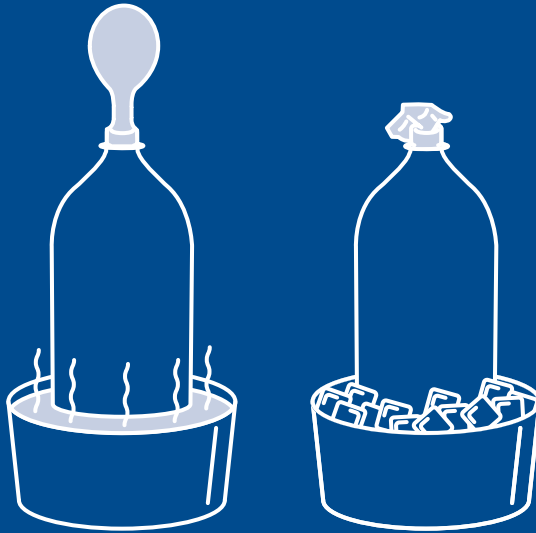


# STEM



## HEAT RISING

### THERMODYNAMICS STUDY

Build a temperature travel system showing that air expands and rises when heated.



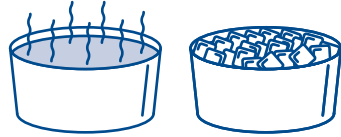
**EMERSON**<sup>TM</sup>

# HEAT RISING INSTRUCTIONS:



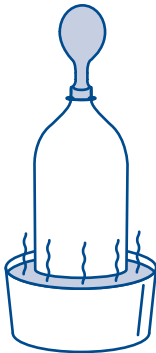
**1**

Stretch a balloon over the mouth of an empty two-liter bottle.



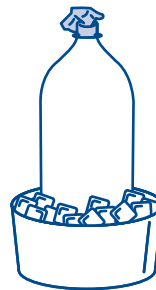
**2**

Carefully prepare two bowls: one with hot water and another full of ice.



**3**

Place the bottle in the hot water and watch the hot air rise into the room temperature balloon.



**4**

Move the bottle into the bowl of ice cubes. Watch the now-warm air transfer towards the ice cubes!

## TRY IT:

Experiment with different temperatures of water in the bowls.  
How does this impact air in the balloon?

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## HOW IT WORKS:

Heat travels from a warm object to a colder one. As molecules get warmer, they move faster and expand, floating upwards as they become less dense. As molecules cool, they move slower and contract, sinking downwards as they become more dense.