Use What You Know

50 Year 5 Challenge Cards

from Familiar Frontiers

Free sample · print version · printer-friendly

10 sample cards, 4 per A4 sheet.

- Print at 100% (actual size) on A4.
- Cut along the dashed lines.
- Answers are in the screen version of the free sample.

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50 quick Year 5 challenges for applying familiar learning to unfamiliar problems.

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UseWhatYouKnow-Free-Sample-Print-A4.pdf

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CC-001 DESIGN AND TECHNOLOGY

A greenhouse watering machine has only two buttons.

Buttons

Button	Volume (litres)
BLUE	0.4
GREEN	0.25

Target: 1.3 litres

A planting tray needs exactly 1.3 litres. What is the fewest number of button presses that can give exactly 1.3 litres?

(A) 3
(B) 4
(C) 5
(D) It cannot be done exactly

CC-002 GEOGRAPHY

A ranger needs to travel from Oak Farm to Lookout. All roads can be travelled in either direction.

Roads

Road	Distance (km)	Open
Oak Farm – Mill	1.8	Yes
Mill – Lookout	1.6	No
Oak Farm – Bridge	2.1	Yes
Bridge – Lookout	2.0	Yes
Mill – Bridge	0.9	Yes

What is the shortest OPEN route distance from Oak Farm to Lookout? Give your answer in kilometres.

CC-003 HISTORY

A historian wants to investigate what workers actually heard inside a factory in 1893.

A *Diary of a factory worker, 1893*
By midday my ears rang from the stamping machines. We had to shout to speak to the person beside us.

B *Factory owner's newspaper advertisement, 1893*
Our modern workshop is quiet enough for workers to speak comfortably while the machines are running.

Which source gives stronger evidence about what workers actually heard while working? Give one reason based on what the source describes OR why the source was created.

CC-004 DESIGN AND TECHNOLOGY

A museum has a model bridge. Triangular braces help the frame keep its shape. The caption must be clear for 9–11-year-old visitors and explain why the triangles are there.

Which caption best fits?

(A) Triangles help make the model bridge steadier when weight or pushing forces act on it.
(B) Engineers add triangular braces to frames like this one.
(C) These triangles make the bridge completely impossible to bend.
(D) Triangular bracing gives rigidity by converting bending forces into tension and compression.

CC-005 DESIGN AND TECHNOLOGY

A designer needs a casing for a small outdoor sensor. It must be waterproof, be an electrical insulator, and be strong enough not to crack when dropped.

Requirements

- waterproof
- electrical insulator
- strong enough not to crack when dropped

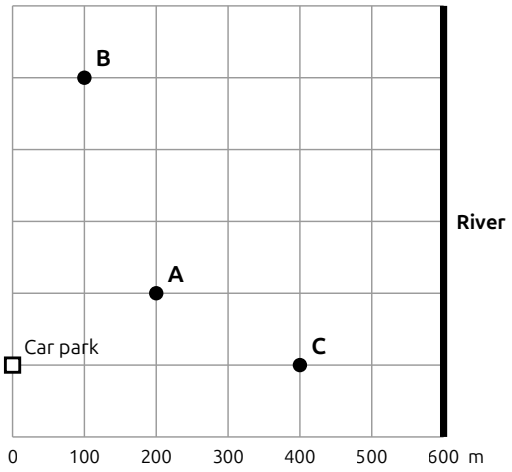
Material	Water absorbed in test	Bulb when material completes circuit	After drop
P	0 ml	On	Intact
Q	0 ml	Off	Intact
R	3 ml	Off	Intact
S	0 ml	Off	Cracked

Which material should the designer choose?

(A) P
(B) Q
(C) R
(D) S

CC-006 GEOGRAPHY

A park needs a new picnic site.



1 grid interval = 100 m
Distances follow horizontal and vertical grid lines.

Rules

- No more than 400 m from the car park.
- At least 300 m from the river.

Which site meets BOTH rules? Give the site, its distance from the car park, and its distance from the river.

CC-007 HISTORY

1 *Council notes, two days after the 1908 flood*
Two supports cracked during the flood. Engineers advised closing the bridge and building a replacement.

2 *Shopkeeper's letter, six months before the flood*
The bridge is crowded on market days, but carts still cross it from morning until evening.

Which conclusion is BEST supported by both sources?

(A) Flood damage seems to have led to replacement, although crowding was already a problem.
(B) Crowding seems to have closed the bridge before the flood, with flood damage happening later.
(C) The flood may have caused the crowding, which then seems to have led to replacement.
(D) Crowding appears to have been the main reason, while the flood seems to have caused little or no damage.

CC-008 COMPUTING

A warehouse has a parcel-routing policy and an automatic sorter.

Policy

- Any fragile parcel must go to CAREFUL.
- Otherwise, parcels weighing more than 10 kg go to HEAVY.
- All other parcels go to STANDARD.

Sorter steps

1. If the parcel weighs more than 10 kg, send it to HEAVY and stop.
2. If not, and the parcel is fragile, send it to CAREFUL and stop.
3. Otherwise, send it to STANDARD.

Which parcel will the sorter send to the wrong place?

(A) 4 kg, not fragile
(B) 12 kg, not fragile
(C) 10 kg, fragile
(D) 12 kg, fragile

CC-009 SCIENCE

Maya tested four wrapping materials to find which kept ice from melting best.

Wrapping	Starting ice mass	Ice melted after 15 minutes
Foil	50 g	15 g
Felt	50 g	8 g
Bubble wrap	40 g	7 g
Paper	50 g	12 g

Which conclusion is BEST supported by these results?

(A) Bubble wrap performed best because only 7 g of ice melted.

(B) Felt performed best among the three tests that started with the same mass of ice.

(C) Foil performed best because it started with more ice than bubble wrap.

(D) Because one test started with less ice, the experiment cannot tell us anything useful about any of the materials.

CC-010 LANGUAGES

In the made-up language Lumo, use the supplied vocabulary, plural rule and examples.

Vocabulary

Lumo	English
tal	tree
zor	house
mep	tall
len	small

Rule

- Adding -im makes a noun plural.

Examples

Lumo	English
tal mep	tall tree
talim mep	tall trees

Using the pattern above, write “small houses” in Lumo.

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