Name _____ Date_____ Class_____

THINKING SKILLS

Thinking Objectively

One day, two students in a science class made observations about a mouse moving through a maze. The mouse could choose from two pathways. Only one of the pathways led to food. Pay attention to how the reports differ.

> **Marie:** At first, the mouse peeked down each pathway. It decided to try the one on the left. The mouse started walking down that pathway, but it got confused when it realized there wasn't any food there. Then it turned around and went back. The worn-out mouse must not have eaten all day because it raced down the pathway on the right and ate all of its food.

> **Rawan:** The mouse went to the beginning of each pathway. Then it moved slowly down the left-hand pathway, stopping from time to time. After it reached the end, it turned around and went back to the starting point. Next, the mouse went down the right-hand pathway. It moved quickly, and when it reached the end, the mouse ate all of the food.

Just the Facts

Both students did a good job of observing the mouse's movements, but their observations are very different. How is Marie's description different from Rawan's?

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When you make scientific observations, you should try to be **objective**, which means that you describe only the facts. Being objective is important because almost all scientific work involves using observations to make *inferences*. If scientific observations are not objective, then inferences made from them might not be accurate. Was Marie thinking objectively? Why or why not?

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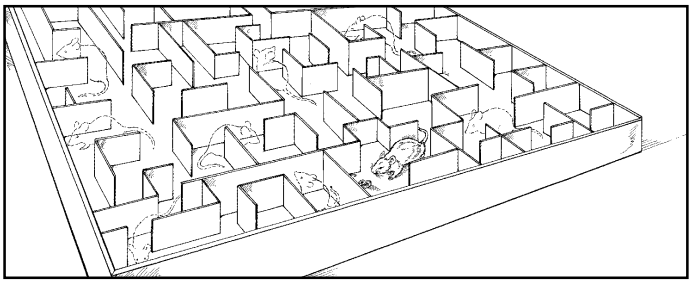

Name _____ Date_____ Class_____

Was Rawan thinking objectively? Why or why not?

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Thinking Objectively Versus Thinking Subjectively

The opposite of thinking objectively is thinking **subjectively.** When you think subjectively, you tend to add feelings or motivation to your observation. As a result, it's hard to tell which comments are facts and which are pieces of added information. In the example above, which student, Rawan or Marie, was thinking subjectively?

Rewrite the following paragraph so that it is an objective (facts only) account of the event:

> The tropical storm hurled straight toward the shoreline, and then it stopped. It lingered in one place for two days, gaining strength—almost like it was waiting for something. Finally, it charged onto land. Everyone started running like crazy for their lives. It must have been hurricane strength by then because the wind ripped the roofs off houses and threw them everywhere.

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Now try doing just the opposite. Rewrite the following paragraph so that it is subjective (based on feelings and opinions):

> One student placed 10 blocks of ice in a circle on the sidewalk. Each block had a mass of 100 g. Another student placed a larger block of ice on the same sidewalk. The larger block had a mass of 1,000 g. Twenty minutes later, all of the small blocks had melted completely. However, the larger block was only partially melted.

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