

Primary science investigations

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# Sticky cups



# Sticky cups

**We will be:**

Exploring air pressure and how temperature affects it.



# Learning objectives

- I understand that air is a fluid: it flows, can change shape and fills its container.
- I know about the movement of particles in a gas.
- I understand that heat makes a gas expand.
- I know that air pressure is the force of air over a specific area.

## Enquiry skills:

- I can identify variables.
- I can record observations and explain what has been found.



# Useful vocabulary

- **Air:** a mixture of gases that surround us and which we breathe. It is made up of about 78% nitrogen, 20% oxygen, and less than 2% argon, carbon dioxide, water vapour and other gases.
- **Thermal expansion:** an increase in volume due to heat.
- **Pressure:** a measure of a force over a specific area. So, **air pressure** is the amount of force exerted by the air on a given area.



# Method

You are going to investigate expansion and contraction of air!

1. Inflate a balloon a few times so that it is stretchy.
2. Now stretch it over an empty water bottle.
3. Hold the bottle in a bowl of hot water.



4. Now plunge the bottle into a bowl of icy water.
5. What happens to the balloon?
6. What could you change to investigate this further?



# What did you find out?

- What is in the 'empty' plastic bottle?
- What happens to the balloon when the bottle is placed in hot and cold water?
- How would you describe the changes to the gas (air) in the bottle when it is heated up or cooled down?
- Can you think of something that might rely on hot air to fly?



# Evaluation

How do you feel about our **learning objectives** today?

- I understand that air is a fluid: it flows, can change shape and fills its container.
- I know about the movement of particles in a gas and understand that heat makes a gas expand.
- I know that air pressure is the force of air over a specific area.
- I can identify variables.
- I can record observations and explain what has been found.

If you feel confident, show your teacher 5 fingers, or show 1 if you feel that you need to chat through the lesson again.







# Acknowledgements

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