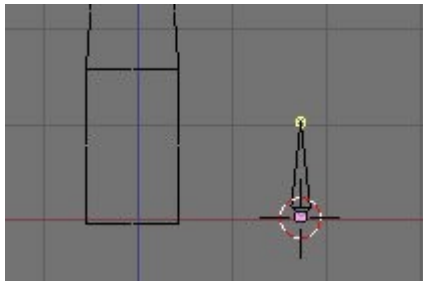


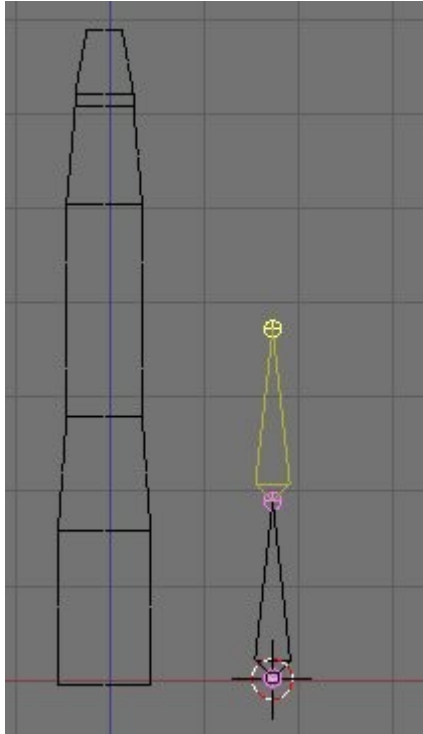
Simple Armature Animation

Here's a short simple tutorial on animating an object with an armature. Create your model. Keep in mind while you're making your model how you will eventually create a skeleton for it with an armature. Make sure you have a sufficient amount of vertexes to animate your mesh correctly. For example, a cube doesn't contain enough vertexes to create a realistic animation.

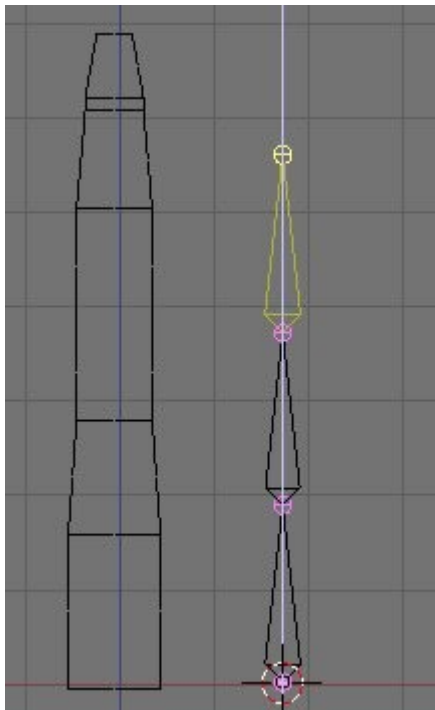
Place your 3D cursor where you wish to start your armature. With my model, I'll start it at the bottom and make 3 bones going vertical. Press the Space Bar and select 'Add', 'Armature'.



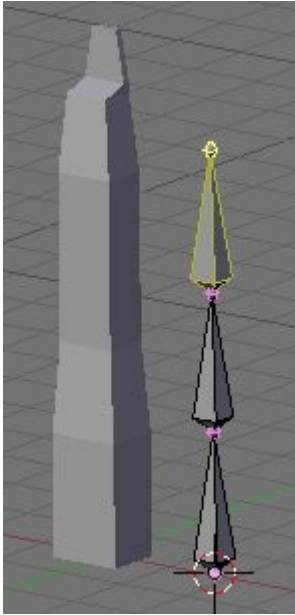
You'll see your armature enter the scene. The tip will be yellow, meaning it is selected. It will also be in 'Grab' mode, so move your mouse around and 'Left Click' to put the tip of the bone where you want it. I'm not sure why, but I decided to construct my armature just to the right of my model and then just slide it to the left to put it inside my model when I'm finished. Normally, you should begin creating your armature inside of your model, basically, following all of the appendages creating the underlying skeleton.



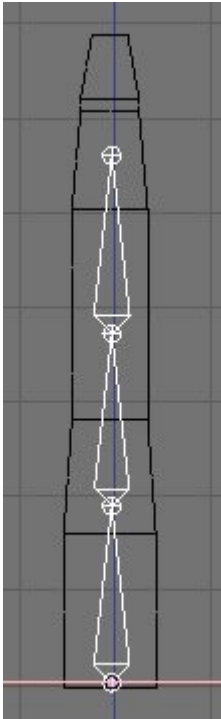
Once you 'Left Click' to place the tip of the first bone where you want it, the tip will still be selected. Press 'E' for extrude. You will be able to move and place the tip of the next bone where you want it. Keep in mind, the tips of the bones will be the Joints of your skeleton.



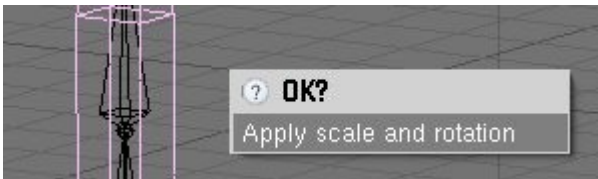
Continue adding bones until you have enough. If you have more than one appendage, simply go back and select the tip of a bone where you need to have a second or more bones originating from and press 'E' to be extruding a new bone. A good example of this might be the tip of a forearm bone where you might have 4 bones that enter a palm and branch out to 4 fingers.



My completed finger skeleton. I just need to slide it over to the left to place it inside the center of my finger model.

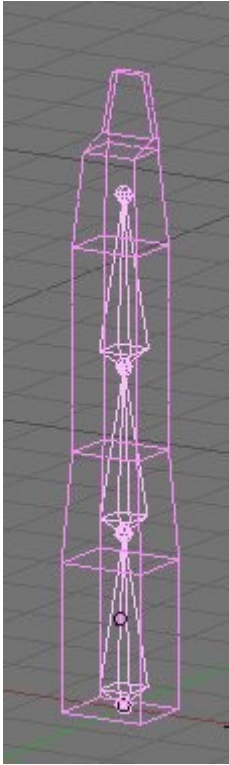


Enter 'Object' mode, select the armature, press 'G' to grab it. In my example, I then pressed 'X' to slide it along the x-axis. You can see this by the red line in this image which indicates my movement is restricted to the X axis.

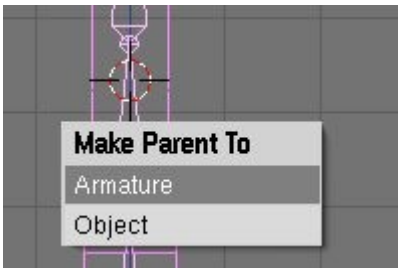


Before we attach our model to our armature, we need to 'Apply Scale & Rotation'. Select your model and press 'Ctrl A'. Click 'Apply Scale and Rotation' to apply it. If your model was moved or rotated in any way and we attached to the armature without doing

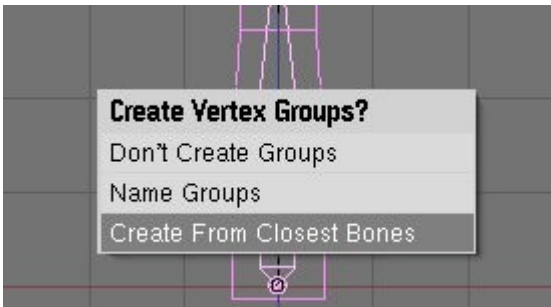
this first, the model would attach to the armature and rotate on its own.



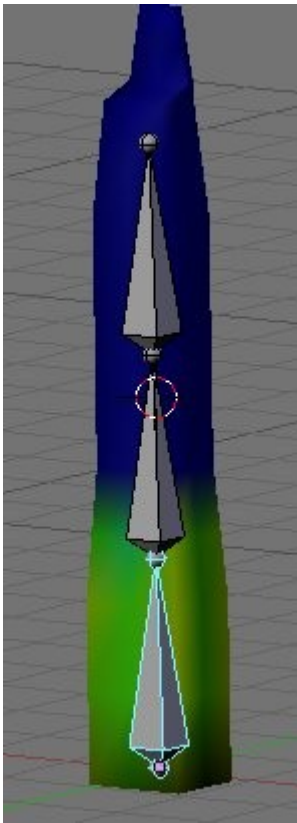
Now that that is out of the way, we're ready to attach our model to our armature. Right-Click to select your model first and then 'Ctrl-Right Click' to select the armature last. Your armature should be a lighter shade of pink than your model if you've got them in the right order. It has to be in this order to 'Parent' your model to your mesh. If you did it in the reverse order, your armature would be 'Parented' to your mesh, which wouldn't work at all.



Press 'Ctrl P' to parent your model to your armature. Select 'Armature' at the next menu.



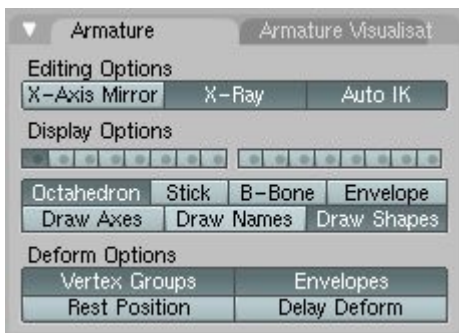
Next, select 'Create from Closest Bones'.



At this point, I'm going to weight paint to attach all of the desired vertexes to the correct bone in the armature. For detail instructions on how to do this, you can follow my other tutorial on [Weight Painting](#).

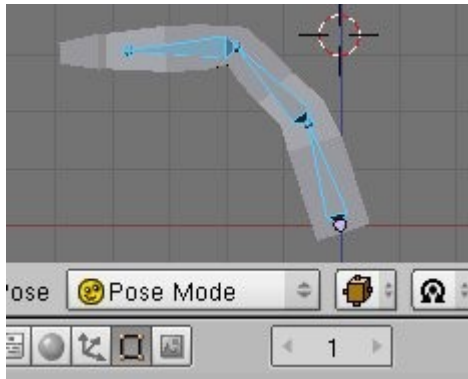


Select each bone and weight paint the section that you want to follow each bone.

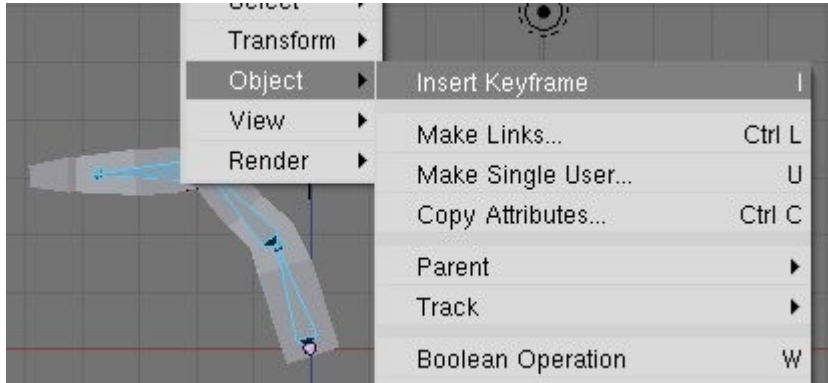


Once you're finished, switch back to 'Object' mode. Select your armature and switch to 'Pose' mode. If you like to manipulate each bone individually, then you're all ready to start you're posing.

If you're like me, I like to use the 'AutoIK'. I've turned it on as well as the 'X-ray' button as well. That allows you to see your armature inside of the model.



To begin animating, while in 'Pose' mode, I can select the bone at the end, press 'G' to grab it and move it around with my mouse. Left click to place it where you want it.



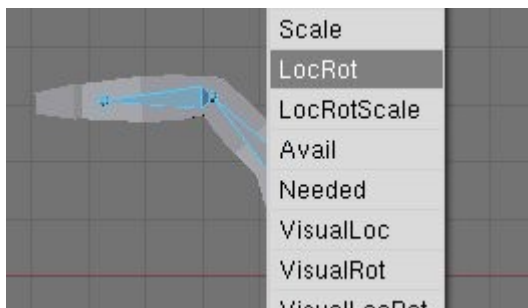
We'll set our first *key frame* here.

In your 'Button' window, you'll see a number (1 by default) with a left and right arrow on each side of it. This number indicates which frame we're currently looking at.

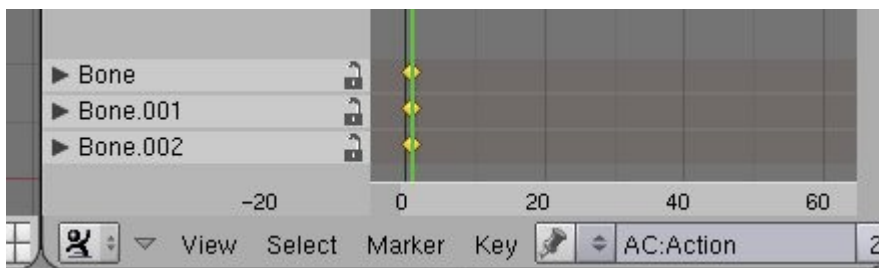
We want to set the key frame for each bone in our armature, so press 'A' once or twice until you get all of

the bones selected. They should all be colored blue.

To set the first key frame, press the Space bar, select 'Object' and 'Insert Keyframe'.

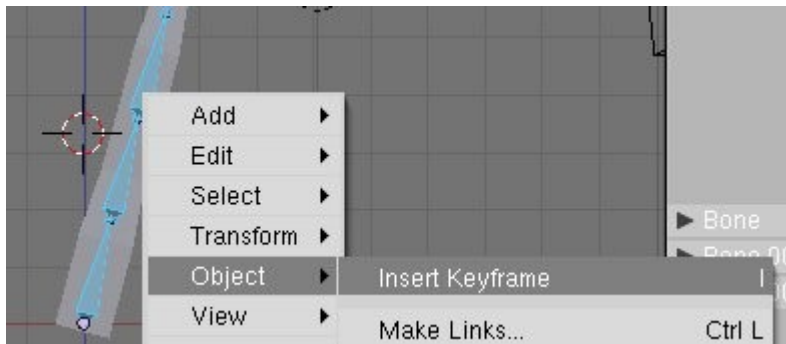


At the very least, we'll obviously need to select 'LocRot' at the next pop-up menu to set a key frame for each bone's Location and Rotation.



In a separate window, set it to 'Action Editor'. You'll see each bone listed by name. The vertical green line indicates which frame we are currently looking at. The yellow diamonds indicate there is a key frame there. The Location and Rotation

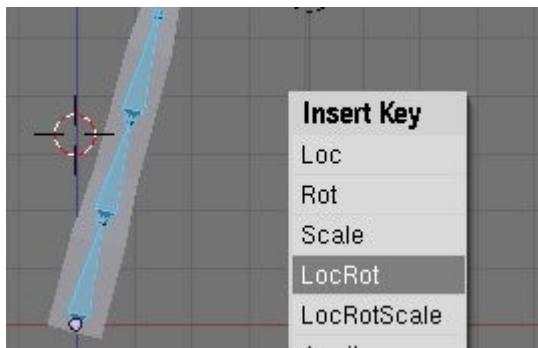
of each bone is saved in a key frame at that frame.



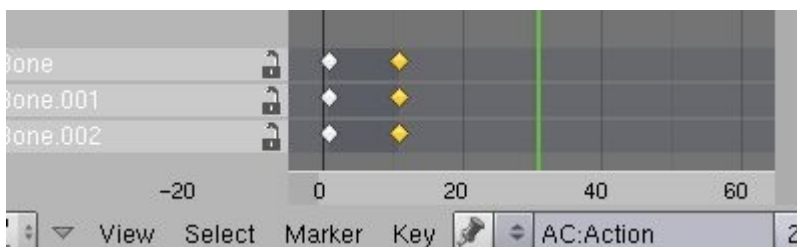
Before we set our next key frame, we need to change the current frame. You can do this in several ways. You can grab the vertical green line in the 'Action Editor' window and move it to a new frame. You can use the left or right arrows on the key board to move forwards or backwards by one frame. The up and down arrows will move you forwards or backwards by a count of 10

frames. You can also manipulate the frame number in the 'Button' window by typing in a new number, clicking the arrows, left clicking and dragging left or right to move very fast.

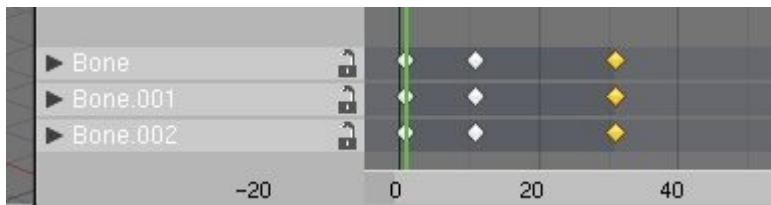
I'll jump to about frame 10 and re-pose my model.



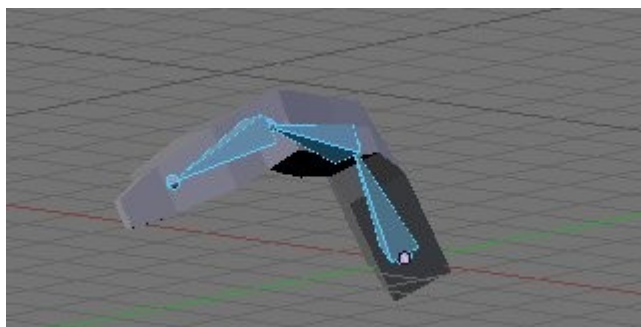
Select all of our bones again by pressing 'A' once or twice and set a new key frame.



2 sets of key frames here, one at frame 1 and one at frame 10. The current frame marker is at about frame 30.



At this point, you can grab the current frame marker (vertical green line), drag it left and right between your key frames and see the animation on your model.



Moving your mouse over to a 3D view window, you can press 'Alt-A' to watch your animation.



Under your 'Button' window, in 'Scene' mode (F10), you can adjust the animation settings. Under the 'Anim' tab, right below the Play button, you can set the Start and End frames for your animation. In this image, it is currently set from 1 to 250. Since my example has the last key frame at frame #30, my model will stop moving once the frame advances past 30. Adjusting the End frame here to 30 and pressing 'Ctrl-A' in a 3D window will animate the model repeatedly from frame 1 to 30, instead of 1 to 250.

If you want to produce an avi file of your animation, you should make any adjustment under the 'Format' tab. Right now, the image type is set to JPEG. If I press the Animate button now, I would end up with about 30 frames in individual JPEGs. You can drop that menu down and select AVI. Press 'Animate' to produce an AVI file. You'll see each frame drawn one after the other. When it's completed, you can close the Render window. Press the 'Play' button to watch your video.

Good Luck.

Scott.