Use What You Know · Year 3 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 3 in England.

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The leaning sapling

A young tree has a firm trunk and healthy leaves. Its roots are loose after planting. Roots hold a tree in the ground. The trunk supports the branches.

Which clue helps explain why the tree leans as a whole in the wind? Explain.

Answer

Its roots are loose. They cannot hold the tree firmly in the ground yet.

How to work it out

A trunk can support branches without keeping the whole tree anchored. Loose roots mean the tree can tip from its base even when the trunk is firm.

What mattered

Match a failed job to the part that cannot do it yet.

A bump at the front

A model has a soft heart behind curved ribs. A soft pad moves towards it from the front. The ribs are stiff, so the pad stops at the ribs.

If the ribs were taken away, what could happen to the heart in the model? What job do the ribs show?

Answer

The pad could reach the heart. The ribs help protect the heart.

How to work it out

In the model the ribs make a barrier between the pad and the soft heart. Real ribs also protect organs, including the heart and lungs. Protection reduces the chance of injury but does not prevent every injury.

What mattered

Use a model to distinguish protection from support.

One rock or two?

A builder finds two grey rocks. One feels smooth and the other feels rough. Mei writes, “They are the same colour, so they must feel the same.”

Which observation should Mei put in her report to fix her mistake?

Answer

Both rocks were grey, but one felt smooth and the other felt rough.

How to work it out

The colour matched in this comparison. The feel did not. A description can report both without guessing where either rock came from or giving it a name.

What mattered

Find an observed difference in texture despite matching colour.

The gallery in the dark

A sealed toy gallery has no light when its lamp is off. A camera without its own light sees a painted bird when the lamp is on. The bird stays in the same place.

Why does the bird vanish from the picture when the lamp goes off? Has the bird moved?

Answer

There is no light for the camera to see the bird. The bird has stayed still.

How to work it out

With the lamp on, light reaches the bird and some of that light reaches the camera. When the lamp is off there is no light in the box. The camera losing the picture does not mean the bird moved.

What mattered

Use two observations to separate a change in seeing from a change in an object.

The space between

The two pictures show where the hand, magnet and toys were just before each toy moved. The arrows show which way each toy moved next. No one else touches either toy.



In which picture is there evidence of a force across a gap? Point out the clue.

Answer

B. The magnet and toy do not touch, but the toy moves towards the magnet.

How to work it out

The gap in B rules out a direct push or pull by contact between the two objects drawn. The magnet pulls on a part of that toy. In A the hand pushes the toy while touching it.

What mattered

Locate the evidence that rules out a push by touching.