

WHEN ONLY 3D WILL DO...

Despite the steep investment both in cost, time spent learning the package, time spent building a scene in 3D and time spent rendering, there are occasions when using a full-on 3D application is the best option. 3D has many advantages, the most obvious of which is its animation capabilities. Artists also come to appreciate the flexibility of 3D scenes: the ability to reuse textures and setups, copy and paste elements, and work through various lighting and texturing ideas in real-time. In many cases – product visualization, impossible-to-shoot photography or situations where photorealism is important – 3D is the perfect tool.

CREATE THE 3D LOOK



EXPERT ILLUSTRATOR, DAVID NEWTON, PULLS BACK THE CURTAIN ON THE INNER-WORKINGS OF 3D, SO YOU CAN ADD AN EXTRA DIMENSION TO YOUR WORK

Before my career in art started, before college and long before Photoshop even existed, I had a job as a cashier in the fast food industry. Two weeks into the job, an elderly woman came into the restaurant and ordered ‘a cheeseburger with no cheese.’ I nodded, hit the ‘Cheeseburger’ button on my register and was about to hit the ‘Custom order’ button, when I paused and realised that what she really wanted was a hamburger. I told her so but she replied in the negative, repeating, ‘I want a cheeseburger with no cheese.’

‘To cut short this fast food fairytale, the woman left with what she thought was a cheeseburger with no cheese. In the end it was far easier to deliver a hamburger in a cheeseburger wrapper than to stand around arguing about it. Ten years later I met with a client who needed a detailed 3D model of a product with what he described as ‘a Starbucks commercial cartoonish look’. It was for a single page ad. I started to explain that, given the final product, it would be easier to create a 2D drawing than cell-shade a 3D model. He stared back at me blankly. Then he started explaining to me what 3D was, complete with educational hand gestures. Eventually I cut the conversation short, accepted the project, and completed it in a few hours. The client got a 2D illustration – that they were very happy with – and it just happened to look remarkably like a cell-shaded 3D render. All of which comes together to prove the two things I’ve learnt about clients in any industry. First, the customer is always right, and second, they probably have no clue how to go about telling you what they actually need.

JACK OF ALL TRADES

‘Creative work has been converging for years. I blame the personal computer, Photoshop, and the relentless drive of businesses to do more with less. Today’s digital artists find themselves mixing design and photographic elements into Web pages, hand-painting textures for 3D models and directing digital cameras through virtual sets. In general, we’re seeing less of ‘that’s not my field’ and more experimentation and crossover. Illustrators are getting more comfortable handling the type in their book covers, designers collage graphic elements and type into illustration-styled layouts, and 3D modellers are turning into weekend photographers to collect rust textures. As artists experiment with new media, they find new solutions to old design problems.

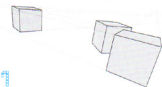
“LIGHT AND SHADOW ARE THE MEAT AND POTATOES OF THE ILLUSTRATION AND 3D WORLD”

‘So what’s the downside to the introduction of new media? With so many tools in the box, it’s too easy to pick one you’re comfortable with rather than the best one. I frequently work with artists diving into 3D packages when a photograph or illustration would communicate just as well, if not better.

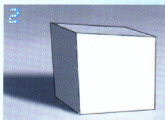
‘Design follows trends, and art directors are under pressure to keep pace with the latest and greatest. It’s easy to buy into technology hype, and assume an expensive 3D software package is a complete artistic solution. Learn to trust your own instincts and to use a technique that’s appropriate for the final piece you want to create. If you’re not sure, experiment. Err on the side of simplicity; start with a low-tech solution and move up from there.

‘Essentially, all these ‘3D’ techniques are giving the brain a separation between foreground subjects and the background, so that the viewer reads a third dimension in where there is none. One of the main ways you can give a 2D drawing depth is by

FIVE STEPS TO 3D HEAVEN



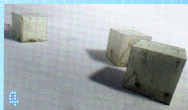
1 Think back to learning about technical drawing at school, and whip up a basic image like this with a few boxes and accurate perspective lines reaching out to the horizon. Note that the perspective forces the left-hand box back slightly.



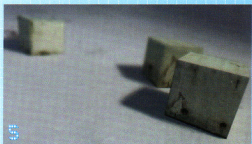
2 Lighting pushes the objects further into place. The shadows place the boxes firmly on the plane, and a cool blue ambient light sets off a yellow key light. Paint basic values first, then point in all your shadow and highlight areas.



3 Here is a quick look at atmospheric perspective. The background is pushed into a light fog, which causes the eye to focus on the foreground subjects. In Photoshop, add a white-to-transparent gradient.



4 Here is an example of faded depth of field. Use 'Copy Merged' to create a new layer, and add a Gaussian blur. You can 'focus' on objects in the foreground by erasing parts of the blurred layer.



controlling the contrast in the image. The cornerstone of depth is perspective. 3D programs handle it automatically and most illustrators do it subconsciously. A photographer will immediately think of lenses and focal lengths. If you flatten out all the elements on a page they will read as flat. However, the simple act of overlapping two objects creates depth. At its most basic, as lines recede, they converge to the horizon. If you're just starting out, read up on two-point and three-point perspective, vanishing points and foreshortening. Try working through a few examples until it really makes sense to you. Practice drawing some simple buildings and figures and ask other people if they look 'right'. hone your knack for this by studying the real world that is all around you, and then learn to trust your own judgement.

SHED SOME LIGHT ON THE SUBJECT

"Light and shadow are the meat and potatoes of the illustration and 3D world. Only graphic design manages to sidestep it. Whole volumes could be written about lighting and if you're aiming for contrast, then lighting is perhaps the best place to start. Besides the obvious - that it'll put you subject in a strong light and push the background into shadow - you can also create contrast with lighting of different colours. Experimentation is the key, but avoid frontal lighting, because it flattens out the subject and hides shadows.

"Light travels in straight lines, which means that light and shadow conveniently follow all the rules of perspective. So, once you've got to grips with that, light should be a doddle. Putting it all in place will mean you're already creating an image with depth. The aim of light is really contrast, both in value and in colour. Many illustrators push opposing colours into the shadow areas. So if you're working with a warm yellow light, use slightly bluish shadows. These subtle touches go a long way toward separating out the subjects in a scene, and when used skillfully create a more noticeable piece. For even more complexity and depth, you can set up a three-point lighting system consisting of a strong key light, a fill light to fill in the shadow areas the key light creates, and typically a back light to set the edge of the subject off from the background. This is the same setup as movies use, and ensures that foreground and background are defined and can then be manipulated.

"Texture and general details are also crucial. While vector illustrators often work with exceptionally blank shapes and figures, this is not realistic. Total realism doesn't have to be your aim with your 3D image, but the believability of its layout is very important. While adding texture and detail to your subjects it is worth noting that our eyes can comfortably pick out details at up to 15 to



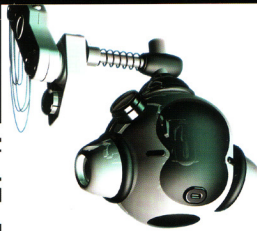
■ Can you tell which is 2D, and which is 3D?



2D OR NOT 2D?

THAT IS INDEED THE QUESTION

Cell shading is a good example of the crossover between illustration and 3D, and often people find it impossible to tell the difference between the two. Both of these images use some of the latest shading technology to mimic a cartoon line and shading style. Unless you're doing an animation, you might want to ask yourself if it would be easier to draw your scene by hand, and then scan it into Photoshop for colouring. For the curious among you, the image on the bottom was created purely in Photoshop while the image on the top required the modelling capabilities of 3ds max.



> 20 feet. This means that you need detail for anything nearer than that, and should leave it out and/or soften it when items are further back, which will push objects into the background. For example, in order to create a massive spaceship, you could cover the ship in small, noticeable details while leaving its surrounding relatively blurred. The details themselves will read 'larger' due to the diffused surroundings.

SHADOWS AND FOG

"Atmospheric perspective" is the fancy illustrator's way of saying fog or haze. Small particles of dust and water in the atmosphere diffuse sunlight, and gradually lighten the background until it fades into the skyline at the horizon. To add atmospheric perspective, gradually fade the background to white as it recedes. Or, if you're working on white paper, simply draw background objects lighter. As an added bonus, adding this sort of effect will also give you a bit of creative leeway if your perspective isn't quite right!

"There's another trick that owes more to photography than painting, but can also be helpful. Essentially, the eye works in much the same way as a photographic lens and rays of light converge differently depending on lens shape. Most people have seen photographs with focused subjects and blurry backgrounds. Just as with texturing, you can set up a focused/blurry contrast, which will separate out subjects from the background. Be aware that it's easy to overuse this trick, though.

"The great thing is that, should you decide to splash out on a 3D application, all of these techniques that you have used in 2D will still be valid. The computer will automatically handle perspective on its own, but it's up to you to decide how to integrate other effects like depth of field, environmental fog, lighting and texturing.

A HAPPY MEDIUM

"As with all art, you have to learn the rules of the medium inside out, and then figure out how you can break them in the most exciting way. Keep experimenting and your work will stay fresh. One of the real downsides of 3D is that it has that 'computer generated' look. After all, 3D is the result of computer code. Without effort put into breaking up that uniformity, a 3D render can end up feeling sterile. With 2D, you'll be able to see more of the 'hand of the artist' in the form of brushstrokes, collaged bits, deliberate distortion and minor imperfections. And you might find that a graphic approach to an illustration problem or a photographic approach to a design problem will yield unexpected - and potentially brilliant - results. So avoid whatever temptation you might have to go off and reinvent the wheel, or to use a hammer when a fly-swatter would do just as well.

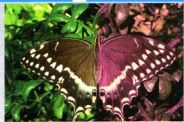
"For those who prefer hammers and really want to take a 3D approach to a project, though, a render should only be considered a starting point. Paint over it, collage in other 3D or photographic elements, or flatten it again and use it as a texture in another 3D work. Add type, graphic elements... whatever works for your particular piece."

As David has explained, mixing different styles and even whole chunks of 2D and 3D is a great way to give your work stand-out factor. After all, moviemakers have long combined 3D animations and 2D matte backgrounds, and it hasn't done them any harm.

Obviously, if it's 3D animation that the artist inside you longs to create, then there's no getting around the money and the learning curve. Bite the bullet, think of the eventual satisfaction factor and go do it. But if it's merely the 3D look you desire, then don't waste time learning the technicalities of a program when it would be better spent polishing your technique. Sit down with a piece of paper and practice until you can spot dodgy perspective a mile off, and then head for the computer. Start putting it into effect there and experiment with focus, textures, light and shade.

And don't be snobbish about using other people's models. Buy them, open them in a plug-in like ModelShop and then use them in your work. After all, you can always follow the example of Roberto Campus and use the model purely as a guide - a sort of high-tech colouring-in book if you will.

Once the mystique around 3D is broken down you'll soon realise that although it takes an awful long time to learn and be any good at, it's not fundamentally a higher skill than 2D illustration. And if you do eventually get into 3D modelling, you'll soon realise that everything you've learnt about perspective and convincing lighting is just as vital - if not more so - when you've got that third dimension staring you in the face for real. ■



WE'VE GOT ALL YOU NEED FOR 3D ON THIS ISSUE'S CD



■ If you really want the 3D effect without the 3D software, seek solace in the world of plug-ins

THE BEST 3D PLUG-INS

If the built-in features of your 2D programs aren't enough for you, there's a whole world of 3D plug-ins for you to try, and we've got the best of them on this issue's disc. Photoshop fans should have a peek at ModelShop, for instance. It gives you a space in which you can open 3D models, pose them and make quick renders. You can't do any real editing of the model in ModelShop, but the best part of it is that the plug-in comes with models ready for use, and you can buy other 3D models online, too.

There are many other resources aimed at video editors, so they can quickly whip up 3D titles or create little animations to jazz up their creations. These include Invigator Pro for After Effects (www.zaxwerks.com) and Shine (www.trapcode.com).

You can also make use of models, and a great place to get them is www.turbosquid.com. We've got a massive collection of 3D models on the CD from there, so check out the trailer and the wheelbarrow, among others. There are some textures from Turbo Squid for you to try on the CD too. See page 108 for more.