

Heat Up to Some Cool Reactions 1 of 2

Try these activities to get a feel for a different type of chemical reaction.

PART A

Materials:

3% hydrogen peroxide (do not use a higher percentage)

Measuring spoons

Yeast (3 teaspoons)

Cup (paper or plastic)

Thermometer (use thermometers with red liquid only)

Watch (with a second hand)

Three people (at least)

Procedures:

1. Make a chart like the one below.

Time (sec.)	0	10	20	30	40	50	60	70	80	90	100	110	120
Temp (°F)													

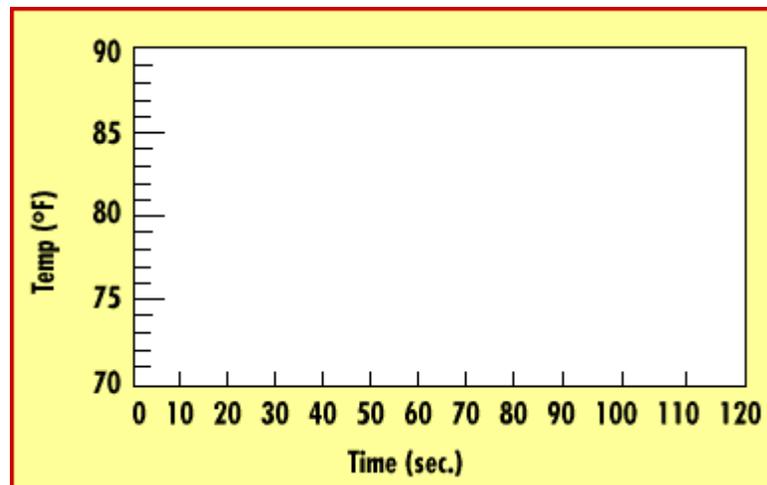
2. Pour 2 tablespoons of hydrogen peroxide into a cup. Place the thermometer into the cup. Hold the thermometer and the cup so they do not fall over. Read the temperature and record it in the chart under "Time 0".

3. Measure 1 teaspoon of yeast. Have one partner watch the thermometer and another look at the second hand on a watch

4. Dump all the yeast into the cup. Gently swirl the cup while one partner calls out the time every 10 seconds. When each 10 seconds is called, another partner should call out the temperature. The third partner should record the temperature in the chart. What did you observe?

5. Make a graph like the one here. Use the information in your chart to graph your results. During what period of

time did the temperature change the most? How about the least?



PART B

Materials:

Vinegar

Baking soda

Measuring spoons

Water

Cup (paper or plastic)

Thermometer (use thermometers with red liquid only)

Procedures:

1. Make a chart like the one below.

Heat Up to Some Cool Reactions 2 of 2

Time (sec.)	0	3	6	9	12	15	18	21	24	27	30
Temp (°F)											

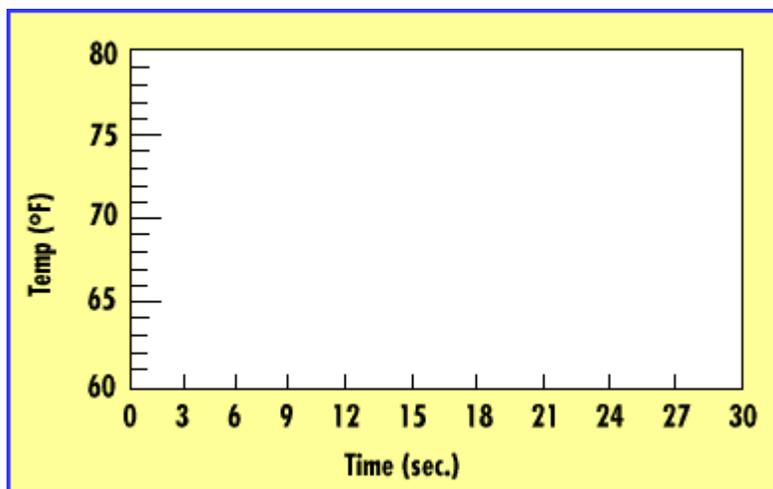
How do you think adding water to the hydrogen peroxide before adding the yeast would affect how fast the temperature goes up? Try it and see.

- Place 2 tablespoons of vinegar in the cup. Put the thermometer in the cup. Hold the thermometer and cup so they do not fall over. Read the temperature and record it in the chart under "Time 0".
- Measure 1 teaspoon of baking soda. Dump all the baking soda in the cup. Gently swirl the cup while one partner calls out the time every 3 seconds. When each 3 seconds is called, another partner should record the temperature in the chart. What did you observe?
- Make a graph like the one below. Use the information on your chart to graph your results. During what period of time did the temperature change the most?

Where's the Chemistry? In Part A of this activity, yeast was added to hydrogen peroxide. A chemical in the yeast causes a reaction in which the hydrogen peroxide breaks apart to form oxygen gas and water. This reaction gives off heat.

In Part B of this activity, baking soda was added to vinegar and again the temperature changes were recorded. Baking soda reacts with the vinegar to produce carbon dioxide gas and water. This reaction causes a drop in temperature.

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Think about this ...