

## Make Your Own Yogurt

### Find What You Need...

- A measuring cup
- Water
- A marker
- Plastic cups
- Whole milk
- A saucepan
- A kitchen thermometer
- Plain yogurt from the grocery store (make sure it says "active culture")
- Powdered milk
- Aluminum foil
- A cooler
- 4 small plastic soda bottles
- 3 cups hot water

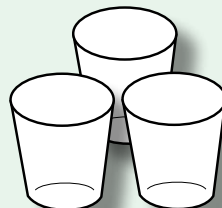
We recommend  
that an adult  
help lead this activity.



Marker



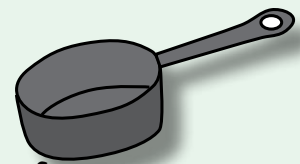
Water



Plastic Cups



Whole Milk



Saucepan



Kitchen Thermometer



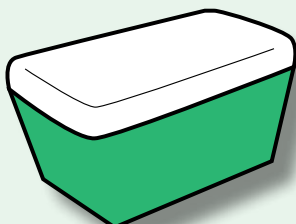
Plain Yogurt  
Active Culture



Powder Milk



Aluminum Foil



Cooler



Small Plastic Soda Bottles



3 Cups Hot Water

1. Using the measuring cup, pour 1 cup of water into a plastic cup and mark the level of the liquid with the marker. Repeat so that you have three plastic cups marked at the 1-cup mark.
2. Heat 3 cups of milk in a saucepan on the stovetop until the milk reaches a temperature of 175°F. Check the temperature using the kitchen thermometer. Let the milk cool until it is 120°F so that it is easier to work with.
3. Pour the milk into each of the three plastic cups, stopping at the marker lines.
4. Microwave a few tablespoons of yogurt for 10 seconds to heat it up.
5. Label one cup "Milk Only" and set it aside.
6. Label another cup "Milk and Yogurt." Add 1 tablespoon of yogurt to this cup and mix well. Set it aside.
7. Label the last cup "Milk, Powdered Milk, and Yogurt." Add 1 tablespoon of powdered milk and 1 tablespoon of yogurt to this cup and mix well. Set it aside.
8. Cover all three cups with aluminum foil and place them inside the cooler.
9. Fill the four plastic soda bottles with very hot water and seal them tight. Place these inside the cooler as well.
10. Use the thermometer to monitor the temperature of the cooler, which needs to stay at about 110°F for the entire time you culture the yogurt. If it starts to cool down, refill the water bottles with hot water.
11. After six hours, check on the cups. Record any changes in appearance, texture, and odor.
12. After 12 hours (or overnight), check on the cups. Record any changes in appearance, texture, or odor.

### Things to Notice:

- The cup labeled "Milk Only" will look and smell more and more like rotten milk as time passes.
- The cups labeled "Milk and Yogurt" and "Milk, Powdered Milk, and Yogurt" won't look or smell rotten; instead, they will appear yogurt-y.
- The cup labeled "Milk, Powdered Milk, and Yogurt" will have a thicker consistency, more like yogurt, than the cup labeled "Milk and Yogurt."

### Things to Try:

- Try using starter cultures from flavored yogurts or different brands of yogurt. Does this make a difference?
- Try using milk substitutes (heavy cream, infant formula) instead of milk. How does this affect the yogurt-making process?
- What happens if you use lactose-free milk in this experiment?

## Brain Buster:

**Are your hands really clean after you wash them? Design an experiment to test how many microbes live on your hands when they're really dirty, compared to after they're cleaned in different ways. For example, you could test the difference between using cold and warm water, and between regular soap and anti-bacterial soap, for example.**

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Kids' Science Challenge  
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