SHAPEKEYS

Introduction
Shapekeys are a means of animating a character’s expression and lip synching their mouth shape to a voice track without using bones or targets. They are deformations of the mesh, usually (and most efficiently) defined by their relative differences in location to a base mesh.

Technique
Let’s start with a Suzanne head with two degrees of subdivision which is then applied, so that we have a reasonably dense mesh to start with. I’ve added simple detail in the eyes to accentuate the expression. Let’s go to the Object Data tab in Properties and find the Shape Keys panel.
In Object mode, left click on the + icon in the panel.

This will create a locked base shape, which is what the new shape keys will be calculated from. Note that the Relative box is checked by default, which creates the most intuitive shape keys. There are other ways to create them, but those are beyond the scope of this introduction.

Click the + button again to add a new shape key. This produces not just a second shape key but also a group of controls to the bottom of the panel. This is something we can work with.

Rename the new shape key to Smile by double clicking on it and, with it still selected in blue, go to Edit mode for the Suzanne model. We’re going to use selections of vertices and Proportional Editing mode to change Suzanne’s expression to a beaming smile.
Start by activating Proportional Editing. In many cases you’ll want to use Connected (to move an upper lip without changing the lower lip, for example). Suzanne doesn’t have a mouth cavity but it’s good practice to use the Connected option anyway. Choose vertices either side of her mouth. They don’t have to be exact mirrors of each other; most peoples’ expressions are naturally lopsided. Use G_Z to constrain along the Z axis and use the mouse scroll wheel to adjust the area of influence. Then, with the same selection, hit S_X to round out her cheeks.

Move them up to make her smile.

Go back into Object mode - the expression disappears. But with the Smile expression still selected in blue in the Shape Keys panel, move the Value slider across to the right. Suzanne’s smile will appear and broaden.

By right clicking on the Value slider you can set keyframes for the value at any particular point in your animation.
However you can only do this for the selected shape key. To combine expressions intuitively you need to adjust and keyframe at the same time. The most efficient way to do this is to split the screen and make one half the Dope Sheet. Choose Shape Key Editor from the pop-up selection in the control bar at the foot of the window.

Now in the top left of the Shape Key Editor you’ll see sliders for both expressions. Not only that, but as you adjust them key frames will automatically be added to the timeline at the current frame. This is the best way to combine shapekeys as you animate.

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