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*How Does Temperature Affect Bacterial Growth in a Plastic Water Bottle?*

The purpose of my experiment is to determine how temperature affects bacterial growth in plastic disposable water bottles. People may be interested in this because they often leave their water bottles in different conditions until the next time they drink out of the bottle. Many people are not aware of the bacteria which will begin growing in water bottles and the increased potential of getting sick.

My hypothesis is that water bottles left in warmer conditions will generate more bacteria than water bottles stored in colder conditions.

My experiment involved me drinking from three different water bottles and then placing them in locations of varying temperature including a car, a refrigerator and a kitchen countertop. After leaving the bottles in their locations for a week, I swabbed the bottles, plated the bacteria and left the plates in an incubator for three days before I counted the bacteria.

My results showed that the water bottle in the car had the largest amount of bacterial growth. The car temperature was an average of 4 degrees warmer than the counter top and sometimes as high as 31 degrees warmer. This helped the bacterial count increase because bacteria grow best in warm conditions. I think the water bottle in the refrigerator had the least amount of bacteria because bacteria do not grow well in cold conditions.

I believe my science fair project will be valuable in helping people make better decisions about where they leave their water bottle to help them stay healthier.