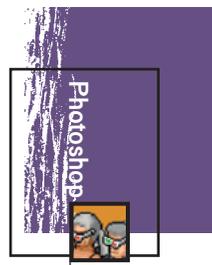
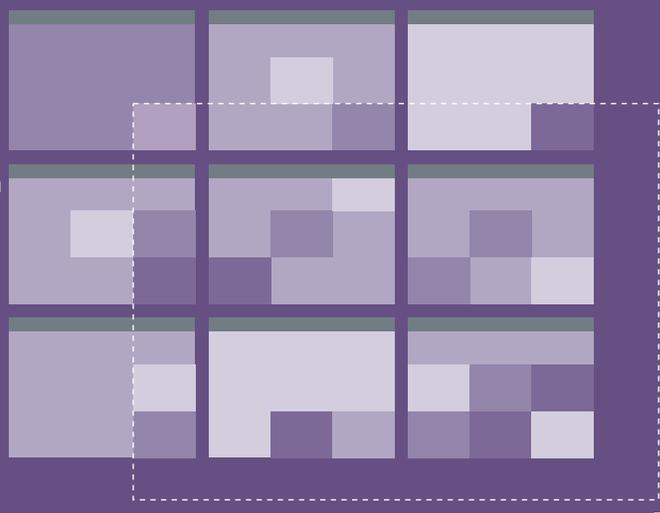


Illustration: Engine Design Website: www.engine-design.co.uk



Photoshop Skills



Pixel perfect

Pixel art is a distinctive illustration style that's more popular now than ever before. Learn the techniques behind our retro opening illo...

In this tutorial we'll outline the key elements of creating pixel illustrations. We'll show you how to create objects such as a building and a car that involve lots of straight lines and hard edges, as well as outlining how to create organic objects such as a person, or in this case a monster.

Creating large illustrations for print can be both laborious and time-consuming, because each image is built up pixel by pixel like a large LEGO set, but *Photoshop* can help reduce the time needed to create your masterpiece by utilising layers, channels, selections and levels.

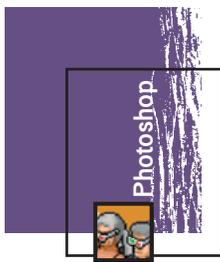
For providing your image with organic elements, there's the option of using an airbrush tablet and stylus, giving you real-time control of your pixels — just remember to turn off anti-aliasing on any tools you use, though.

Pixel art is great for conveying a retro look, calling the mind back to early computer game graphics. It's also ideal for use on the Web, with the small number of colours keeping file sizes low. So open up *Photoshop* and start building...



On your CD

In Tutorial\Photoshopskills on the CD you'll find a PSD file that will help you create the car section of the tutorial (for personal training purposes only, and not to be reproduced elsewhere).
Artwork and expertise supplied by Matt Key,
Creative Director of Engine: [e] matt@engine-design.co.uk, [w] www.engine-design.co.uk.

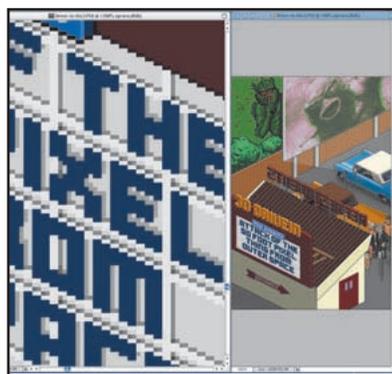


Part 1: The building

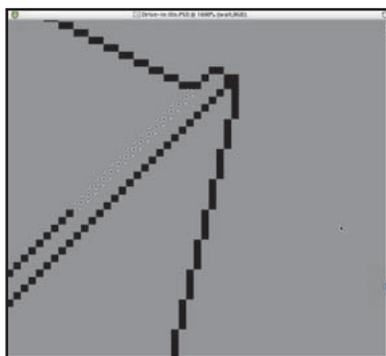
At the far left of our opening illustration you'll see a refreshments building – we'll begin our foray into pixel art with a touch of DIY...

The grid

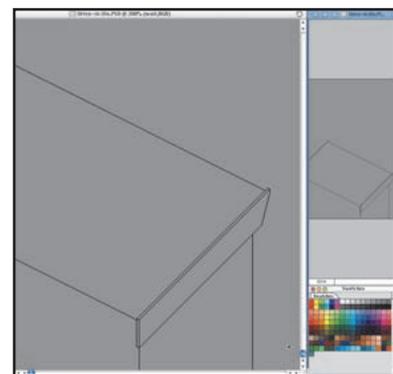
Set up your grid to 1 pixel square by going to Preferences>Guides And Grids. In the Grid part, change the style to Dashed Lines, Gridline set to every 1 pixel, Subdivisions set to 1. Remember the quick key for turning it on and off: use Alt+ on the Mac and Ctrl+Alt+ on the PC.



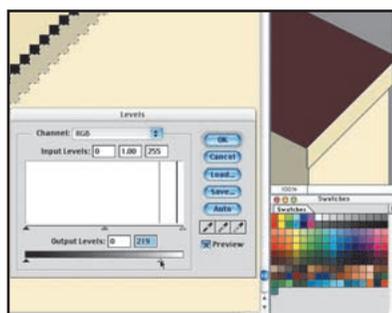
1 Set up your document: open two windows of the same document, one at 100 per cent magnification and the other for zooming in and working in detail. Go to View>New view to open a new window of the same document, then resize and move it to the side of your main document.



2 The easiest way to draw an object in your scene is to create the outline of the object first, then fill it with colour. Zoom into your document to around 1600 per cent and use the square Marquee tool to select one pixel at a time. Hold down Shift to add to the selection until you have your desired area, then fill it with black.



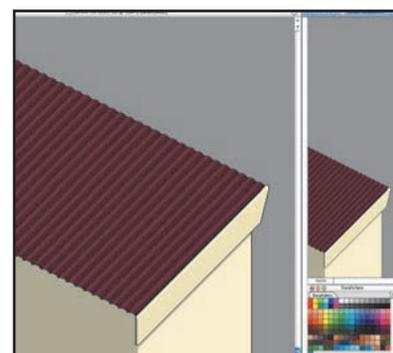
3 Creating a horizontal and vertical line using the Marquee tool is pretty quick and easy, but diagonal lines such as the roof of this hut can be time-consuming. You can save some time by setting up alpha channels of frequently used lines and shapes – just load them as selections when needed.



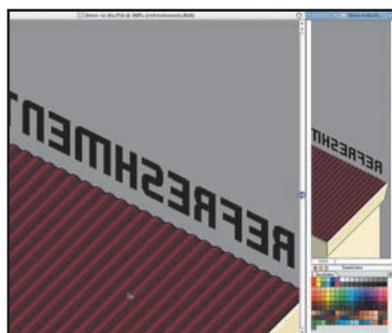
4 Now it's time to add colour. Choose a cream colour and select the Paint Bucket tool, then in the Options palette turn off Anti-aliasing, set Tolerance to 1 and fill in the walls. Select the Magic Wand tool, turn off Anti-aliasing and set Tolerance to 1, then select the wall that would be in shadow and select Image>Levels. Move the bottom-white point to make the wall appear darker. Do the same for lighter areas but move the black point instead.



5 Our next step is to create the corrugated roof. Select the Line tool, turn Anti-aliasing off and set Width to 1 pixel. On a new layer, draw a dark red line (RGB 97, 34, 02) for the length of the roof, holding Shift so it's perfectly diagonal. Draw another line next to it and continue doing that until you have a section that is 17 pixels wide – change the colour each time (lighter for the bump, darker for the dip) to match the contours of the roof section.



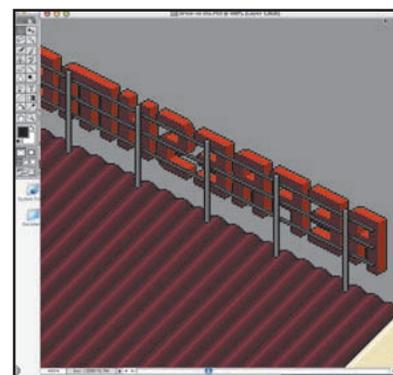
6 When you have one section of the roof completed, duplicate this layer. Using the cursor keys with the Move tool selected, press Left twice and Up once; keep moving it until the roof section slots perfectly next to the first one, then merge the two layers and repeat the process until you have a complete roof.



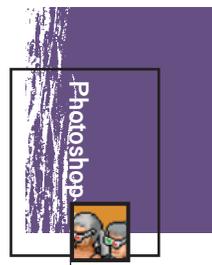
7 Now we move onto the 3D refreshments sign. On a new layer called 'Refresh-back', start creating the letters using Marquee Selection with Shift held down. When you've selected all the pixels that make up a letter, fill it with black and move onto the next letter. Use the Magic Wand for duplicate letters; click on a letter, move the selection to the new position and fill with black.



8 When the word is complete, fill the layer with a dark red (RGB 112, 0, 18). Duplicate that layer, call it 'Refresh-front' and fill with a light red (RGB 213, 0, 0). Move the layer behind Refresh-back and fill in pixels to make the type look like a solid object.



9 Still using the Marquee tool, select the sides of the letters and change Levels until the letters appear darker and gain a 3D look. Add a black outline 1 pixel wide around each letter to finish it off. Continue adding details to your building using all these techniques.

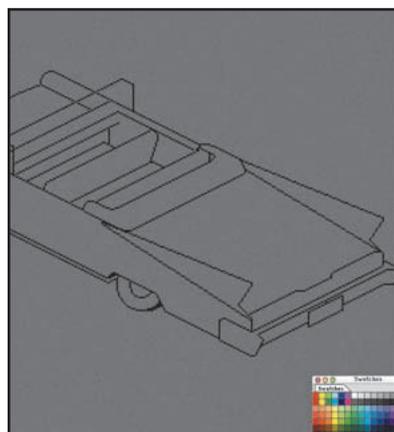


Part 2: Creating the car

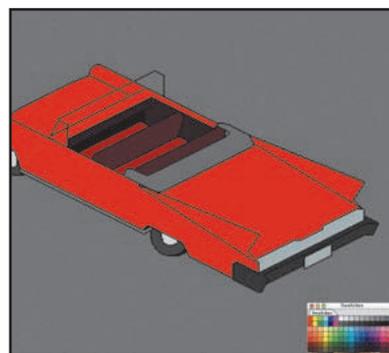
Next, using the PSD file on your cover CD in the folder Tutorial\Pshopskills, we'll make a cartoon-style car...

Selections

The most accurate way of colouring in your pixels is to use the Square Marquee tool and zoom into your image to 1200–1600 per cent magnification with the grid visible. Select the area you want to colour in using the Shift key to add to your selection and the Alt Key to remove from your selection, then press Alt+Delete to fill with the foreground colour. This method can take a while, but it's more accurate than using the Pencil tool set to 1 pixel and drawing on your image, or even using the Line tool – the line will more often than not have gaps in or be thicker than required in areas along the line.



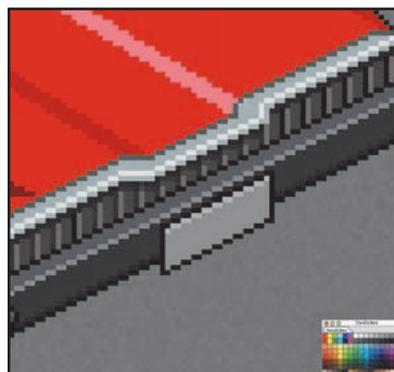
1 Open the file on the CD called PixelCar.PSD. As you can see above, this is a black outline of the car for you to add colour and detail to.



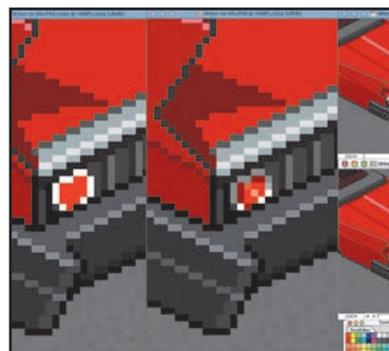
2 Using the Paint Bucket tool with Anti-aliasing turned off, choose a red (RGB 217, 37, 33). Click on each panel of the car to fill it in, then do the same with the other areas of the car such as the wheels, bumpers and hood using greys; for metallic areas choose a light grey. Now that's finished, it's time to add the detail.



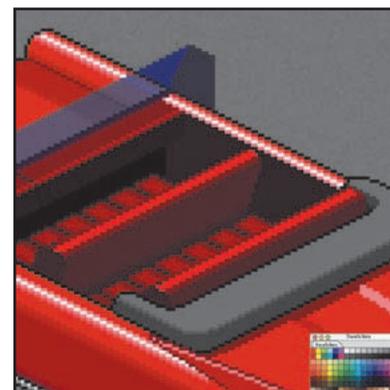
3 For the highlight on the side of the car, load the alpha channel called Highlights as a selection and fill it with white, then press Left twice on the cursor keys to move the selection into a new position and fill it with a light red (RGB 237, 154, 152). Continue moving the selection around and filling with a variations of the red until the highlight blends into the colour.



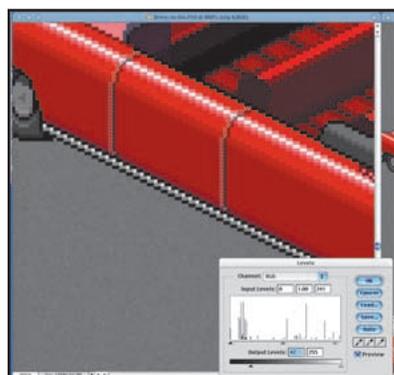
4 The rear of the boot has a chrome strip detail and sticks out a bit from the darker grey panelling of the brake light background. Notice the slight shadow on this area and the highlight on the chrome edge – this is done by selecting the area and changing Levels.



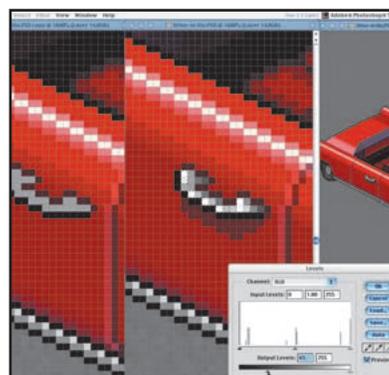
5 We now need to create the circular brake light. Select the Pencil tool and set to 1 pixel in size. Draw a white splodge roughly the size and shape of the light, then draw a red splodge in the centre of it. Using the Marquee tool, select areas that are in shadow and change Levels to darken them. Do the same for the highlights.



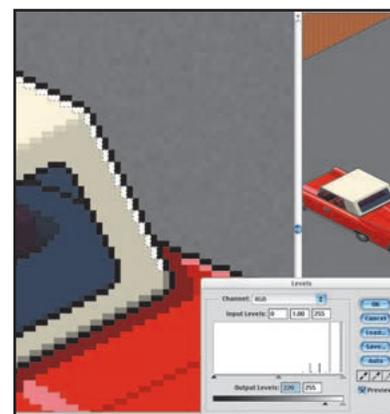
6 The windscreen is made of two layers of dark blue colour set to different opacities, one layer for the front windscreen and one layer for the two side windows. The front seat was created on one layer then duplicated for the back seat.



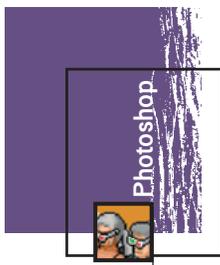
7 For the door panels, use the square Marquee tool and select the pixels that follow the contour of the door. Move the bottom-white point slider in Levels to the left so the output levels say 0, 190. Select the pixels to the left to create the highlights using Levels again.



8 For the door handle, select an area the shape of the handle and fill it with a light grey. Put a black outline for the edge that would be sticking out, and for the edge that's next to the car use a dark red outline (as the left image shows). Add highlights and shadows using Levels.



9 A good technique for making objects look chunky and cartoon-like is to add a shadow around the bottom area of the object and a highlight around the top, as we've done on the roof.



Part 3: Sketching a monster

Generating organic shapes using pixels requires a different approach to the ones we used on the building and the car...



1 For the creature we're going to use a different technique. Rather than making selections, we'll sketch the outline using the Pencil tool and a graphics tablet. If you don't have a graphics tablet, simply use your mouse instead. Select the Pencil tool, 1 pixel wide, then sketch the outline of the creature in black.



2 Use the Eraser tool and change from Airbrush to Pencil (1 pixel) to delete any stray pixels. Make sure the black outline is only 1 pixel wide in all places. When that's done, use the Paint Bucket to fill in skin areas with a middle green, upon which we will work a darker green to create the shadows and lighter green to create highlights. Fill the mouth and lips with a middle red.



3 Use the Magic Wand and click anywhere on the black outline, then go to Select>Similar to select the black outline, then Select>Inverse and View>Hide Edges – this prevents the black outline from being sketched on. Choose a dark green, and with the Pencil tool sketch the areas that appear in shadow.



4 Choose a green that is halfway between the middle green and the dark green, then try to smooth the transition between the two colours by drawing around the edges of the dark green that you drew earlier.



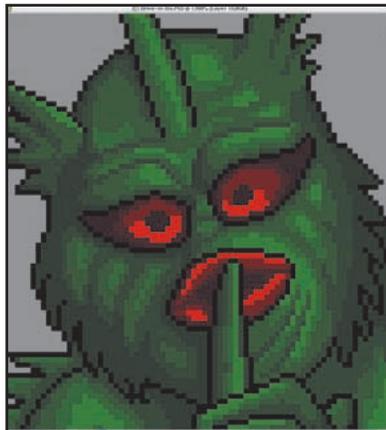
5 Now it's time to draw the highlights. Choose a light green, and onto the middle green paint areas that would appear lighter, such as the wrinkles on the face and the muscles.



6 At this point it looks like the shadows aren't dark enough, so choose an even darker green than before and sketch into the shadow areas.



7 Now we'll move onto the eyes and mouth. Use the Magic Wand and click on the eyes, the pupils, the mouth and lips. Choose a dark red and sketch the areas in shadow, such as the edges of the eyes and the inside of the mouth.



8 Continue to apply progressively lighter reds to smooth the transition from the original red to the darker one. (We've used a total of five reds so far.)



9 The monster is almost finished – all you need to do now is add the odd highlight on the top of the lips and light reflections in the eyes. **ca**