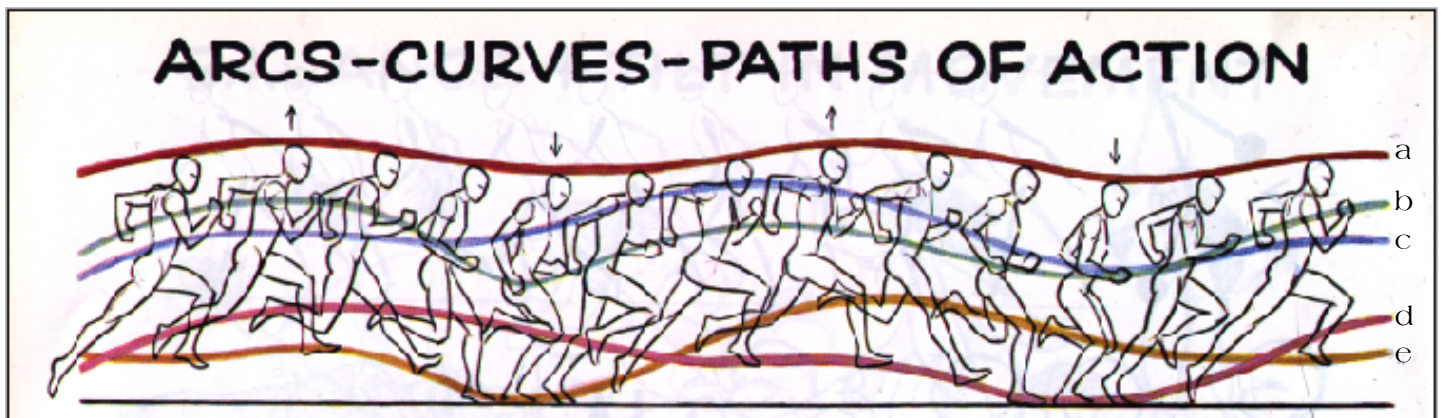


Maya Complete 4.5

Animation - Attach to Motion Path

Motion Paths are common to all 3D applications, they're a quick and easy way to conveniently apply action to a model by assigning it to a curve drawn on the grid. There are limitations to using Motion Paths however, because once the model is attached to the curve it cannot be easily affected in the Graph Editor, as it's not a Keyframe animation, therefore to make changes to the motion of the model we'd need to alter values in the Channels Box and Attribute Editor.

The basic principle of Motion Paths comes from 2D Animation where they're used to plan the direction of actions, the cycles of motion within a set of actions of a character's movements. The example below is of a character running (run cycle).



© 1998 How to Animate Film Cartoons by Preston Blair.

Image © 1980 Preston Blair.

- a: Motion of the runners head.
- b: Motion of and varying positions of the runners hand.
- c: Motion of and varying positions of the runners elbow.
- d: Motion of and varying positions of the runners left leg (particularly when the sole touches the ground).
- e: Motion of and varying positions of the runners right leg (also when the sole touches the ground).

Once the timing of the Keyframes (the extreme main poses) has been established the animator can work out how many inbetweens (the amount of interpolating poses) are required.

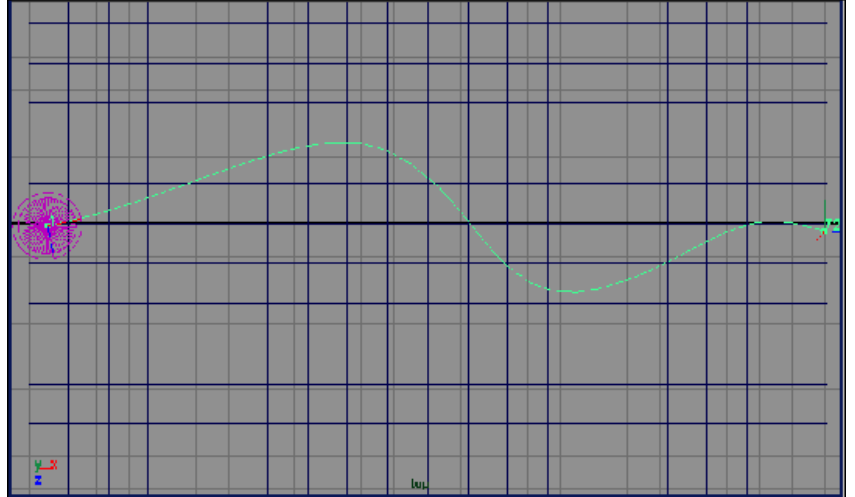
Computer animation takes this principle literally and locks the character/figure/object to the path. Unlike the example above only one path can be assigned and this will control its position in 3D space over time. Secondary actions such as Scale are added by editing values in the channels Box. Further transformations require the use of modifiers that are specific to Motion Paths or placed on the path from the Deform Menu Set when Animation Mode is selected in the Task Bar.

Maya Complete 4.5

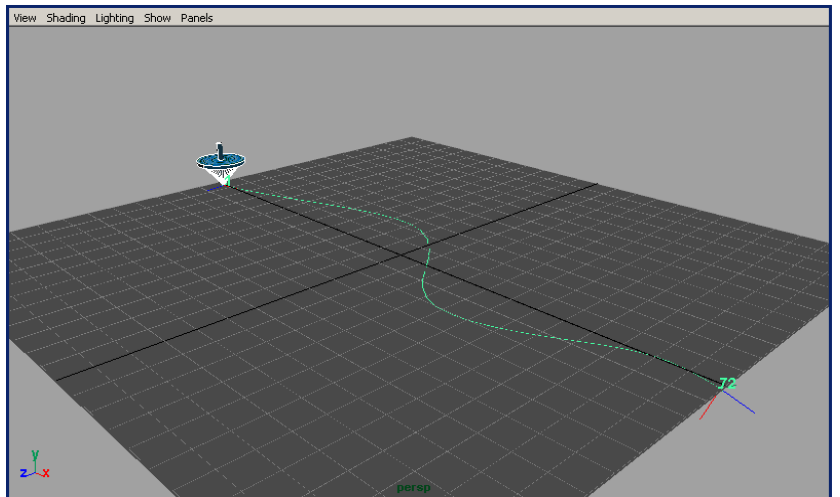
Animation - Attach to Motion Path

Open the scene SpinTop located in the Animated_Path Project folder. A simple scene containing a model of a spinning top on a NURBS Plain has been set-up for you to draw a Motion Path Curve and assign the model to it.

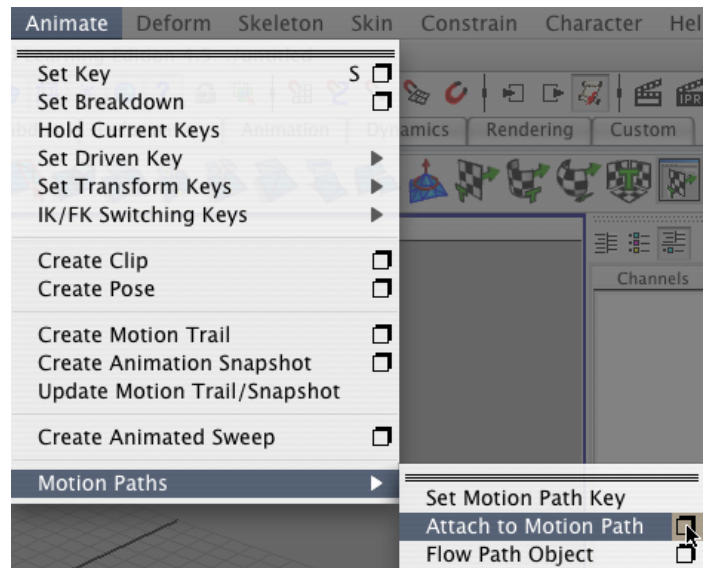
In the Top View draw a Curve using the EP Curve Tool across the NURBS Plain (turn on Snap to view plains)



Select the Spinning Top model and the Curve that you've just drawn.



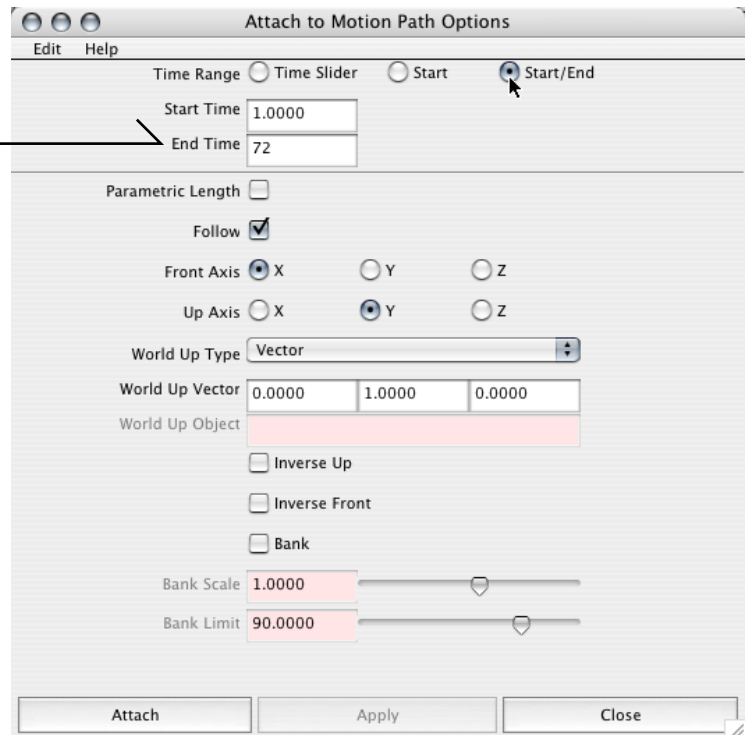
In the Menu Bar (make sure you're in Animation Mode, hit F2) click on **Animate > Motion Paths > Attach to Motion Path**. Click on the small cube as shown to open the Options.



Maya Complete 4.5

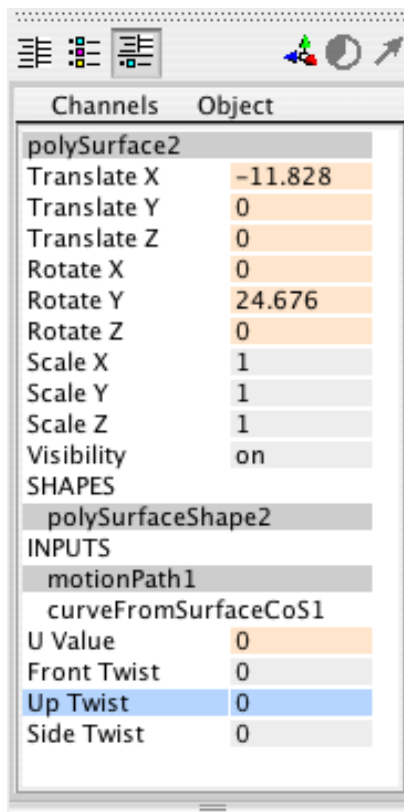
Animation - Attach to Motion Path

In the Attach to Motion Path Options window click Start/End (as shown) and type 72 in the End Time values box.

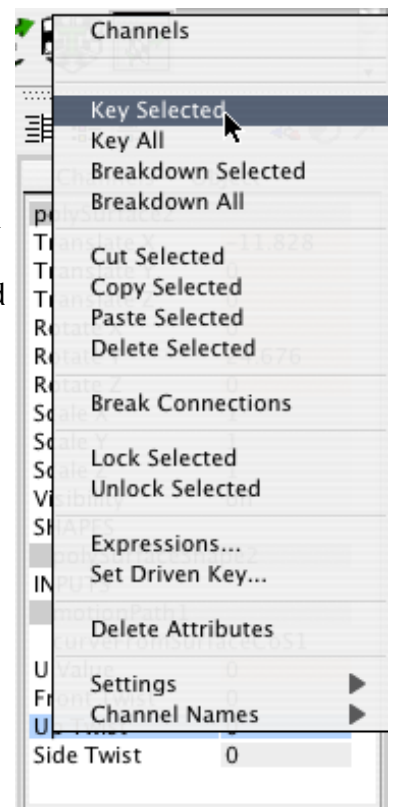


Hit Play forwards button in the Playback controls. The Spinning Top travels along the Curve which is the forward motion we want, however it's not spinning so the action is clinical and looks purely functional.

Select either the model or the Motion Path (Curve), make sure the Playback Head is at Frame 1. In the Channels Box click motionPath1 to reveal the INPUTS options. Click on Up Twist to highlight this option,



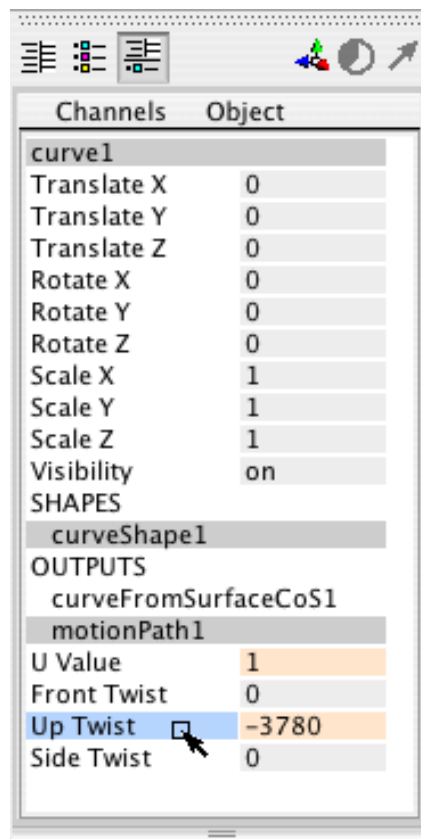
Right click and hold the mouse button down. In the pop up menu slide up to Key Selected. This will establish the start of the rotation and Key the value to the beginning of motionPath1.



Maya Complete 4.5

Animation - Attach to Motion Path

Move the Playback Head to Frame 72. Select either the model or motionPath1 Curve and in Channels Box Click Up Twist and type -3750.



As before, right click on Up Twist and slide up to Key Selected to set the value at Frame 72.



By selecting either the Spinning Top model or the Motion Path Curve, the Channels Box displays motionPath1 and so any values entered to the Up Twist parameter are applied to both items.

Render the scene as a Quicktime Movie and save the Animated_Path Project folder to your student folder on the Mac Server.