Rigging your Character

The final step of constructing a character is setting up the bones for the Ms. Sheila bone layer. After all, what good is a bone layer without bones? There is certainly a method to this when it comes to bone order, position, and so forth. Luckily, bones can be easily reshaped or positioned if things don't work correctly the first time.

Drawing the Bones

Drawing bones is easy. The important thing to remember is that there is a hierarchy to your bones. This should make more sense as we start rigging. Keep in mind that you can always check out the completed character for this exercise to break down how everything works. Perform the following steps below to draw the bones.

① Make sure you have the **Ms. Sheila** bone layer selected.

② On your tool bar, grab the **Add Bone** tool and place the cursor near the pelvic area of your character.

③ Starting with the top of the bone, hold down your left mouse button and drag downwards a little to create a small pelvis bone.

④ Upon releasing, the top part of the bone should be thick and the bottom part tapered off. This bone will be used for tilting our character at the waist.

⑤ Next, place your cursor above the pelvis bone so there is a small space between the two.

⑥ Starting from the bottom going up, hold down the left mouse button and draw a bone that reaches from the bottom portion of the body to the middle, as shown in the following screenshot:

⑦ Add another bone that goes from the middle to the top of the body (near the neck).

⑧ Place more bones that cover the head.

⑨ Draw at least more bones that branch off from the head and intersect with the hair. Make sure that when you draw the hair bones, you select the head bone first so that both hair bones link to the head, as shown in the following screenshot:
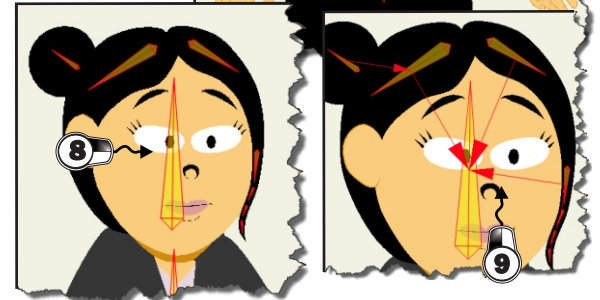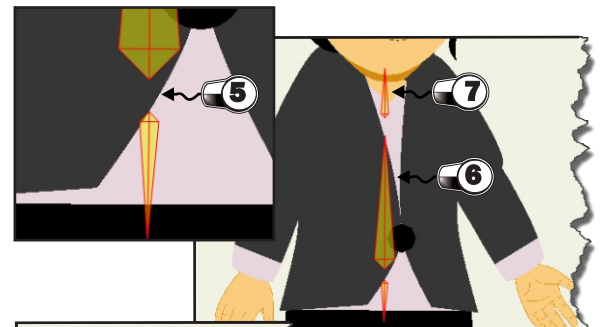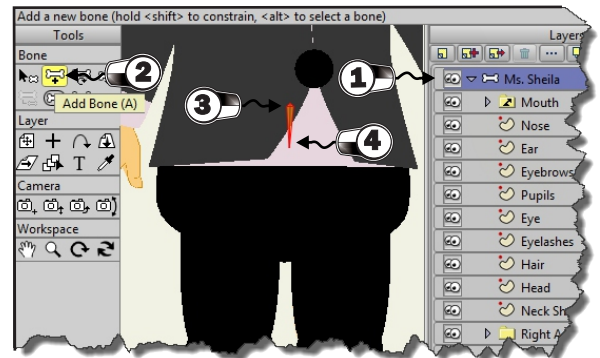
For these first few bones, what we have done is created a simple hierarchy. To see this in action, select the **Reparent Bone tool**. Arrows will appear that show where each bone is linked. What you should see are arrows leading down from each bone, eventually connecting to the pelvis. So, in other words, the head is connected to the neck, which is connected to the torso, which is in turn connected to the pelvis. This order is important because if we had the head connected to the pelvis, for instance, the structure simply wouldn't work. If you ever need to reparent or reconnect a bone, simply use the **Select Bone tool** to select the offending bone, take your **Reparent Bone tool**, and then click on the bone you want to link it to as shown in the screenshot at the right. You can also, as a shortcut, hold the Alt key and left-click on the bone you want to select while using the **Reparent Bone** tool. You are then free to click on the bone you want to connect it to.

① First, we will need to select the top torso bone. It only makes sense to have our arms linked to the torso.

② Select the **Add Bone** tool, and starting with the top of the arm, draw down until you meet the bend of the arm.

③ Move the cursor down slightly and draw down, creating a second bone that ends near the wrist of the hand.

④ Finally, draw down from the wrist, covering the hand with a small bone.

⑤ You will want to repeat the preceding steps for your second arm. Just remember to select the top torso bone before drawing out your bones.

⑥ With our legs, we will need to select the pelvis bone as the parent bone.

⑦ With your **Add Bone** tool, start with the top-left part of the leg and draw down until you meet the top of the bend or knee.

⑧ From the bottom of the bend or knee, draw down until you meet the ankle.

⑨ With the foot, you're going to want to start at the heel and draw a horizontal line that meets the tip or toes.

⑩ Repeat the steps for the second leg. Be sure to select the pelvis bone before proceeding.

⑪ By clicking on the Reparent Bone tool, you will see how every bone is connected to ensure you did things correctly, as shown in the following screenshot:

It looks like our bones are good to go! Now we just have to bind everything.
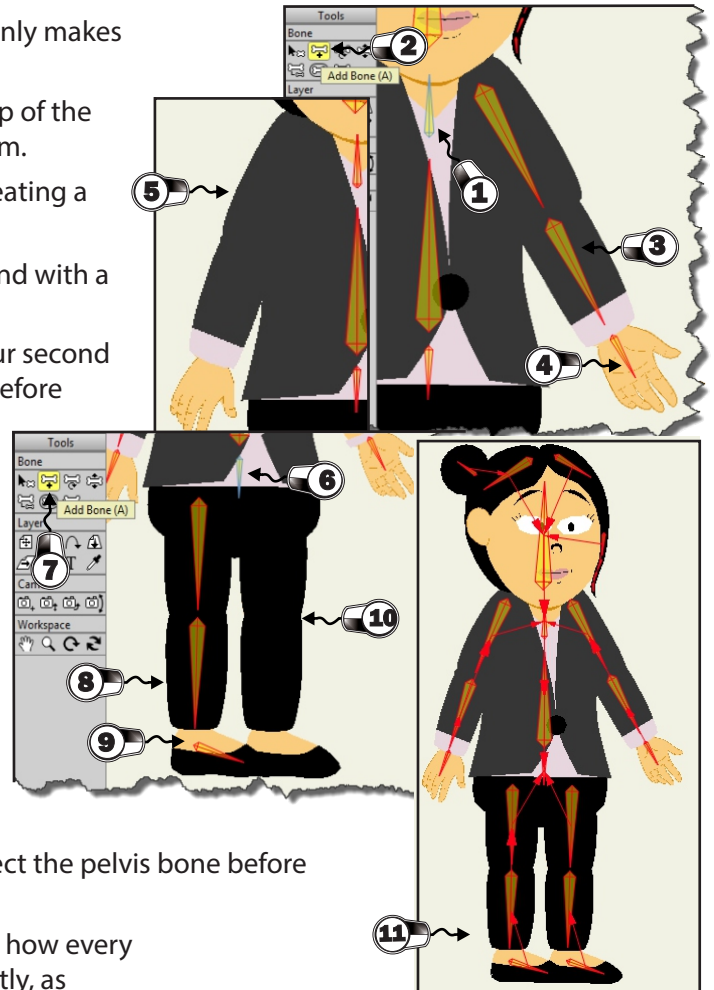
NOTE...
Additional bones can always be added to the character. Examples of this may include shoulder bones or additional torso bones. If the rig in this chapter is too limited for you, don't be afraid to branch out and explore.

Binding the Bones

As of now, if you try to move your bones around with the **Manipulate Bones** tool, you'll probably get some weird things occurring, far from the desired effect you're looking for. As discussed before, by default, Anime Studio uses **Region Binding** to control bones. Using the new **Flexi-Binding** features to bind our layers to bones can control these distortions.

There is no harm in mixing the techniques. Some objects may be better bound to layers while others work great for Region or Point Binding. **Smart Bone** actions can really help clean up any defect that you encounter.

We will be implementing all three binding techniques for the final portion of this exercise, by perform the following steps:

① Let's start with the first bone and work our way up. Our pelvis bone, at least for this character design, has no layer to bind. So we can leave it alone and move on to the torso bones.

2 With the **Select Bone** tool, select the center bone for the torso.

3 Click on the **Body** layer and select the **Bind Points** tool. Highlight the entire body and click on **Bind Points** at the top.

4 Now, highlight the lower points of the torso and click on **Bind Points**, now do the same step but this time we will bind the **Top Suit** layer.

5 Deselect the center bone by clicking on the *Enter* key. Press *Alt* + left-click on the top torso bone to select it.

6 Highlight the top torso points and click on the **Bind Points** button, It's the upper points of the Body layer and Top Suit layer.

7 If you have other layers relating to the torso (ties, collars, Suits, and so on), be sure to select those layers and include them with your binding.
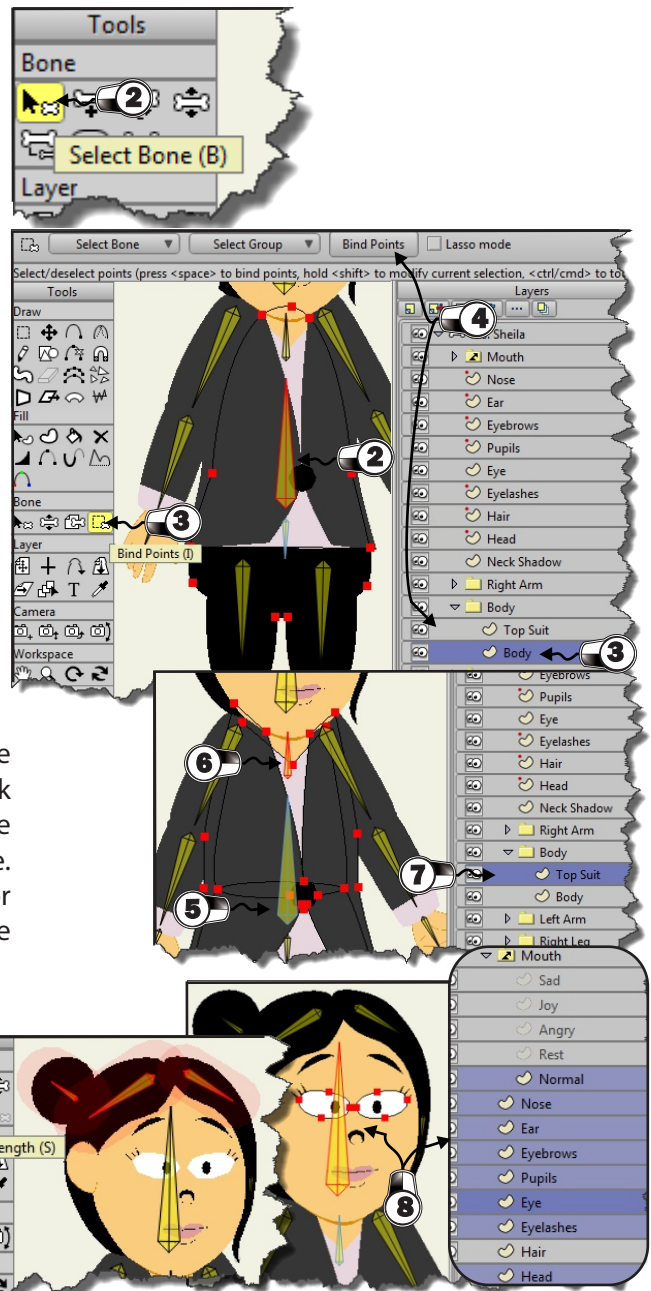
8. Moving up, we will use the **Layer Binding** method. Take your **Bind Layer** tool; bind your neck layer to the neck bone (for this example its neck shadow) and bind all face layers (eyes, nose, mouth, and so on) to the head bone. Remember, you will need to select the appropriate vector layers for it if you want to bind, do this; then click on the desired bone with the **Bind Layer** tool.

9 For the hair, we will be using **Region Binding**. Take the **Bone Strength** tool and enlarge both hair clouds so that they cover the entire area of the hair.

10 Highlight both hair bones with your **Select Bone** tool and click on the **Bone Constraints** drop-down menu. Select **Bone Dynamics**. Set the values for **Torque**, **Spring**, and **Damping** to 1. This will give our character's hair some extra bounce when moving.

11 With the arms, we will use the **Bind Layer** tool again. We will bind the top portion of the arm and suits to the top bone, center part of the arm to the middle bone, and hand to the hand bone, don't forget that there are suits layers that corresponds to its arm so you have to include it in binding.

(12) The legs will follow a similar method, with the top portions being bound to the top part of the legs, the middle bones being bound to the bottom part of the legs, and the feet being bound to the feet bones, same as the arms, there are also separate layers for the pants that you have to include in binding.
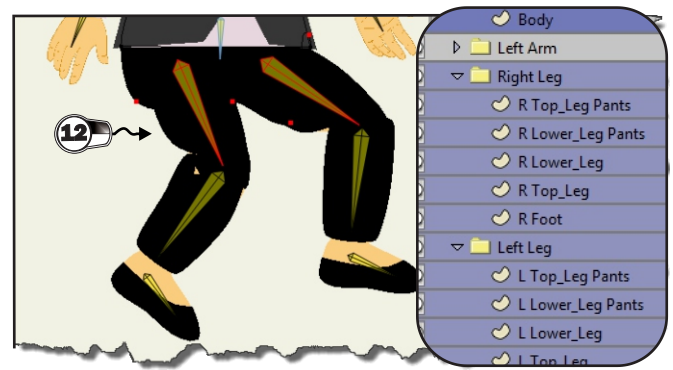
The following screenshot shows the outcome of the previous steps.

Look at that! Our character is alive!