

Name: _____

Class: _____

Puzzling Scenarios

1. You wake up in the middle of the night craving a glass of cold milk. You sneak down to the refrigerator and open the door. Still partially asleep, you stare at the contents of the refrigerator until you notice that your bare feet are getting uncomfortable. Are they cold or hot? Explain.
2. You are installing a new heating system in your home. You need to decide the most energy efficient location for the heater vents. Should they be placed on the floor or on the ceiling? Explain.
3. On a very hot day, you enter a food market to buy an ice cream bar. You walk down the ice cream aisle and lifting the lid, reach over into the waist high horizontal freezer and pick up your ice cream. You notice that the other freezers are upright and have doors. Which freezer design is best for keeping food the coldest?
4. Your friend returns from a surfing trip to the ocean. She tells you that she was treading water in the ocean for a long time waiting for the right wave. She can't remember ever being able to tread water that long in a swimming pool. Can you give her any scientific reason involving density to explain why she floated better in the ocean?
5. Imagine that you live on a tropical island surrounded by salt water. You dig a well to find drinking water, but you find that the well produces salty water as well as fresh water. Where in the well could you expect to find salty water? Fresh water?
6. Your vacation includes a fishing trip to Crystal Bay where the fresh water river meets the ocean water. You are fishing for a type of fish that lives in salt water. Would you use a bait that goes deep in the water or one that stays in shallow water? Explain.
7. As you read through the menu in the ice cream store, you start to chuckle as you think about root beer floats and root beer sinks. What makes the ice cream float in root beer?
8. You are hot and tired from your basketball game, and a friend offers you a glass of ice water. As you drink it, you notice the ice cubes always float to the top and get in the way as you try to gulp the water. Why do ice cubes float?