Cool the Air

Procedure

1. **Collaborate** Cap an empty plastic bottle and place it in an ice-water bath. After 5 minutes, open the cap and reseal it quickly. Make sure the inside of the bottle stays dry. Allow the bottle to sit in the ice bath for at least 5 minutes longer.

2. **Experiment** Run hot water over a second, uncapped plastic bottle. After 1 minute, cap the bottle. Make sure the inside of the bottle stays dry.

3. **Predict** Read step 4 and predict its outcome. Record your predictions on the lines below.

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4. **Observe** Put the warmed bottle in the ice-water bath. Observe any changes in the shape of the bottle. Run hot water over the cooled bottle from step 1. Observe any changes in the shape of the bottle. What happens when you uncap each bottle? Record your observations on the lines below.

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Conclusion

Write the answers to the questions below.

1. **Analyze Data**  Compare the changes in the two bottles.

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2. **Compare**  Was your prediction correct? Why or why not?

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3. **Hypothesize**  Why do you think the shapes of the bottles changed in step 4? Propose a hypothesis to explain the changes in the bottles.

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**Investigate More!**

**Design an Experiment**  Compare the circumference of a blown-up balloon at different temperatures. Make a graph that shows how the circumference of the balloon changes with temperature.