

Adobe Illustrator and Flash

# Animate realistic facial expressions

**Tom Baker** shows you how to save time on convincing character acting by focusing on facial animation

**It's a simple fact that it takes less time to draw mouths and eyes than it does to draw bodies and limbs.** So, by creating a set of happy and sad mouths for lip-synching, it's possible to cut down on the need for time-consuming whole-body animation, while still maintaining convincing character acting. In short: the head does all the work so the body shouldn't need to.

This project gives you an overview of the process I use for this, from creating original pencil sketches through to a finished animation. To accomplish this, it will help if you already have a good understanding of both Flash and Illustrator.

I've included all my original files on the cover disc for you to work through the steps with – although you may choose to follow the process using your own characters if you wish. As there are some fairly big jumps between certain steps, I have also included various work-in-progress files (WIP) for your reference. And it'll be worth looking at the final designer\_CA.mov file on the disc before you begin, to get an idea of the end results.



#### Tom Baker

Freelance character illustrator and Flash animator Baker has an impressive roster of clients including Channel 4, Cartoon Network, Paramount Comedy and Sony. [www.bakeranimator.com](http://www.bakeranimator.com)

#### On your disc

— You'll find all the files you need to complete this project on your cover disc, in the Resources section

#### Skills

— Create characters in Illustrator  
— Manipulate images and animate them in Flash  
— Understand symbols and the timeline in Flash



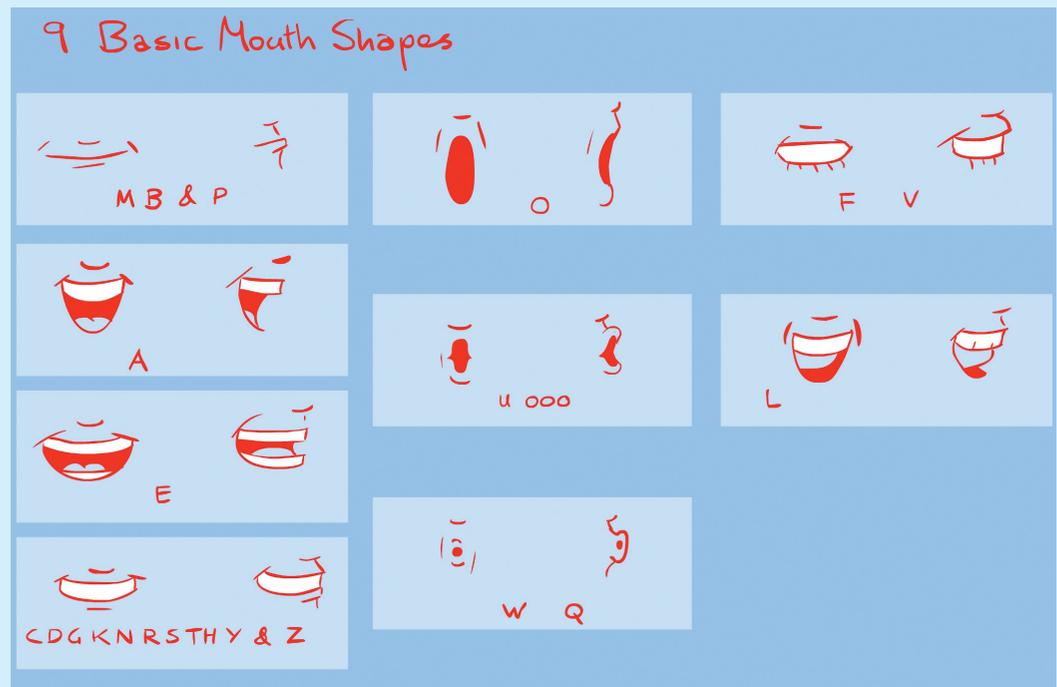


**01** The first step is to create your character. I still tend to sketch out my designs in pencil on paper. I also try to keep it all on one page, as it's less to lose and quicker to scan. Once you have the basic character down, try to create a variety of mouth shapes.



**03** When you have some sketches you're happy with, scan them in. You don't need every expression that you're likely to use at this stage, as you can always draw more as and when you need them. My character here looks a bit like a fashion designer, and you can see how I've experimented with facial expressions from the pencil scan. Scan your sketches in at a pretty big size – I went for 300dpi – so that they're easy to trace, in a format that's universal.

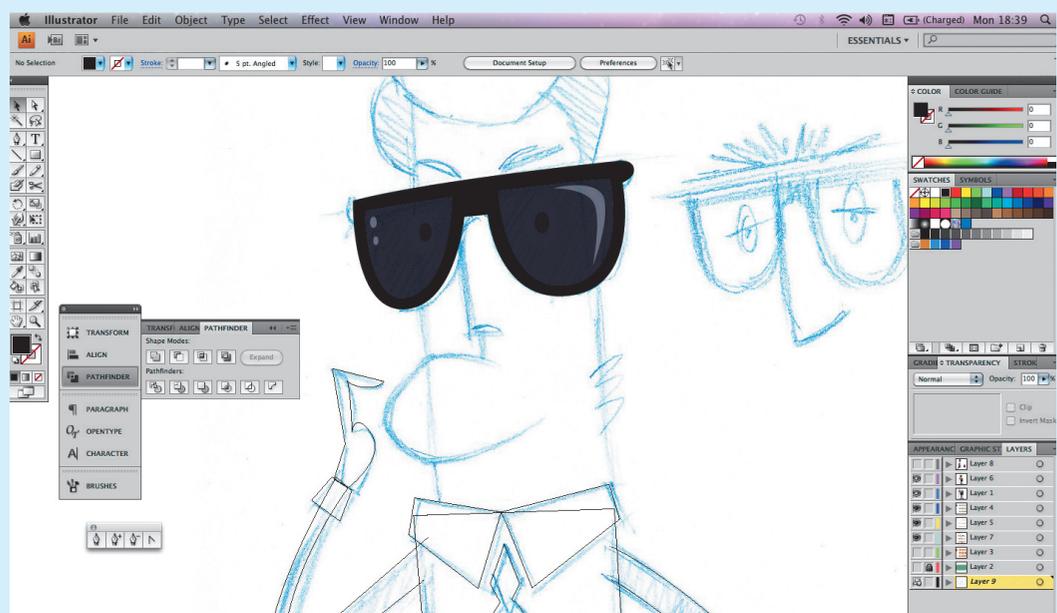
www.computerarts.co.uk



**02** When drawing mouth shapes, try and create at least two for each mouth shape needed – one for happy and one for sad. I have created a set of basic mouth shapes that I use as a template, which I actually based on mouths by Disney animator Preston Blair (see 9basicmouths.fla on your cover disc).

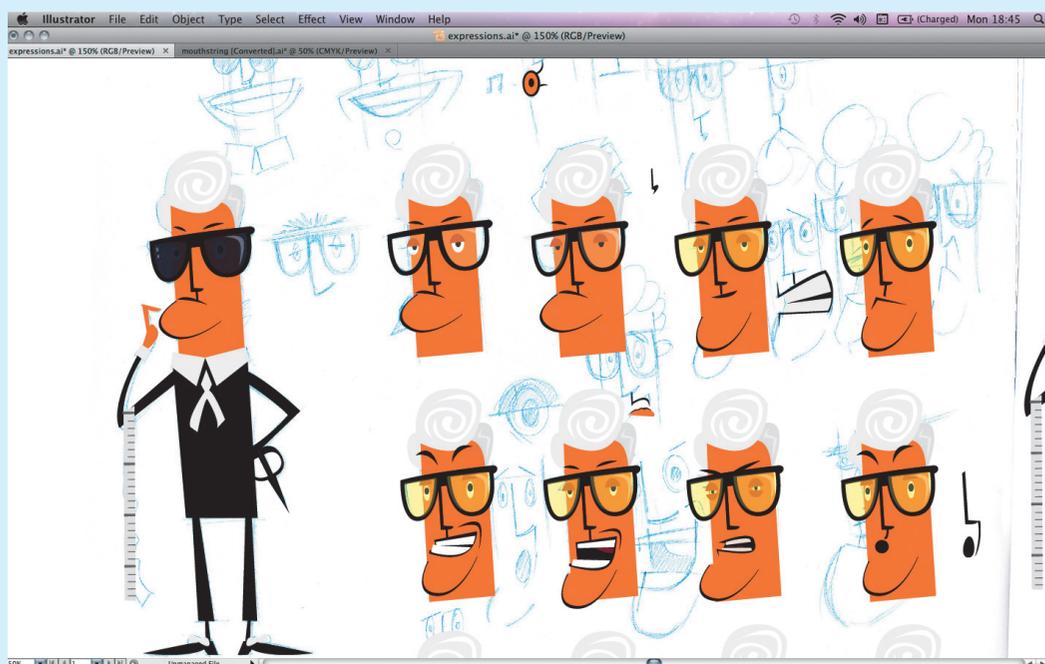
### Be bright

If your template layer appears too faint to trace in Illustrator, you can change the dimming settings. Double-click the layer from the Layers panel on the left and change the percentage that you've dimmed to, or uncheck the box entirely.

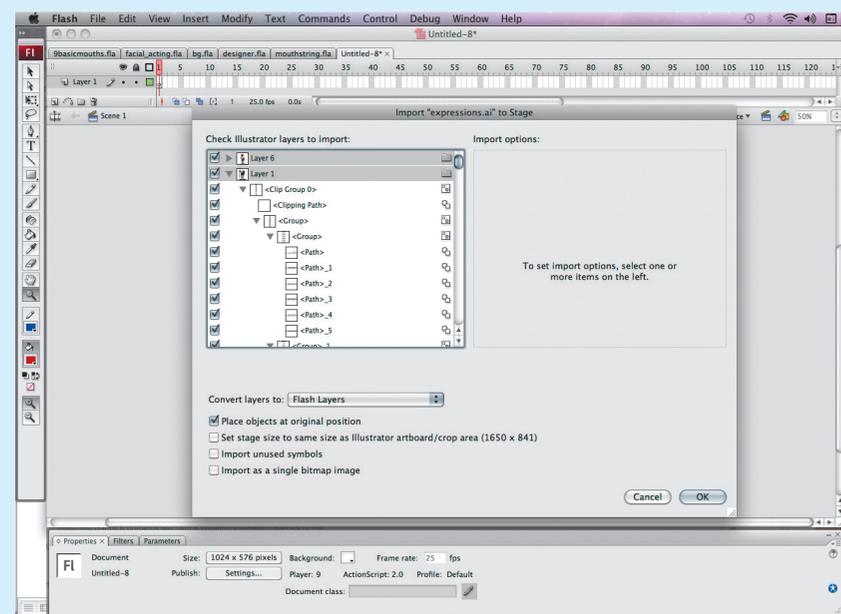


**04** Next, place the pencil sketches into a new Illustrator document, ensuring the Template checkbox is ticked, and start to trace the pencil lines. By pressing Ctrl/Cmd+Y all non-template layers will appear as wireframe, which makes the tracing process easier. To change individual layers to wireframe, hold Ctrl/Cmd and click the eye icons on the Layers panel.

August 2010\_ Computer Arts Projects



**05** I tend to build up shapes using the Pen tool. Try and create a number of happy and unhappy mouths. Sometimes mouths that appear to work in pencil don't look so good when created in Illustrator, so don't feel restricted by the original drawings, and don't be afraid to scan more designs in if needed. For example, I choose not to use the cheesy grin pencil drawings when vectoring the art.

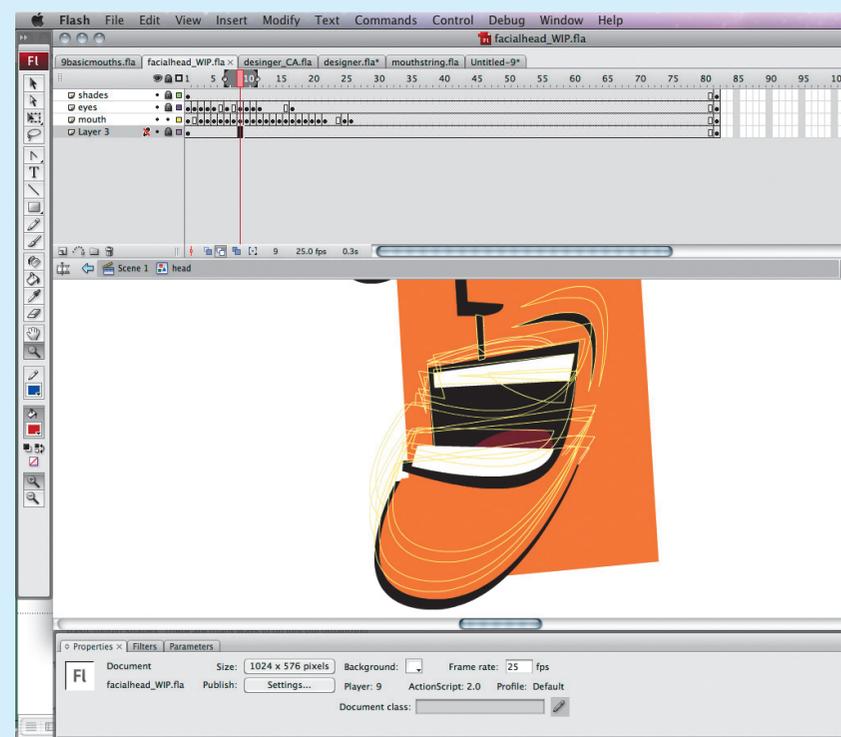


**06** When you're happy with the way the character looks, and have a number of different mouth and facial expressions, it's time to import into Flash. Save your Illustrator file (I called mine expressions.ai, which is on your cover disc), and then import into a new Flash document using File>Import>Import To Stage. Flash will automatically import visible layers that are within the bounding box set in Illustrator.

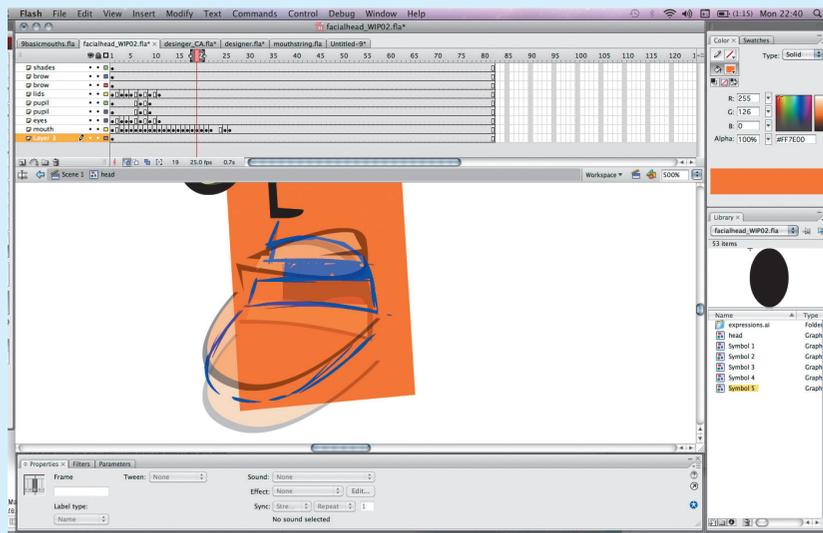
### Face time

When drawing convincing facial expressions, the easiest starting point is your own face. For this very reason, many animators work with a small mirror available to hand, to study less obvious moods. If you don't have a mirror available, the back of a CD is a useful alternative.

**07** Essentially a lot of the animation work has already been done, but the file needs organising. If you name the layers in Illustrator (as I did in expression.ai), the names of the layers should be the same when they're imported into Flash. Create a new graphic symbol from the shades, eyes, mouth and head layers, and call it 'head'.



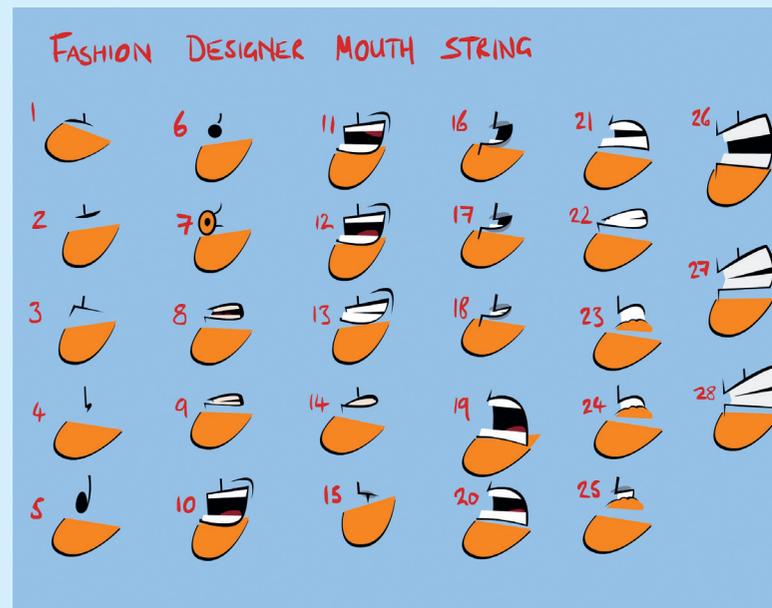
**08** Using the Onion Skin tool in Flash, line up the different heads along the timeline, putting a different expression on sequential frames. Because the head and glasses should be the same in every frame, you only need one keyframe for these layers. You can refer to my work-in-progress example for reference – it's called facialhead\_WIP.fla on your cover disc.



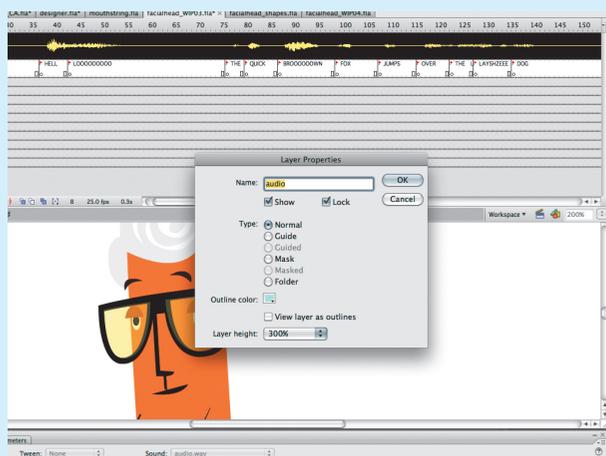
**09** Further organise the head and face elements by creating new layers for the pupils, eyebrows and eyelids, making graphic symbols where necessary. Arrange the mouth layer so that the order of the shapes makes sense, with happy mouths following happy mouths, sad following sad, and so on. You might find you need to create inbetweens (frames between keyframes) at this point – I often sketch these out first using the Brush tool. See facialhead\_WIP02.fla for my example.

**Top to bottom**

When lip-synching I tend to move the bottom jaw quite a bit, but keep the top of the mouth more or less fixed. Cartoon characters are pretty flexible and it's fine to break this rule for the more extreme keys, but this should make the lip-synching look more solid.



**10** By creating new inbetweens in Flash I eventually ended up with 28 different mouth shapes, which I then numbered, printed out, and stuck on my wall (mouthstring.fla). I find it invaluable to have mouth shapes that I'm working on close to hand, and my wall is covered in lots of them from various projects. It's also helpful because you can sometimes reuse your old mouths in new projects.

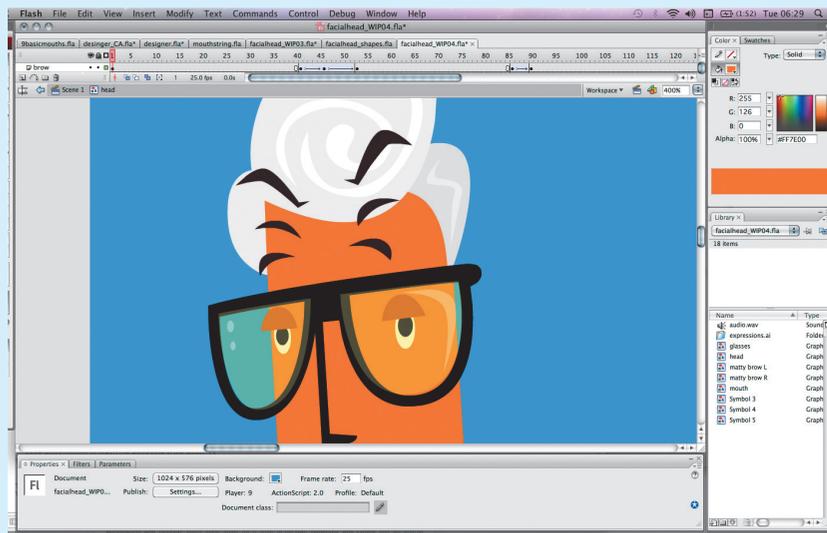


**11** You're now ready to start animating the head. I have recorded a bit of audio, audio.wav, which consists of a pangram – a sentence containing every letter in the alphabet (so good practice for lip-synching). The sentence is repeated a few times, getting progressively angrier.

Either import the audio into the top layer of the head symbol using File>Import>Import To Stage, or open up the file facialhead\_WIP03.fla to see my example. The audio appears as a blue line within the timeline, which I've made larger by changing the Layer Height to 300% (Modify>Timeline>Layer Properties). I've also created a dopesheet layer with the words written out at the respective places along the timeline.



**12** The mouth symbol is a graphic that's set to 'single frame'. By scrubbing along the timeline, change the frame number specified to match the relevant mouth shape within the mouth string (a string is a sequence of images contained in an individual graphics symbol). You should be able to hear the audio as you scrub along; try to use more angry mouths to match the angry tone.



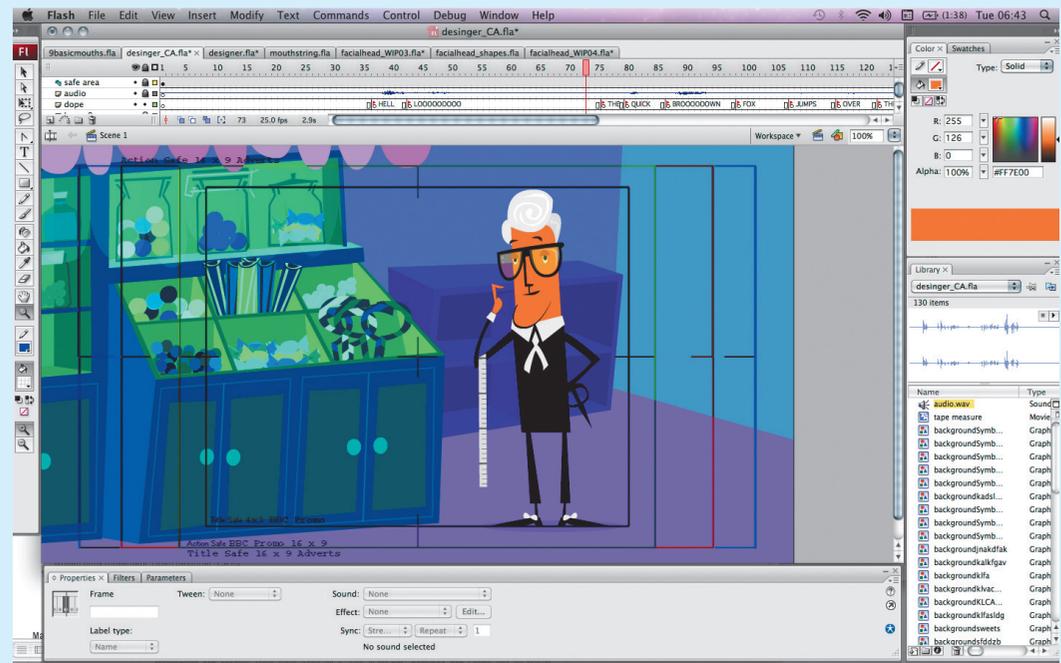
**13** Once you're satisfied with the lip-synching, move onto the eyebrows. I've created a few additional eyebrows (also strings), which you can see in `facialhead_WIP04.fla`. Add in some blinks by using different combinations of the eyelids. For reference, I've laid out the expressions that match the audio in `facialhead_shapes.fla`.



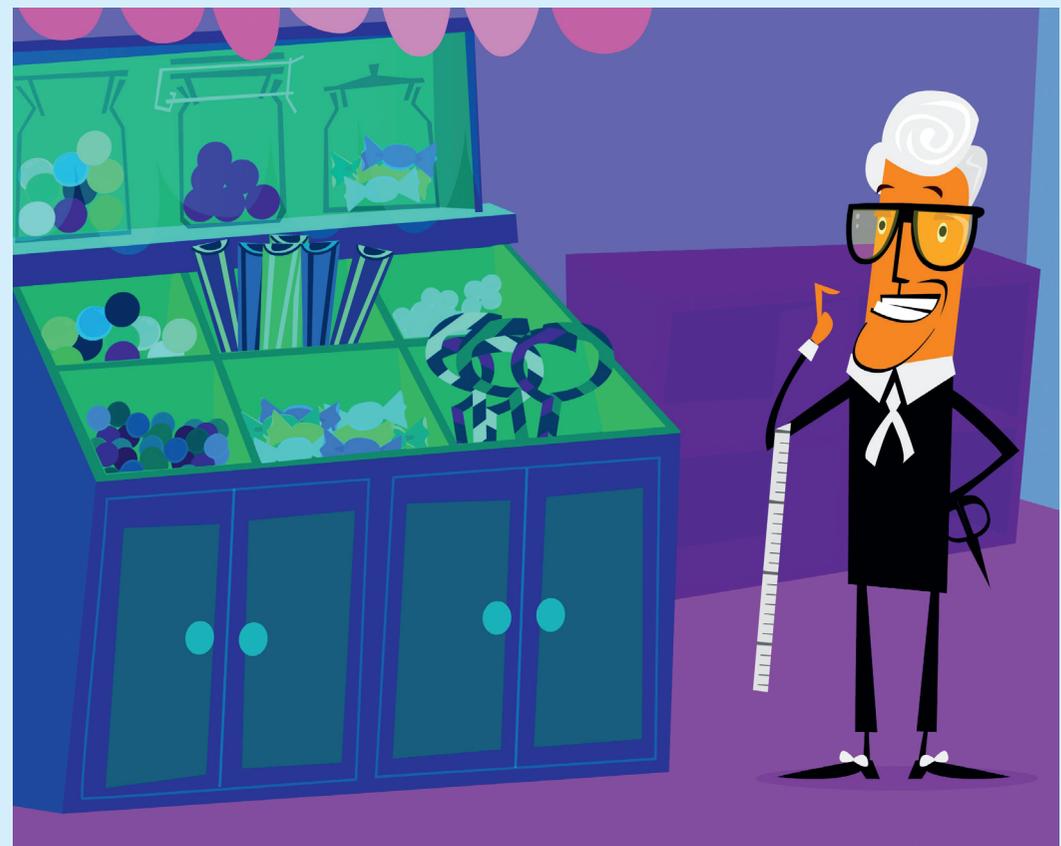
**15** With the animation of the main character complete, you might want to add another character. I've included another within the `expressions.ai`, for which the mouths can be found in `dudemouth.fla`. You can now add unhappy mouths and create your own lip-synching.

### Illustrator or Flash?

You might find that you're more comfortable designing in Flash than in Illustrator. If this is the case, you can always import the pencil sketches directly into Flash. Illustrator is not as intuitive as Flash initially, but I would advise persevering as the quality of the curves – especially for printing – is considerably higher than for Flash.



**14** Once the head animation is complete, it's time to finish off with some limited body movement. Open `designer_CA.fla` – I've put the main character into a background, and animated the body to match the head using the same principles applied earlier. On the more extreme facial variations, it's good to cut in closer to the action to emphasise the expressions.



**16** You've now got two convincing characters that are able to express emotion through a wide range of facial expressions, without the need for time-consuming whole-body animation.