Use What You Know · Year 6 Science

50 challenge cards · ten sessions

from Familiar Frontiers

Five-card sample · print A4

Question cards for A4 printing, with four cards per sheet.

- Print at 100% (actual size) on A4.
- Cut along the dashed lines.
- Use the screen answers to discuss each solution.
- Find the answers in the screen sample.

Use familiar science to solve new problems. Selected learning for Year 6 in England.

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UseWhatYouKnow-Y6-Science-Sample-Print-A4.pdf

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Y6S-001

CLASSIFICATION

Seeds on the wrong shelf

In a plant collection, the records cover a full growing season. Nia puts plants on the flowering shelf if they make seeds.

Plant	Flowers?	Seeds?	Other clue
Poppy	Yes	Yes	Seed pod
Pine	No	Yes	Seed cones
Fern	No	No	Spore cases

Which record shows her rule fails? What evidence should she check for instead?

Y6S-002

ANIMALS INCLUDING HUMANS

The blue-tube mistake

Arteries carry blood away from the heart. Veins carry blood towards it. A model label says, 'P is a vein because its blood carries less oxygen.'

Vessel	From	To	Oxygen
P	Heart	Lungs	Lower
Q	Lungs	Heart	Higher

What kind of vessel is P? Use both rows to show why the label's rule fails.

Y6S-003

EVOLUTION AND INHERITANCE

The beach beetle count

In this model, shell colour can pass from parent beetles to offspring. A beetle keeps its colour for life. Each count is from a different generation, several generations apart.

Sample	Dark	Pale
First	5	15
Middle	9	11
Latest	14	6

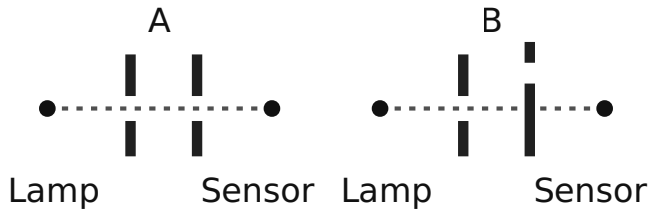
Has the share of dark beetles risen in these samples? Use two counts. Explain why this does not mean any beetle changed colour.

Y6S-004

LIGHT

The two keyholes

A tiny lamp and a sensor sit on the same dotted line. Two cards block the path except at their holes. Light travels in straight lines in air.



In which setup will light from the lamp reach the sensor? Explain why the other path fails.

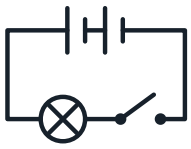
Y6S-005

ELECTRICITY

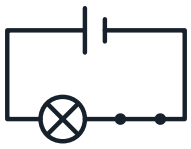
The circuit trial

Which test changes only the number of cells? Each long-short pair is a cell. The crossed circle is a lamp. The two dots mark a switch. A gap at a switch breaks the loop.

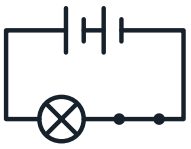
A



B



C



Which plan, A or C, should the team compare with B? Use the symbols to explain why the other plan is unfair.