Research using secondary sources



Pupils use a range of secondary sources (books, websites, articles, people, videos etc.) to gather evidence to answer questions. They look for patterns in the information they collect, evaluating the reliability and trustworthiness of the evidence they collect when drawing conclusions.

Research using secondary sources could help you to answer questions like...

- How have some animals adapted to live in water?
- Which species of animals live in Africa and how do they compare to the animals native to the UK?
- How far away is the closest star?
- How have our ideas about the Solar System changed over time?
- Are microorganisms always harmful?
- What are microplastics and why are they harming the planet?

What will you ask?

What will you find out?

What will you share?

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Pattern seeking



Pupils make observations and measure to explore natural events where there are variables that they can't easily control. They seek to identify patterns in the measurements, which may lead to other investigations in an effort to try to explain why a particular pattern occurred.

Pattern seeking could help you to answer questions like...

- Do all flowers have the same number of petals?
- Do woodlice prefer dark or light places to live?
- How much does your heart rate change when you do different exercises?
- Do all stretchy materials stretch in the same way?
- Are the oldest children in our school the tallest?
- Do older people have better hearing?

What will you ask?

What will you find out?

What will you share?

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Share your questions and discoveries www.greatscienceshare.org #GreatSciShare

Observing over time



Pupils identify and measure events and changes in living things, materials and physical processes or events. These observations may take place over time spans of minutes or hours up to several weeks or months.

Observing over time could help you to answer questions like...

- What changes occur to a bird chick after it hatches?
- How do the colour of leaves change through the seasons?
- How does the volume of water in a container on the windowsill change with time?
- How does the height of our cress plants change with time?
- How does my shadow change over the day?
- How does the Moon appear to change over a month?

What will you ask?

What will you find out?

What will you share?

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Identifying, classifying and grouping



Identification is the process of using observable differences to name something and classification is organising things into groups based on observations, features and characteristics. Some questions are answered by naming things and or sorting them into groups, To do this it might be necessary to carry out an observation over time test or use a secondary source as well.

Identifying, classifying and grouping could help you to answer questions like...

- How are the trees in the local park the same or different?
- How can we group the food that we eat?
- Which species of trees are growing in the local park?
- Which materials are magnetic and which are not?
- Can we use an identification key to name the rocks in our collection?
- How can we group the invertebrates we have identified on the school grounds?

What will you ask?

What will you find out?

What will you share?

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Comparative and Fair Testing



Pupils identify the effect of changing one variable on another whilst attempting to keep other variables constant. They are useful for gathering data that might inform predictions and further tests. In comparative tests pupils compare one event with another and identify different outcomes. With fair tests pupils look to identify a causal relationship between two variables.

Comparative testing could help you to answer questions like...

- Which is the most reflective material?
- What kind of sponge will soak up the most water?
- Do all types of sugar dissolve at the same rate?

Fair testing could help you to answer questions like...

- Does the size of the parachute affect the speed it falls to the ground?
- How does voltage affect the brightness of a lamp?
- How does the amount of salt added to water affect the temperature that it freezes?

What will you ask?

What will you find out?

What will you share?

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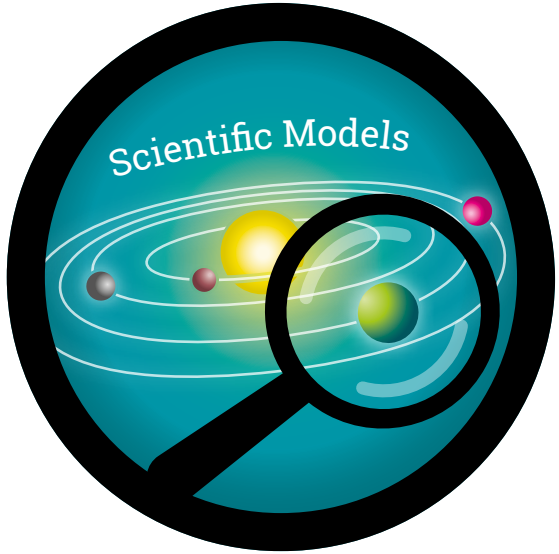
Scientific Models



Models are helpful to support pupils to understand abstract concepts in science, the things they can't see – often called phenomena. They provide an alternative enquiry type to be able to gather evidence and draw conclusions. It is important to note, however, that models often have limitations, and these should be evaluated and explained with the pupils as part of the learning experience.

Scientific models could help you to answer questions like...

- How do particles move in solids, liquids, and gases?
- How does evaporation and condensation create the water cycle?
- How does the human lung inflate and deflate?
- How do digestive organs break down food?
- How do the phases of the Moon occur?
- How does the Earth orbit the Sun?

What will you ask?

What will you find out?

What will you share?

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