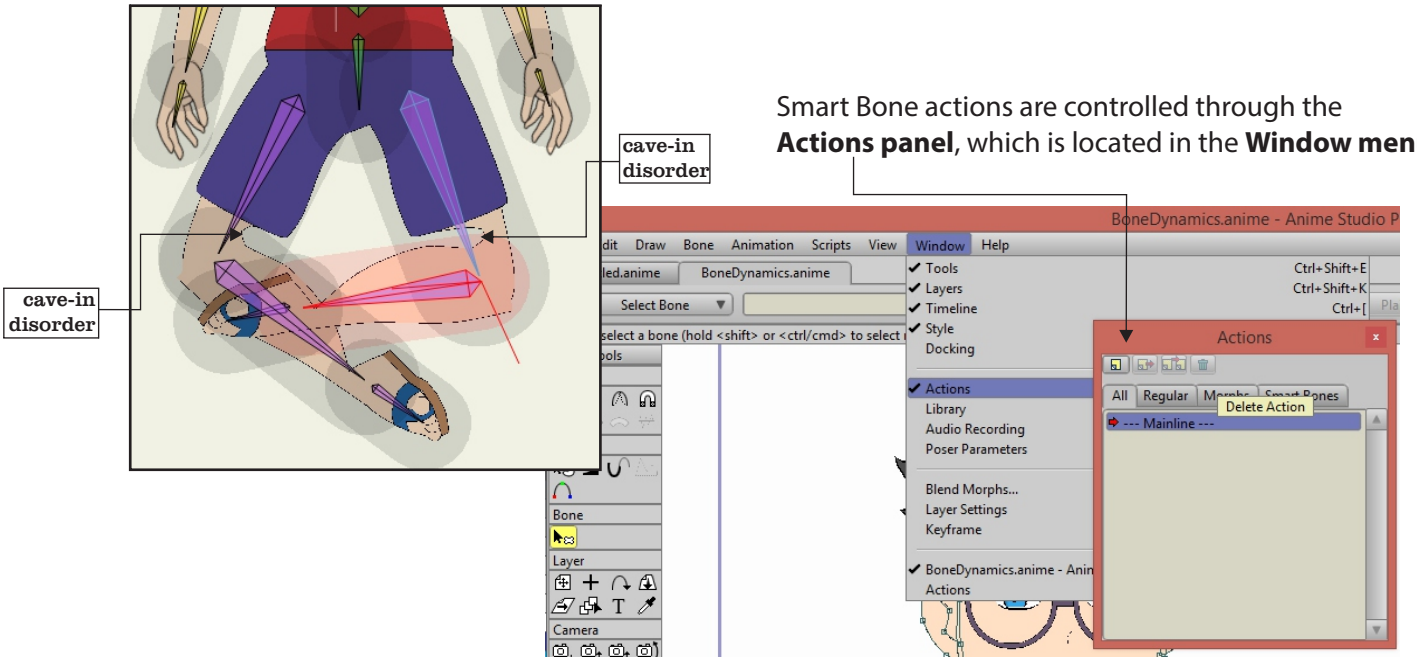
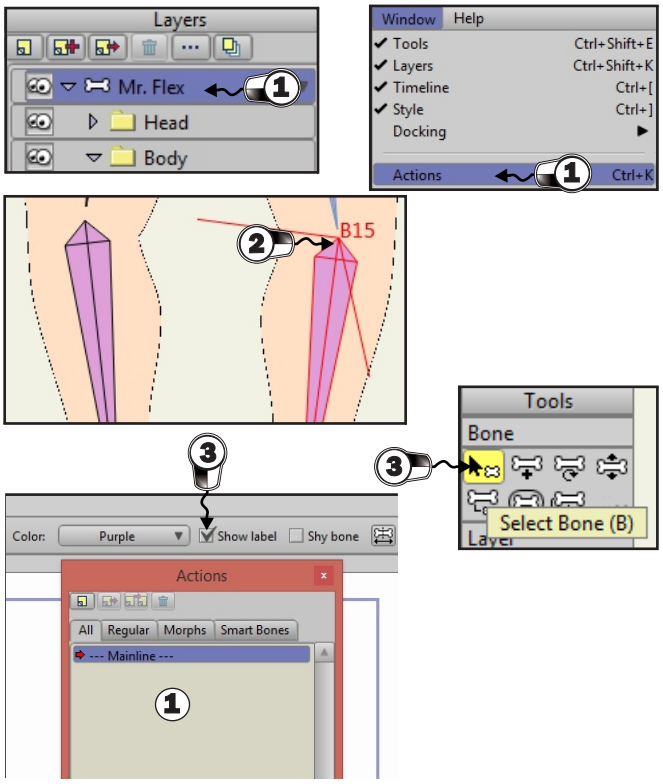
Understanding Basic Smart Bone Actions

Lesson 6

Smart Bones are actions used to correct defects that may occur during the animation process. Let's say you bend legs using Region binding and the inside of the arm happens to have a **cave-in disorder**, as shown in the picture below. You could correct this movement with a couple of actions through Smart Bones. There are more advanced uses with this feature, but we'll focus on something simple first.

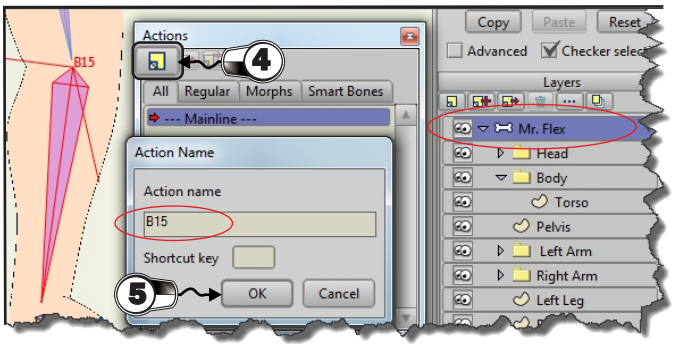


Open the example file **`BasicSmartBones.anime`** included in this book's work files folder. We will, once again, see Mr. Flex the character that we were working with earlier. When we bend his Legs to the right or left, you will notice that the inside portion of the Legs caves inward, as shown in the following screenshot above, which is not realistic in any sense.



1. Click **Mr. Flex Bone layer** and click **Window | Actions** from the menu bar. A new panel will appear.
2. There are regular actions that can be set for the animation. However, in order to determine the difference between a **Smart Bone** and regular action, we will need to name the Smart Bone action the same as the offending bone.
3. In this case, the middle bone in shin is what is causing our issues. By using the **Select Bone** tool, we can determine that the name of this bone is **B15** on the top bar. You can rename this bone if you wish. But for this exercise, the name is fine. Alternatively, with the bone selected, you can click the **Show label** checkbox on the top bar to reveal the name of the bone on the canvas.

4. On the **Actions panel**, click on the New Action button and enter **B15** as the name of the action, as shown in the following screenshot. Make sure you have the Mr. Flex bone layer selected when you do this. This step is very important.

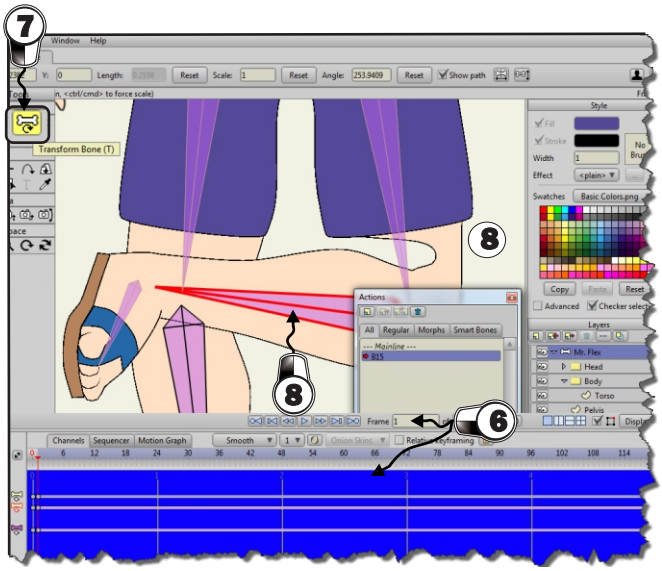


5. Click on OK. You will now be in the B15 action which is signified by a red arrow pointing to the name in the list on the Actions panel.

6. You will be on **frame 1** on the Channels timeline. You may also notice that the background color of your Channels timeline has changed its color. All this indicates is that you are currently within the Smart Bone action. This is where we need to be.

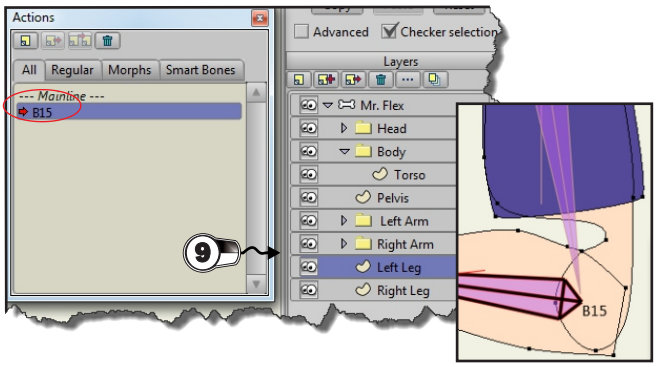
7. Click on the Mr. Flex Bone layer on your Layers panel and take the **Transform Bone** tool. It is very important to have a Bone layer selected before attempting to make a Smart Bone action.

8. Left-click and hold on the Left leg bone and bend the leg inside left as far as you can go. Notice the distortion or the cave-in disorder.

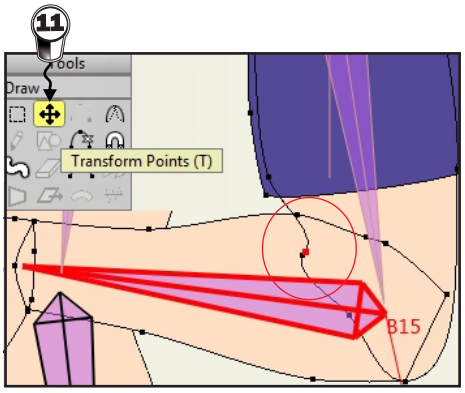


9. Click on the **Left Leg vector** layer that is under Mr. Flex Bone's layer on the Layers panel, as shown in the following screenshot. Notice how you have remained in the Smart Bone action.

10. Click the **Transform Points** tool, then adjust the points that bend of the leg so it no longer looks caved in. You can also use the **Curvature** tool to make corrections.



11. You cannot add points while altering an action. If you find you can't complete the task with the given points, you will need to back out of the action by **double clicking on Mainline** on the Actions panel and then use the **Add Point tool** to distribute your new points. If you have to do this, you can re-enter the **B15 action by double-clicking** on it to resume your work once the points are added.



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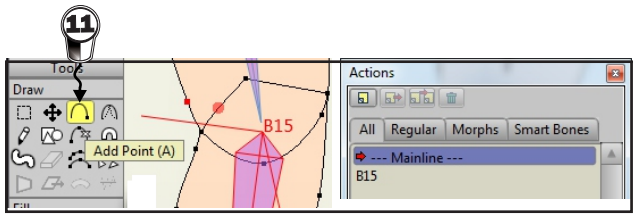
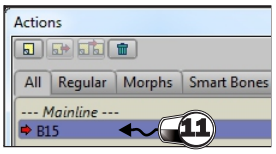
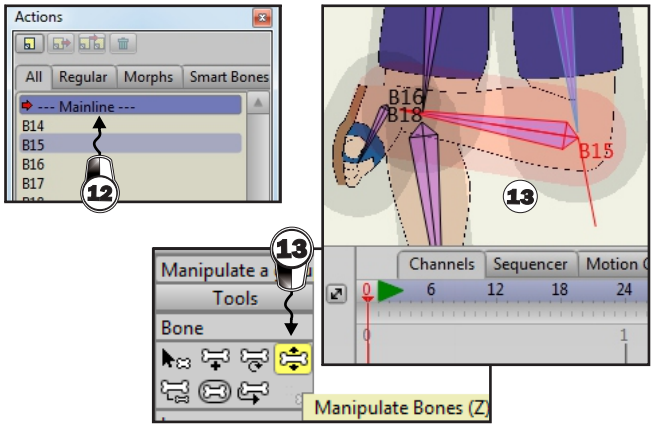




12. Once you have fixed the bend or the cave-in disorder, **double-click on Mainline** on your Actions panel.

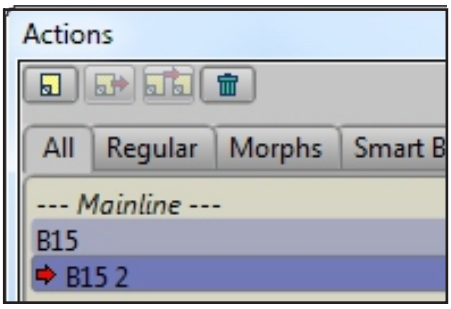
13. While on **frame 0**, take the **Manipulate Bones** tool and bend the legs toward the right. The issue should now be corrected. If not, you can always re-enter the B15 action to tweak the vector and bone positions some more, as shown in the following screenshot(right).



14. Save your work in own folder.

If you need to fix the Leg's bend in the opposite direction, you will need to create a new action. The name of the action should be B15, space, followed by a 2 (B15 2).

Take note that when you want to make a new action, you should select first the bone layer, in this case Mr. Flex bone layer should be selected.



Perform **Smart bone** and apply it to all parts of the body that needs corrections. Mastering Smart Bones will really help out with the animation process. In the past, Anime Studio users had to rely on manual correction whenever a bone was moved. This is no longer the case and really helps expedite the process.

6 Bringing a Cartoon Character to Life

Laboratory Activities

Restricting Bone Movements

Lab Exercise 6.6

Task: Restrict the bone movements of a character
Expected Output File: None
Work File: None

1. Launch the Anime Studio from on your desktop.
2. Open the previous activity you had made earlier, Lab 6.5. Point Binding Character.
3. Refer to your work text Chapter 6 about Bone Constraints, this will definitely guide you on what and why restricting bone movements is important.
4. Use the tool below to manipulate bones. Select the bone and on the top bar **Bone Constraints**, check the **Angle Constraints**.

   Select Bone (B)
5. In the Min/Max(degrees) fields -70 and 70 are the default values. Noticed the bone has an angle line on its side, change this to -90 and 0 respectively then close it. Use the tool below to do the task.

   Keep in mind when filling these fields that each body has a maximum angle movements. For example for a head turn, a head could not turn in 360 degrees. So when configuring angle constraints you have to be realistic in placing an allowable angle in each bone.
6. Now, restrict all the bones of our character-skeleton. Take the same steps like what we have done earlier.
7. Save this project file to your folder.