Name _____ Date _____ Class _____

THINKING CRITICALLY

Galaxy Down the Drain

Angela gave a presentation about galaxies at her school science fair. As part of her presentation, she discussed the hypothesis that at the center of a spiral galaxy, such as the Milky Way Galaxy, is a very dense mass of stars around which the galaxy rotates. Angela performed the following demonstration to provide a model of this type of galaxy.

She began with a small sink that had a drain in the center of the basin. First, Angela closed the drain and filled the sink with water. Then, using an eyedropper, she placed 20 drops of colored oil on the surface of the water. Each round drop of oil floated freely on the water's surface. Angela then opened the drain and observed what happened.

As the water was drained from the sink, the oil drops were drawn into a spiral formation. As they approached the drain, the oil drops traveled at a faster speed and changed from the round shape to a flattened disk. Finally, the oil drops disappeared down the drain.

Your Turn to Think

1. What did each of the following items represent in the demonstration?

   a. water

   b. oil drops

   c. sink

   d. drain

2. According to the model, what happens to the shape of stars as time passes?

3. At what point during Angela's demonstration did the sink actually represent a model of the Milky Way Galaxy? Explain your answer.

4. Is this an accurate model of the Milky Way? If not, in what ways is it flawed?

5. What is the ultimate fate of a galaxy according to this model? Does this seem reasonable?