

Science Challenges- Year 4

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States of matter: solids, liquids and gases

Try all or some of the investigations below!!

Does gas weigh anything?

Use a balloon and set of scales and design your own investigation to see if gas weighs anything.

Does hot air really rise?

Take 2 bottles and 2 balloons. Put the balloons over the top of the bottles. Put one of the bottles in a bowl of hot water. Can you see a difference in the balloons?

Does water always freeze in the same way?

Using plastic cups or an ice cube tray, try freezing different types of 'water' (as many as you can at home). Use water from the tap; boiled water; water with salt; water with sugar; water with gas (lemonade); and water with food colouring. Describe the differences between them.

Can you make it rain indoors?

Resources: ice cubes, glass jam jar, hot water, plate

1. Put the ice cubes on the plate.
2. Pour around 3 centimetres of very hot water into the glass jar.
3. Place the plate and ice cubes on top of the jar.
4. Watch what happens!

Can you see droplets forming on the bottom of the plate?
If you tap the plate they will fall down like rain!

Can you link this to 'rain' (precipitation) in the water cycle?

Can you grow your own crystals?

Pour salt into 250ml boiling water until it won't dissolve any more and put it in a clear jar/glass (you can add food colouring if you want).



Tie string around a pencil, put the pencil on the jar and dangle the string into the water (not touching the bottom of the jar).

Put the jar in a safe place, ideally by a window.