Spectacular Science Membership

Crushing A Soda Can Using Air Pressure!! Investigation Sheet

Step 1: Prepare Your Investigation

Make sure you have the following materials in front of you. Check them off as you go:

- ☐ Pencil/pen to write with
- ☐ This investigation worksheet that is printed out
- ☐ An empty and clean soda can
- ☐ A large plastic box filled halfway with cold water
- ☐ Tongs or oven mitts
- ☐ A pitcher full of ice water
- ☐ Boiling hot water (**Adult help needed!**)
- ☐ An adult science helper

Now that you have everything, let's move into the fun investigation!!

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Step 2: Pre-Investigation Question

BEFORE you start your investigation, write down what air pressure is. *Hint: Look at the activity webpage!*

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Step 3: Start Your Investigation!!

Gather your materials and have your adult science helper help you with the next steps.

Follow these steps to correctly conduct your experiment:

1. Pour the boiling water into the empty soda can. Wear your oven mitts or use your tongs to hold the boiling water container and the soda can.
2. Then, with your tongs or oven mitts on, grab your pitcher of ice water and the tub of cold water. Now, **quickly** turn the soda can over and dunk it, opening first, into the tub of cold water (without spilling any of the water inside of the can).
3. Quickly pour the ice water over the can and watch what happens!

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Your soda can should implode or be crushed like in the picture below!

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Step 4: Conclusion

Now that you have finished your investigation, record what happened and what you noticed below.

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Turn to the next page to find out why this happened!

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Investigation Sheet

How Did That Happen?

How did a solid soda can get crushed like that? It's all thanks to air pressure!

When you poured the hot water into the soda can, the water vapor or steam pushed all of the gases, like Oxygen or Nitrogen, outside of the can.
Then, when you put the can inside of the tub of water, upside down, the water sealed the can shut from the outside air. The cold water in the tub also cooled the boiling water inside of the can down.
Then, when we poured the ice-water on top, the water cooled even more and the molecules started to bunch up together inside of the can.
As that happened, the outside air pressure was greater than the air pressure inside of the can (because the air had been pushed out earlier by steam), the can got crushed!