

ALKA SELTZER RACE

In this experiment, we will investigate how different water temperatures affect the speed at which Alka-Seltzer tablets dissolve.

INSTRUCTIONS:

STEP 1: Gather three clear cups and fill each one with water. Make sure each cup has water at a different temperature: one with cold water, one with room temperature water, and one with hot water (safely).

STEP 2: Open three Alka-Seltzer tablets and have them ready to drop into the cups at the same time.

STEP 3: Drop an Alka-Seltzer tablet into each cup simultaneously and start your timer.

STEP 4: Watch closely and note how quickly each tablet dissolves in the different water temperatures. Record Your Observations.

Materials

3 clear cups
Water
(cold, hot
room temperature)
Alka-Seltzer tablets
Stopwatch or timer

THE SCIENCE



When the Alka-Seltzer tablet is dropped into water, it reacts with water to produce carbon dioxide gas, which is what causes the fizzing you see. This reaction happens because the tablet contains citric acid and sodium bicarbonate (baking soda), which react when dissolved in water.

Temperature plays a key role in this process. When water is heated, its molecules move faster. Faster-moving molecules cause the tablet to break down more quickly, speeding up the chemical reaction. That's why the tablet dissolves faster in hot water than in cold water. In scientific terms, increasing temperature speeds up the reaction rate, which is a principle that applies to many chemical reactions.



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Use this worksheet to process and evaluate your observations.



<u>WATER TEMP</u>	<u>TIME TO DISSOLVE</u>
ROOM TEMPERATURE	
HOT	
ICE COLD	

Which cup dissolved the fastest? Why?

Which cup dissolved the slowest? Why?

What did you learn from this experiment?
