Use What You Know · Year 5 Science

50 challenge cards · ten sessions

from Familiar Frontiers

Five-card sample · screen

Five start-ready cards. Each challenge 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 5 in England. Begin with start-ready cards, then choose by the teaching each card needs.

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UseWhatYouKnow-Y5-Science-Sample-Screen.pdf

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The pond diary

A nature centre is making one display about growing after hatching. Its diary shows two animals.

Animal	Just hatched	Adult
Frog	Tail, no legs	Four legs, no tail
Duck	Two legs, bill	Two legs, bill

Both animals hatch from eggs. Which changes body shape more as it grows? Use one clue about each animal.

Answer

The frog. The tadpole has a tail and no legs at first; the duckling already has the same basic body shape as the adult duck.

How to work it out

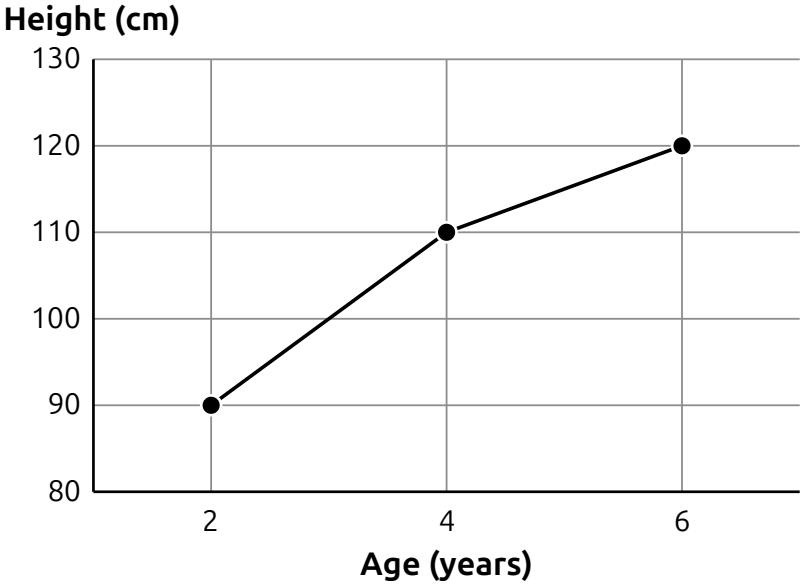
The two young animals both hatch. The frog changes from a swimming tadpole with a tail and no legs to a four-legged adult with no tail. The duckling grows into a bigger duck and its feathers change, but its basic shape stays recognisable.

What mattered

Compare how each animal changes after hatching.

The growing gap

The graph shows one child's height on three birthdays. A caption says the child grew more from age 4 to 6 than from age 2 to 4.



Do the readings support the caption? Use both height gains.

Answer

No. The gain from 2 to 4 was 20 cm; the gain from 4 to 6 was 10 cm.

How to work it out

The readings are 90 cm, 110 cm and 120 cm. Subtract the height at the start of each interval from the height at the end. Each interval lasts two years, so the larger gain is in the earlier interval.

What mattered

A height and a gain in height tell you different things.

A lid for the logbook

A keeper needs a cover for a paper logbook. Staff must read the page without taking the cover off in the rain. Three sheets were tested.

Sheet	Water through?	Words readable?
A	No	No
B	Yes	Yes
C	No	Yes

Which sheet should the keeper choose? Use both test results for that sheet.

Answer

Sheet C: water stayed out and the page was readable through it.

How to work it out

Sheet A blocks water but also blocks the words. Sheet B lets the keeper read the page, but water got through. Only C meets both needs in these tests.

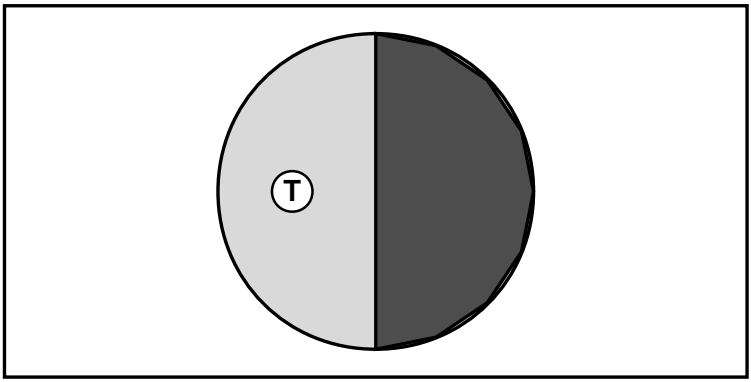
What mattered

A good choice must meet both needs at once.

Lights over the island

A fixed lamp on the left lights the pale half of this model Earth. Town T starts there. The globe makes half a turn around its upright axis, the line from the top pole to the bottom pole.

Simplified model



Will the town have day or night after the turn? Explain using the model.

Answer

Night. The half-turn around the upright line carries T into the dark half, away from the lamp.

How to work it out

T moves from the lit left half to the dark right half as the globe turns around its upright axis. The lamp stays in place and still lights the left half. On Earth, it is night where our part faces away from the Sun.

What mattered

The place moves with the globe; the lit half stays towards the lamp.

The sliding parcel

At a depot, a parcel slides along a level track. Friction between the parcel and the track slows it. Each run uses the same parcel.

Run / surface	Start (cm/s)	Stop distance (cm)
1 / plastic	80	60
2 / felt	120	52
3 / felt	80	25

Which two runs compare just the surfaces? On which surface did the parcel slide a shorter distance in that pair? Use the table.

Answer

Runs 1 and 3. Felt stopped it in 25 cm, compared with 60 cm on plastic.

How to work it out

Runs 1 and 3 have the same starting speed and different surfaces. Run 2 starts faster so it cannot be used in a surface-only comparison with run 1. Over this matched pair the parcel travels a shorter distance on felt.

What mattered

Match starting speed before comparing stopping distances.