Day 4 Outline

Objectives:

- Demonstrate the use of axes to determine the difference between turn and roll.
- Students will create their own storylines through the use of storyboards.

Talking points:

1. Talk a bit about how some new programmers fall into the bad habit of coding by “trial and error.” If something isn’t working like they think it should, they try something else, and then something else, and so on, in the hopes of coming across the sequence of instructions that will do what they want. It is better to understand how things work, and take out the guess work out of programming.

2. Demonstrate how to use the axes to determine which to use of turn and roll.
   a. Create a world with a Rockette. Add a set of axes from the Shapes Gallery.
   b. Standing in front of the class, (I had them move their chairs away from the computers in order to get their undivided attention.) imitate the axes in the Shapes Gallery, hold your right arm out as the right arrow, hold your left arm in front of you as your forward arrow, and your head becomes the up arrow (raise up and down on your toes). Demonstrate each of the method calls in the grid below (which is written on the board), asking the students which arrow doesn’t change direction (answers in red – fill in on the board as you go)
   c. Demonstrate the various method calls individually on an axes object in an Alice world, confirming what we have in the grid.

3. Create a kick method for the Rockette, demonstrating how the axes can be used to determine which method to call and which direction to use. (For our complete kick motion, we had her bend her right knee back, then lift her right thigh, then straighten out her right leg, then lower her right leg. For the first two, we did the following to determine which method to call (done by clicking and dragging the axes object from the Object Tree over the image and then selecting the methods)
   a. First call axes.moveTo the Rockette’s right calf (right thigh).
   b. Next call axes.orientTo the Rockette’s right calf (right thigh).
   c. Finally call axes. setVehicleTo the Rockette’s right calf (right thigh).

We did this to determine the first two moves of the kick action. When we had completed the kick, we put the first two moves in a doTogether to give it a more realistic look. I mentioned that I could also make her point her toe if I wanted to.

4. After creating the kick method, make copies of the Rockette.
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a. Demonstrate that more Rockettes added from the gallery will not have the kick method that we wrote. Only copying our original Rockette will give us objects that have the new methods we created. (We made copies of the Rockette and had them kick together. We then put that in a loop and had them do several kicks.)

5. Reinforce that it is better to understand how things are working, rather than coding by “trial and error.”

6. Another bad habit that new programmers can fall into is to begin to code without thinking first about what they want to do. “Think before you code.” Talk about the “Making of Shrek” type special features on DVDs where they show how animators sketch out their stories before they begin to animate.

7. Show students my original storyboard, the animation from the storyboard, and then my final animation (where I added other things that I had time to add). Emphasize that the quality of the artwork is unimportant.

8. Give students storyboard sheets for them to sketch out their stories.

9. Once they complete their storyboards, students will spend the rest of the time creating their own stories.

10. At the end of day 4, the parents were invited to visit the lab and students demonstrated to their parents what they had created throughout the week.