BLUE'S THE CLUE DATA TABLE

Name _____ Date _____ Class/Hour _____

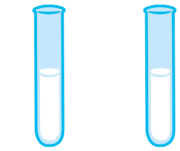
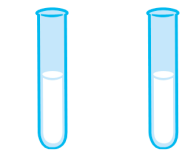
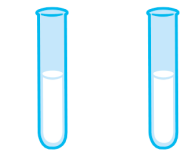
Souring Milk for Science

Connecting with Careers in Dairy Science

Everyone who comes into contact with food shares the responsibility for its safety. Some people have even dedicated their lives to improving food safety. Methylene blue is an indicator of the levels of oxygen present in a substance. As milk spoils (smells and tastes bad), the oxygen is used by the bacteria in the system, making the methylene blue disappear and returning the milk to its original color.

When using storage temperature as a variable, you can compare the color of the tubes of milk stored at different temperatures to see how quickly different storage temperatures can lead to spoilage—from very blue milk (methylene blue just added) to white (spoiled milk). In this case, you are measuring the ***relative quality of milk***. Use the following 1-5 scale to record your observations each day.

1	2	3	4	5
Very Blue	Blue	Fading Blue	Slightly Blue	White

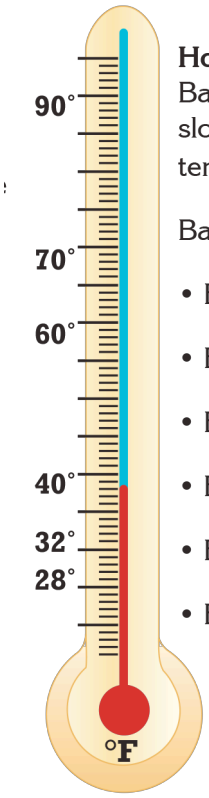
Day		2	3	4	5	6	7	8	9	10
Room Temperature  Pasteurized Milk, UHT Milk	Pasteurized									
	UHT									
Refrigerated  Pasteurized Milk, UHT Milk	Pasteurized									
	UHT									
Frozen  Pasteurized Milk, UHT Milk	Pasteurized									
	UHT									

Discussion Questions:

1. How did the data support or reject your hypothesis?

2. What do you predict will happen if the refrigerated and frozen samples are left out at room temperature for another day?

3. What other variables may influence the results of this experiment?



How's it growing?
Bacteria grow faster or slower depending on the temperature.

Bacteria double...

- Every 1/2 hour at 90°
- Every 1 hour at 70°
- Every 2 hours at 60°
- Every 6 hours at 40°
- Every 20 hours at 32°
- Every 60 hours at 28°

4. Using methylene blue, what other experiments could you perform?

5. Explain the relationship of your findings to food safety.