Use What You Know · Year 4 Science

Five sample cards · one from each Science area

from Familiar Frontiers

Five-card sample · screen

Five challenges, one from each science area. Each is followed by its answer.

- One card per page; the answer is on the next page.
- Choose by readiness using the Tutor Notes. The deck has selective curriculum coverage.

Use familiar science to solve new problems. Selected learning for Year 4 in England.

Independent educational resource. Not affiliated with or endorsed by any school, test provider or admissions body.

Licensed for personal and household use only. Please do not redistribute, resell, or use in a school or tutoring setting without a separate licence.

hello@familiarfrontiers.co.uk

UseWhatYouKnow-Y4-Science-Sample-Screen.pdf

1.0.0 · build 9911beea

Two signs for one pond

Pond keepers are making two signs: “Has feathers” and “Seen swimming”. Use only the records here.

Animal	Feathers?	Seen swimming?
Mallard	Yes	Yes
Frog	No	Yes
Robin	Yes	No

Which animal belongs on both signs? Which sign can include the frog? Explain using the records.

Answer

The mallard belongs on both. The frog belongs on “Seen swimming” only.

How to work it out

The mallard has a yes for each feature. The frog swims but has no feathers. The signs sort by different features.

What mattered

Find an overlap between two useful groupings.

The bottle model

The food pipe pushes food to the stomach. The stomach churns food with juices that help break it down. In a model, a tube carries soft lumps into a bottle. Shaking the bottle mixes them with water.

Which model part acts like the stomach? Give a reason and say one way the water differs from real stomach juice.

Answer

The shaken bottle is like the stomach because it mixes the lumps with liquid. The model uses plain water instead of digestive juice.

How to work it out

The tube models moving food. The shaking models churning. Plain water models a liquid but cannot stand in for the action of stomach juice.

What mattered

Map movement and mixing to different parts.

The chilled marker

Two clear tubes are partly filled with water at 4 °C and sealed. One has dye in its water. A liquid flows to fit the space it is in. The dyed water is easier to see moving when the tubes tilt.

What extra observation would show the clear water is a liquid too?

Answer

Look for the clear water flowing to the lower end or watch its surface change position as the tube tilts.

How to work it out

The air space lets you see where the water ends. When the tube tilts, the water flows down and its surface settles level.

What mattered

Use the tilt response to distinguish a liquid from a solid.

The paper rider

A vibration is a quick back-and-forth movement. A paper dot rests on a tight drum skin. When the drum is tapped, the dot dances while the drum sounds. The dot stops moving when the skin is held still and the sound stops.

What does the dot help you notice about the skin while it makes sound? Explain.

Answer

The skin is vibrating. Its quick movements make the paper dot jump.

How to work it out

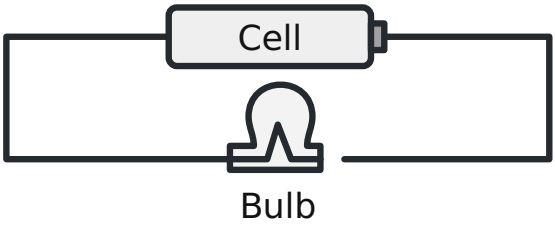
The dot makes the movement of the skin easier to see. Holding the skin still stops the visible movement and the sound in this test.

What mattered

Infer when an indirect indicator shows vibration.

A wire out of reach

A bulb lights if it is working and joined in a complete loop from one end of a cell to the other. The cell and bulb work.



Point to the break. Where should the loose wire end go to make the bulb light?

Answer

The gap is beside the right bulb contact. Join the loose wire end to that contact to close the loop.

How to work it out

One wire already links the left cell end and left bulb contact. The second wire leaves the right cell end but falls short of the right bulb contact.

What mattered

Locate the one physical break in a nearly complete circuit.