selection easily, Notice the colour dropper icons in the colour range menu, they have a + and— symbol next to them.

These work the same as pressing SHIFT and ALT to add and subtract from a selection. By using these you can fine tune which colours will get selected.

Pressing the Invert checkbox will reverse the selection (the background not the sparkplug will become selected)
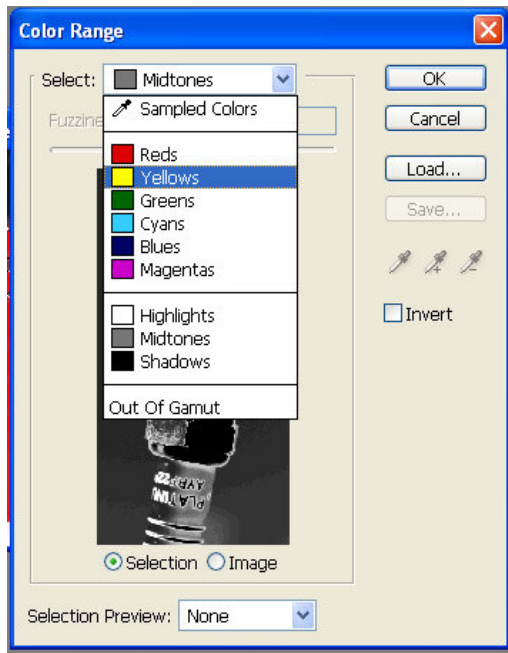

Step 5

The colour range does something very different from the last two selection methods, it has the ability to "half select" pixels.

If I clicked the white background on the spark plug, it automatically selected the highlights on the metal, it also half selected the light grey gradient.

I have created a layer above my spark plug and filled the selection with red. Notice the way red spills out of the selection. These are semi opaque pixels, and the metal underneath can still be seen.

The "Colour Range Selection"

Extra Options

On the drop down menu you have a number of extra option :

"Reds, Yellows, and other colours" unsurprisingly this selects just the colours that you choose.

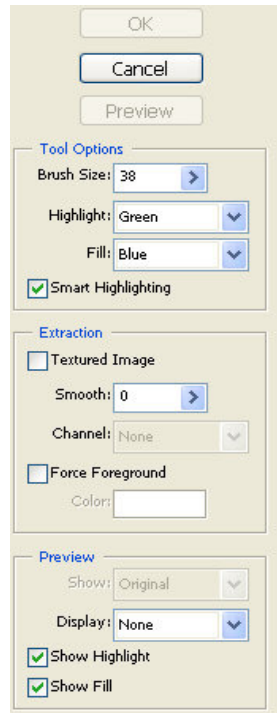**Highlights, Midtones, and Shadows** Again as it says, this will select only these parts of the images.

Uses

Although this is quick, it can produce a lot of unwanted results, but again if you used this to generate a quick rough selection that you planned to improve later it's a useful tool.

Using "Extract"

The extract command is the most intelligent of the selection aids, this is because it requires a lot of manual input. It does a good job but you will often need to correct a few mistakes it makes.
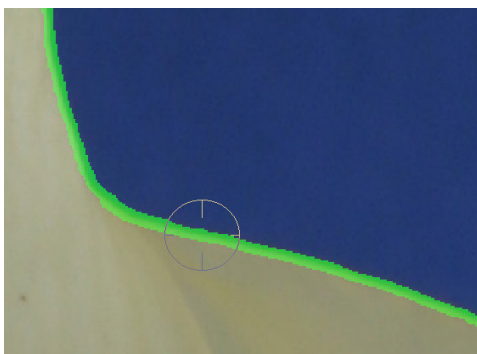
Marker tool

Step 1

You can find the Extract Command in **"Filters > Extract"**

Step 2

You need to tell Photoshop where the edge of the object is. You do this by using the "Marker Tool" Use it to draw around the edge of the object.
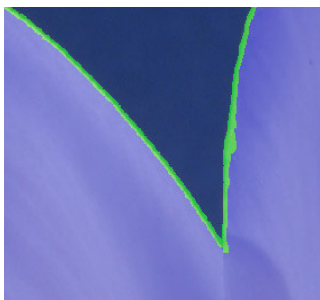
I always tick the box "Smart Highlighting" This works on contrast and helps you draw an accurate line around the edge of the object. You can adjust the size of the marker (brush size) and the colour (Highlight) from the right hand side tool options.

Step 3

As you can see on the left, the green highlighter marks the edge of my picture. I have drawn this with Smart Highlight on, so it fits nicely to the edge.

On some areas smart highlight will not do anything because it cannot find an contrast, just keep going and do the best you can.

Step 4

Once you have completely highlighted the edge of your object, click the paint bucket tool, and click on the are you want to keep (the object). The object will be filled in blue (or whatever colour you chose)

Using "Extract"

The extract command is the most intelligent of the selection aids, this is because it requires a lot of manual input. It does a good job but you will often need to correct a few mistakes it makes.

Step 5

The are filled with colour is the area you will be keeping. Click the OK button to begin extraction. I have created a layer below the lily and filled it with black so I can see how good the extraction has been.

I have found a couple of problems with this extraction (see arrows)

The extraction tool is quick and easy to use, however it does create quite a soft look to the selection (even with all the options adjusted) It's the best tool if you want to isolate somebody's hair.

Final Word …

Ok, so that wasn't so hard. You have the knowledge of all the basic selection tools, now its time to make high quality selections.

I have pointed out the problems with each method, but don't worry all problems can easily be fixed. The next part of this tutorial will show you ways to improve the selection.

Its
Tidy Up Time

I have constantly repeated the fact that automatic selections need to be tidied up. So lets do it.

The following sections will teach you to some important selection techniques to really make a nice clean selection.

Once you have read about correcting and improving selections, We will move on to drawing a manual selection using the pen tool, and then 2 practical examples of selection.

The History Brush
To correct all the mistakes the history brush is a very valuable tool, Will defiantly be required if you use the Extract Command.

Masks
Using masks to improve selections, and feather edges

The "History Brush"

A bit of a life saver! Brilliant to correct small errors in the extract tool—or any other tool!

Step 1

We are going to correct the flower to the left using the History brush. The first thing you need to do is get the history pallet up.

Windows > History

Step 2

The History Palette contains everything that has happened to your document since you opened it.
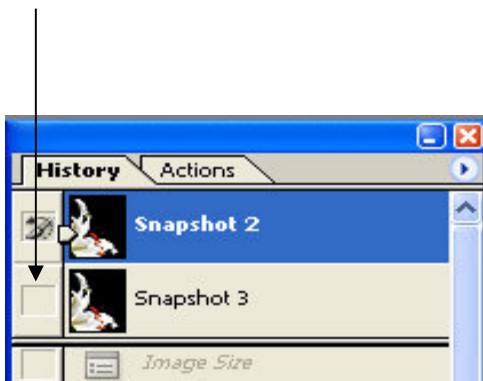
Your history brush is available on the tools palette. (left)

Step 3

Now, If you have not changed the size, or colour depth of your canvas you can just use the history brush to "paint" areas back to their original state.

Basically the tool looks at what the image was like when you opened it, and replaces the new image with the old, restoring areas that you need to be restored.

The "History Brush"

A bit of a life saver! Brilliant to correct small errors in the extract tool—or any other tool!

Step 4

Although this is often useful, sometimes we will change the image substantially, and the image we opened at the start is no longer any use to us—Don't worry, snapshots are the solution.

A snapshot can be created in the history palette, you can jump to a snapshot and your image will go to exactly the state it was when you created the snapshot. Its good practice to make many snapshots as you work.

Your history brush can work from any snapshot you create.
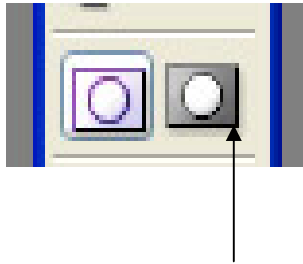
To make the history brush work from a snapshot click the little box next to the snapshot (see picture left) the history brush icon appears in the box. Now Get painting!

Step 5

With the history brush set to a small size, carefully go over the areas the extract tool has accidentally removed. Eventually you will end up with a good isolation

You will probably need to be zoomed in to 100%. You may sometimes reconstruct areas you don't need (eg. the background) so use the eraser tool as well if needed.
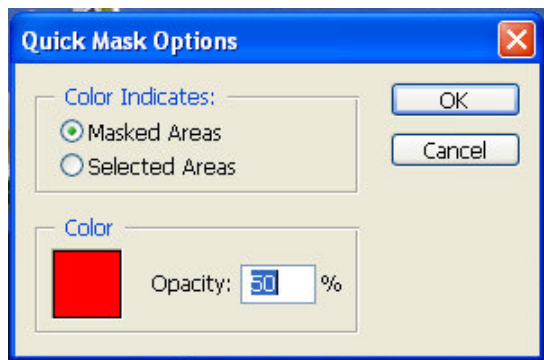
Masking An Object

Tiny adjustments, transparent pixels, and gradients are a doddle with a quick mask.

Step 1

Okay quick masks are very flexible, but they are labour intensive, so I suggest you use one of the methods already covered to get a basic automatic selection. (not the extract tool as this does not create a selection, but physically removes pixels)

Get the automatic selection as good as possible, but do not worry about it too much. We will be using a quick mask to tidy up the selection.

Find the quick mask buttons (see left) they are at the bottom of the toolbar

Step 2

By clicking the button the arrow points to you enter the quick mask mode.

By default everything that is not selected turns red. Personally I find this a very confusing way to work, and prefer it so that everything that is red is selected. I have found a lot of people who agree with me, so I recommend you change to this method as you will find it easier to follow this tutorial. You can change back at any time if you find the default easier.

To change double click the quick mask buttons and select "color indicates : Selected Area"

Press okay.

Masking
An Object

Tiny adjustments, transparent pixels, and gradients are a doddle with a quick mask.

Step 3

I created the selection opposite with the magic wand, This selection is as good as I can get with this tool, so im going to tidy up with the quick mask. Click the quick mask button and the object will turn red (see screen shot)

Step 4

You will often need to zoom in too see any problems. If your object has any red on it, the use the eraser tool to get rid of it. If the background does not have red on it then just paint it with the paintbrush.

The great thing with a quick mask is that you have access to all the normal painting tools, but they do not effect the image but do alter the selection.

Step 5

You can also run filters on the selection. If you go to **filters > blur > Gaussian blur**   You can slightly blur the red mask creating a softer selection around the edges.

This does the same thing as **Selection > feather** but gives you more control.

Masking
An Object

You can also select parts of a mask, this is very useful with photographs that have DOF (depth of field) as the object gets further away the background blends into the object a lot more, making it tricky to isolate onto another colour.

Select the part of the image that has high DOF, using the lasso tool (do it very roughly) Now go to **select > feather** and choose an option of about 20pixels
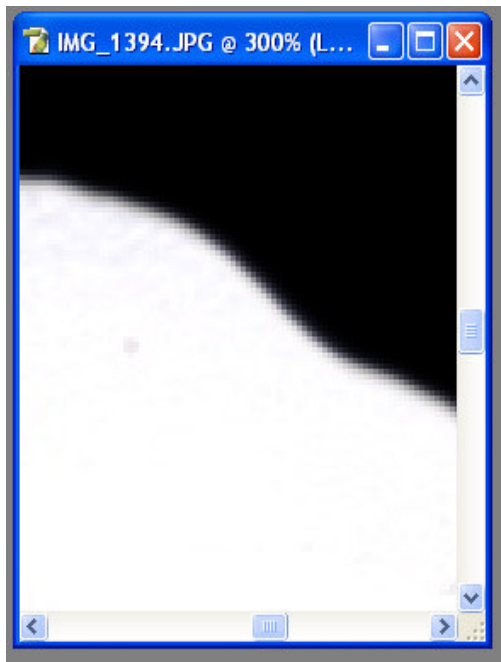
Now go to **Filters > blur > Gaussian blur** and blur the mask to something that looks similar to the amount of DOF.

Step 7
You can go around the image selecting areas and blurring them

When you eventually delete the background you may have to press delete a couple of times, each time you press delete it will delete a few more of the semi transparent pixels created by using the Gaussian blur in quick mask mode, so keep doing it until all the old background disappears

See magnified screen shot of the petal, no evidence of the old blue background exists, and a slight blur to the mask creates a nice smooth anti aliased line so that the black background on the layer underneath shows through seamlessly.
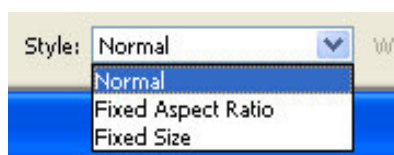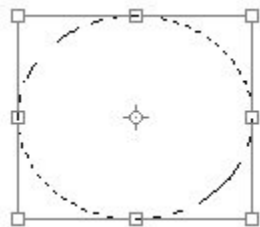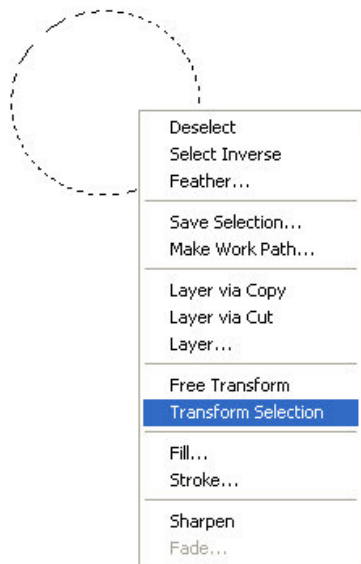
IMG_1394..JPG @ 300% (L...
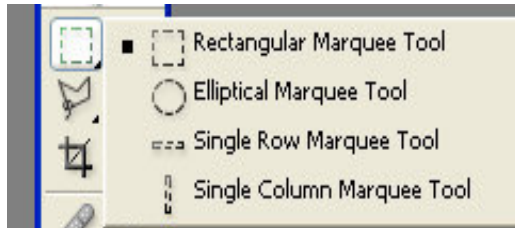
Masking
An Object

Step 8

I realise I have not given you step by step information, But I have given you the practical uses behind a quick mask, and shown you a few techniques on how to use them.

The problem with giving a rigid step by step instruction is that tools like this are highly flexible, you really need to get your hands dirty and try them, come up with your own techniques and do things your own way.

You have enough knowledge to fly solo and really do things your own way. Mix and match the different selection techniques—you will soon be doing it with your eyes shut.

Manual Selection

Rectangle and Circle Marquee. Easy to use manual selection.

Where to find it

Holding the mouse down over the rectangle marquee tool will give you the option for a circle as well. They both work the same so I will not be dealing with them differently.

Options

Its often very difficult to perfectly select a circular object with the elliptical marquee tool, unless of course you know a few tips.

Free transform… a selection!

Once you have a basic selection, you can right click on the canvas and choose free transform. You now get "handles" so you can stretch the selection, rotate it, and do whatever you like with it. Excellent to easily make a selection perfectly fit a circle.

Once the selection in in "free transform mode" you can right click again to get options like rotate, distort, and you can adjust your selection to fit perfectly.

Adding and subtracting

As before you can add to a selection by holding down SHIFT and subtract from it using ALT.
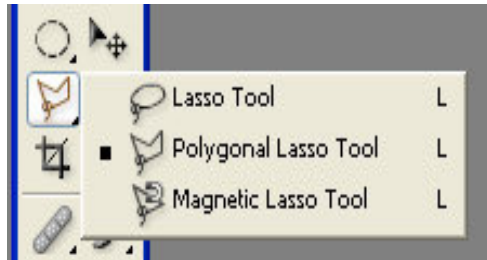
Constraining

If you hold down SHIFT as you draw a circle or rectangle, it constrains the size to a perfect circle or perfect square.

On the toolbar you can click the drop down menu and choose "Fixed Aspect ratio" and this will all so constrain to a perfect square/circle.

If you choose "fixed size" from the drop down box you can type in the exact size of your square/circle.

Manual Selection "Lasso"

We have already seen the magnetic lasso, But the lasso tool also has manual options.

Lasso Tool

This tool is your freehand option, it gives you absolutely no help, so wherever you move your mouse is where your selection is. You cannot make accurate selections with this tool (unless you have a very steady hand!)
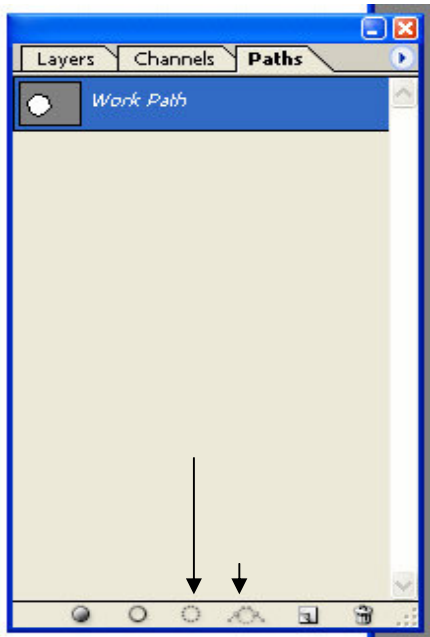
Its very useful to quickly remove areas of a selection you don't want.

Polygonal Lasso

A very useful tool, you need to be zoomed at 100% to make an accurate selection with it. Click and release where you want to start your selection. As you move your mouse you will notice a line follows you. Each time you click you create a point. Point are joined using a straight line.

To make a selection using this tool, just click all around the edge of your object, when you get to rounded edges you will have to click more often so that the curve does not get a pointy angled look to it.

Manual Selection "Selections to paths"

Creating a path from a selection is a common thing to do, as you can save paths with a jpeg file

Notes
Go to your Paths Palette (Windows > paths) Notice the buttons at the bottom. The longer arrow points to the button that create a selection from a path, the shorter arrow points to the button that creates a path from a selection.

Note On The Pen Tool
The pen tool is one of the hardest tools to master, its not strictly a selection tool as it creates a path. However as you have seen its easy to convert between the two so its worth mentioning.

Although hard to master, its well worth the effort. Its quite slow to use, but the end result will be worth it.

Teaching the pen tool properly is outside the scope of this tutorial (to avoid it getting too long) But I will be creating another tutorial soon and will attempt to teach you the wonders of the pen tool