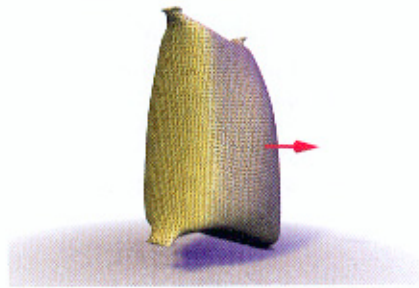
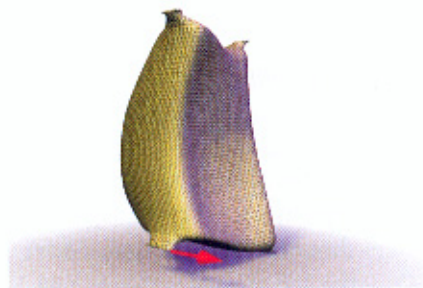
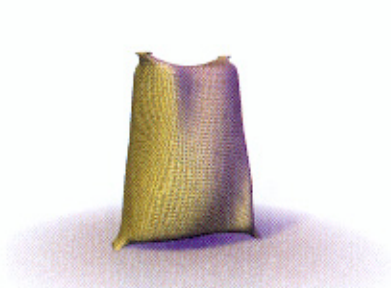


Exercise #1: Walking a Flour Sack

Although it doesn't really have legs or arms, the basic flour sack is a great place to begin when animating a walk. If, as in Chapter 7, "Posing Characters," you picture the sack as the hips and shoulders of a character, you will understand how these parts of the body move when walking.

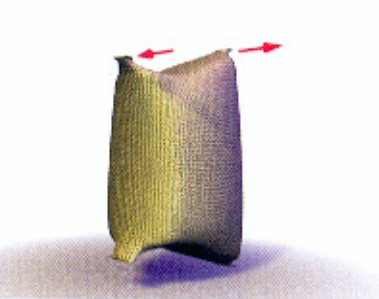
How you animate the sack depends a bit on how it is deformed. The basic way to deform a sack is simply by placing four bones, one at each corner of the sack, with a fifth bone at the center. Because this structure is so simple, you should not need to link the bones in a hierarchy. Not having them linked also avoids foot placement and slippage problems.

This walk will be timed at 12 frames per step, 24 for the whole cycle.

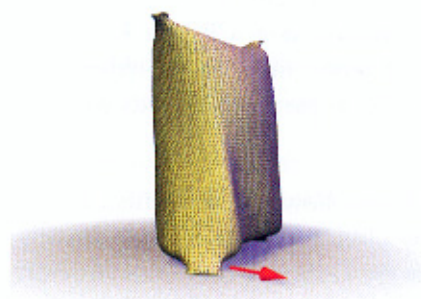


1. Start with the feet slightly apart. Place the left foot forward and the right foot back. To keep the character's weight balanced, make the shoulders mirror the legs. Place the right shoulder forward and the left shoulder back. Set keys for both the shoulders and the feet.
2. Move to frame 6, halfway through the first step. Move the right foot up and forward so that it is even with the left. Set a key.
3. Make sure the bone in the center of the body also moves along. Move it forward so that the weight is centered and set a key.

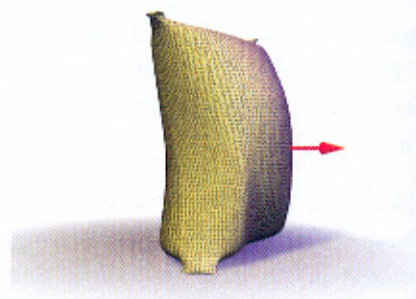
Exercise: continued



4. Balance out the upper body. Recall how the shoulders mirror the hips in a walk. Move the right shoulder down and back. Move the left shoulder up and forward. Set keys for both.



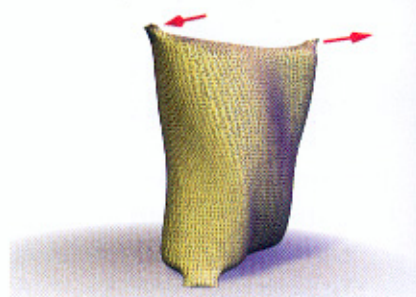
5. Get the end of the step (and the start of the next). Move the right foot forward and place it firmly on the ground. Set keys for both feet.



6. Move the center bone forward to keep the weight centered between the two feet. Set a key.

7. Mirror the shoulders to the hips by moving the right shoulder up and back. Move the left shoulder down and forward. Set keys for both.

This finishes off the first step. Repeat the procedure for the next foot to get a full cycle, and then again for as many steps as the character needs to take.



To add a bit more life to the walk, you may want to give the sack's belly a bit of bounce. Remember the concepts of drag, overlap, and follow-through. As the sack walks, its belly (controlled by the center bone) tends to drag behind the action a bit. Gravity also tends to pull it toward the ground. Go back over the walk and add a bit of up-and-down motion to the center bone. As the right foot is moving up, for instance, the bone drags behind by 2 or 3 frames, so it doesn't move up until slightly later. If you did the walk properly, you'll see how even a very simple character can be made to walk. Remember this lesson as we move on to more complex characters.