

# THE COLOUR WORKS

## VOLUME 3

Open Day. The workshop is open to the public and every job has more than one part to it. This is the hard one — on purpose.

### Why there is a Volume 3

Volumes 1 and 2 ask one thing at a time. Almost every question needs one step, and almost every question is choose-one. That is the right place to start and the wrong place to stop.

| What Volume 3 adds                       | Why                                                                                                                                                                                                                                                                                                                                                                                |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Spot the mistake</b><br>Sheets 3-7    | Somebody else's work is shown, with a wrong answer that looks reasonable. The job is to say <b>what they did wrong</b> . Ontario's data shows students pick answers that come from doing one correct step and stopping — so learning to <i>name</i> that mistake is a different and more useful skill than avoiding it. Children also love catching an error, which does not hurt. |
| <b>Two-step jobs</b><br>Sheets 8-9       | Work out the rows, then take away the cracked ones. Count the squares, then work out the money. Every question has a "how many steps?" habit attached.                                                                                                                                                                                                                             |
| <b>Good guessing</b><br>Sheet 10         | Round it first, then ask whether the exact answer looks about right. Checking a sensible size catches more mistakes than doing the sum twice.                                                                                                                                                                                                                                      |
| <b>Working backwards</b><br>Sheet 11     | You are given the answer and asked what went in. Same maths, run in reverse.                                                                                                                                                                                                                                                                                                       |
| <b>Fill in every box</b><br>Sheets 12-13 | Choose-all-that-apply and put-in-order. The real assessment uses both, and Volumes 1 and 2 hardly do. Students should not meet a format for the first time on the day.                                                                                                                                                                                                             |

**Do not start here.** Volume 3 assumes the one-step work is solid. A child still unsure about taking away with borrowing, or about area, belongs in Volume 1 or 2. Giving a child the hard book too early teaches them the wrong lesson.

Apprentice

Still nothing is timed and there is still no way to lose. Harder does not mean harsher. Cross out, go again, and stop while they still want more.

## Three things that make this volume work

The content is ordinary Grade 3 curriculum throughout. What changes is how many things a child has to hold at once.

- 1 • **Do the spot-the-mistake sheets out loud, in pairs.** The talking is the point. Two children arguing about where an error is will teach each other more than either gets from ticking it alone. And a child who can explain someone else's mistake rarely makes it themselves.
- 2 • **Ask "how many steps?" before any working.** On these sheets the answer is almost never one. The single most common way to lose a mark on the real assessment is to do the first step correctly and stop – the answer looks like a real answer, because it is, just to a different question.
- 3 • **Let them estimate before they calculate.** Sheet 10 is not filler. A child who says "about 700" before working it out has a way of noticing that 7000 is wrong. A child who goes straight to the sum has nothing to check against.

### What to watch for in the answers

| If they get this wrong                | Go back to                                       |
|---------------------------------------|--------------------------------------------------|
| Spot the mistake – taking away        | Volume 1 sheet 12, missing digits and regrouping |
| Spot the mistake – area and perimeter | Volume 1 sheet 18, framing                       |
| Spot the mistake – pictographs        | Volume 1 sheet 23, the key                       |
| Spot the mistake – pattern gaps       | Volume 1 sheet 11, draw the arrows               |
| Two-step jobs                         | Volume 1 sheet 15, the two-step habit            |
| Fill in every box                     | Volume 1 sheet 37, the shapes questions come in  |

**One sheet a day, still.** These take longer than Volume 1 sheets, so one is more than enough. If a child is enjoying it and wants another, that is the best possible reason to stop and leave them wanting it tomorrow.

Original questions throughout. Blueprint proportions and categories follow the published EQAO Primary Division Framework; every question was written for this book.

# Spot The Mistake – Taking Away

**MISTAKE** Strand B · Number and Financial Literacy – 14 of the 40 questions (35%) · B2.5

Being exactly ten out is the clue. They forgot the borrowed ten.

- 1 A student worked out  $310 - 65$  and got  $255$ .  
What went wrong? (B2.5 · TH)  
☐ A They added instead of subtracting  
☐ B They lined the numbers up wrongly  
☐ C They forgot to take the borrowed ten away from the tens column  
☐ D They forgot to write the hundreds digit
- 2 A student worked out  $325 - 43$  and got  $292$ .  
What went wrong? (B2.5 · TH)  
☐ A They added instead of subtracting  
☐ B They forgot to take the borrowed ten away from the tens column  
☐ C They lined the numbers up wrongly  
☐ D They forgot to write the hundreds digit
- 3 A student worked out  $767 - 69$  and got  $708$ .  
What went wrong? (B2.5 · TH)  
☐ A They added instead of subtracting  
☐ B They forgot to write the hundreds digit  
☐ C They lined the numbers up wrongly  
☐ D They forgot to take the borrowed ten away from the tens column
- 4 A student worked out  $230 - 77$  and got  $163$ .  
What went wrong? (B2.5 · TH)  
☐ A They added instead of subtracting  
☐ B They lined the numbers up wrongly  
☐ C They forgot to take the borrowed ten away from the tens column  
☐ D They forgot to write the hundreds digit
- 5 A student worked out  $161 - 69$  and got  $102$ .  
What went wrong? (B2.5 · TH)  
☐ A They forgot to take the borrowed ten away from the tens column  
☐ B They forgot to write the hundreds digit  
☐ C They lined the numbers up wrongly  
☐ D They added instead of subtracting
- 6 A student worked out  $278 - 83$  and got  $205$ .  
What went wrong? (B2.5 · TH)  
☐ A They forgot to take the borrowed ten away from the tens column  
☐ B They forgot to write the hundreds digit  
☐ C They added instead of subtracting  
☐ D They lined the numbers up wrongly

- 7 A student worked out  $506 - 47$  and got  $469$ .  
What went wrong? (B2.5 · TH)
- ☐ A They forgot to write the hundreds digit
  - ☐ B They forgot to take the borrowed ten away from the tens column
  - ☐ C They added instead of subtracting
  - ☐ D They lined the numbers up wrongly
- 8 A student worked out  $578 - 36$  and got  $552$ .  
What went wrong? (B2.5 · TH)
- ☐ A They forgot to write the hundreds digit
  - ☐ B They forgot to take the borrowed ten away from the tens column
  - ☐ C They added instead of subtracting
  - ☐ D They lined the numbers up wrongly
- 9 A student worked out  $357 - 63$  and got  $304$ .  
What went wrong? (B2.5 · TH)
- ☐ A They forgot to take the borrowed ten away from the tens column
  - ☐ B They added instead of subtracting
  - ☐ C They forgot to write the hundreds digit
  - ☐ D They lined the numbers up wrongly
- 10 A student worked out  $143 - 48$  and got  $105$ .  
What went wrong? (B2.5 · TH)
- ☐ A They forgot to take the borrowed ten away from the tens column
  - ☐ B They added instead of subtracting
  - ☐ C They forgot to write the hundreds digit
  - ☐ D They lined the numbers up wrongly
- 11 A student worked out  $264 - 94$  and got  $180$ .  
What went wrong? (B2.5 · TH)
- ☐ A They forgot to write the hundreds digit
  - ☐ B They lined the numbers up wrongly
  - ☐ C They added instead of subtracting
  - ☐ D They forgot to take the borrowed ten away from the tens column
- 12 A student worked out  $224 - 52$  and got  $182$ .  
What went wrong? (B2.5 · TH)
- ☐ A They added instead of subtracting
  - ☐ B They forgot to take the borrowed ten away from the tens column
  - ☐ C They lined the numbers up wrongly
  - ☐ D They forgot to write the hundreds digit

Twelve fresh questions. The answer key at the back gives the reason and the expectation code – for the child to check their own work afterwards, not for marking.

# Spot The Mistake — Area And Perimeter

**MISTAKE** Strand E · Spatial Sense — 10 of the 40 questions (25%) · E2.7

The fence round the edge, or the space inside? Different jobs.

- 1 A rectangle is **6 cm by 3 cm**. Asked for the **area**, a student answered **18 cm**.  
What went wrong? (E2.7 · TH)
  - ☐ A They multiplied instead of adding
  - ☐ B They measured the wrong sides
  - ☐ C They found the perimeter instead of the area
  - ☐ D They forgot to double it
- 2 A rectangle is **7 cm by 2 cm**. Asked for the **area**, a student answered **18 cm**.  
What went wrong? (E2.7 · TH)
  - ☐ A They measured the wrong sides
  - ☐ B They found the perimeter instead of the area
  - ☐ C They multiplied instead of adding
  - ☐ D They forgot to double it
- 3 A rectangle is **5 cm by 4 cm**. Asked for the **area**, a student answered **18 cm**.  
What went wrong? (E2.7 · TH)
  - ☐ A They multiplied instead of adding
  - ☐ B They forgot to double it
  - ☐ C They found the perimeter instead of the area
  - ☐ D They measured the wrong sides
- 4 A rectangle is **5 cm by 4 cm**. Asked for the **area**, a student answered **18 cm**.  
What went wrong? (E2.7 · TH)
  - ☐ A They found the perimeter instead of the area
  - ☐ B They forgot to double it
  - ☐ C They measured the wrong sides
  - ☐ D They multiplied instead of adding
- 5 A rectangle is **7 cm by 2 cm**. Asked for the **area**, a student answered **18 cm**.  
What went wrong? (E2.7 · TH)
  - ☐ A They found the perimeter instead of the area
  - ☐ B They measured the wrong sides
  - ☐ C They forgot to double it
  - ☐ D They multiplied instead of adding
- 6 A rectangle is **6 cm by 3 cm**. Asked for the **area**, a student answered **18 cm**.  
What went wrong? (E2.7 · TH)
  - ☐ A They found the perimeter instead of the area
  - ☐ B They measured the wrong sides
  - ☐ C They multiplied instead of adding
  - ☐ D They forgot to double it

- 7 A rectangle is **8 cm by 5 cm**. Asked for the **area**, a student answered **26 cm**.  
What went wrong? (E2.7 · TH)
- ☐ A They measured the wrong sides
- ☐ B They multiplied instead of adding
- ☐ C They forgot to double it
- ☐ D They found the perimeter instead of the area
- 8 A rectangle is **5 cm by 4 cm**. Asked for the **area**, a student answered **18 cm**.  
What went wrong? (E2.7 · TH)
- ☐ A They multiplied instead of adding
- ☐ B They measured the wrong sides
- ☐ C They found the perimeter instead of the area
- ☐ D They forgot to double it
- 9 A rectangle is **5 cm by 4 cm**. Asked for the **area**, a student answered **18 cm**.  
What went wrong? (E2.7 · TH)
- ☐ A They measured the wrong sides
- ☐ B They forgot to double it
- ☐ C They multiplied instead of adding
- ☐ D They found the perimeter instead of the area
- 10 A rectangle is **8 cm by 5 cm**. Asked for the **area**, a student answered **26 cm**.  
What went wrong? (E2.7 · TH)
- ☐ A They multiplied instead of adding
- ☐ B They found the perimeter instead of the area
- ☐ C They forgot to double it
- ☐ D They measured the wrong sides
- 11 A rectangle is **5 cm by 4 cm**. Asked for the **area**, a student answered **18 cm**.  
What went wrong? (E2.7 · TH)
- ☐ A They forgot to double it
- ☐ B They measured the wrong sides
- ☐ C They multiplied instead of adding
- ☐ D They found the perimeter instead of the area
- 12 A rectangle is **5 cm by 4 cm**. Asked for the **area**, a student answered **18 cm**.  
What went wrong? (E2.7 · TH)
- ☐ A They measured the wrong sides
- ☐ B They found the perimeter instead of the area
- ☐ C They forgot to double it
- ☐ D They multiplied instead of adding

Twelve fresh questions. The answer key at the back gives the reason and the expectation code — for the child to check their own work afterwards, not for marking.

# Spot The Mistake — Pictographs

**MISTAKE** Strand D · Data — 8 of the 40 questions (20%) · D1.3

**They counted the symbols instead of using the key.**

- 1 A pictograph key says **one ■ = 10 pots**. There are **4** symbols for red. A student answered **4**.  
What went wrong? (D1.3 · TH)
  - ☐ A They used the wrong row
  - ☐ B They forgot to add the other colours
  - ☐ C They counted the symbols wrongly
  - ☐ D They counted the symbols instead of using the key
- 2 A pictograph key says **one ■ = 2 pots**. There are **4** symbols for red. A student answered **4**.  
What went wrong? (D1.3 · TH)
  - ☐ A They used the wrong row
  - ☐ B They forgot to add the other colours
  - ☐ C They counted the symbols wrongly
  - ☐ D They counted the symbols instead of using the key
- 3 A pictograph key says **one ■ = 10 pots**. There are **7** symbols for red. A student answered **7**.  
What went wrong? (D1.3 · TH)
  - ☐ A They used the wrong row
  - ☐ B They forgot to add the other colours
  - ☐ C They counted the symbols instead of using the key
  - ☐ D They counted the symbols wrongly
- 4 A pictograph key says **one ■ = 5 pots**. There are **5** symbols for red. A student answered **5**.  
What went wrong? (D1.3 · TH)
  - ☐ A They used the wrong row
  - ☐ B They counted the symbols wrongly
  - ☐ C They forgot to add the other colours
  - ☐ D They counted the symbols instead of using the key
- 5 A pictograph key says **one ■ = 10 pots**. There are **7** symbols for red. A student answered **7**.  
What went wrong? (D1.3 · TH)
  - ☐ A They counted the symbols wrongly
  - ☐ B They used the wrong row
  - ☐ C They forgot to add the other colours
  - ☐ D They counted the symbols instead of using the key
- 6 A pictograph key says **one ■ = 4 pots**. There are **4** symbols for red. A student answered **4**.  
What went wrong? (D1.3 · TH)
  - ☐ A They counted the symbols instead of using the key
  - ☐ B They counted the symbols wrongly
  - ☐ C They forgot to add the other colours
  - ☐ D They used the wrong row

- 7 A pictograph key says **one ■ = 2 pots**. There are **6** symbols for red. A student answered **6**.  
What went wrong? (D1.3 · TH)
- ☐ A They forgot to add the other colours
  - ☐ B They counted the symbols wrongly
  - ☐ C They used the wrong row
  - ☐ D They counted the symbols instead of using the key
- 8 A pictograph key says **one ■ = 10 pots**. There are **7** symbols for red. A student answered **7**.  
What went wrong? (D1.3 · TH)
- ☐ A They counted the symbols wrongly
  - ☐ B They used the wrong row
  - ☐ C They forgot to add the other colours
  - ☐ D They counted the symbols instead of using the key
- 9 A pictograph key says **one ■ = 5 pots**. There are **7** symbols for red. A student answered **7**.  
What went wrong? (D1.3 · TH)
- ☐ A They forgot to add the other colours
  - ☐ B They used the wrong row
  - ☐ C They counted the symbols wrongly
  - ☐ D They counted the symbols instead of using the key
- 10 A pictograph key says **one ■ = 5 pots**. There are **6** symbols for red. A student answered **6**.  
What went wrong? (D1.3 · TH)
- ☐ A They counted the symbols instead of using the key
  - ☐ B They counted the symbols wrongly
  - ☐ C They forgot to add the other colours
  - ☐ D They used the wrong row
- 11 A pictograph key says **one ■ = 4 pots**. There are **7** symbols for red. A student answered **7**.  
What went wrong? (D1.3 · TH)
- ☐ A They used the wrong row
  - ☐ B They counted the symbols instead of using the key
  - ☐ C They counted the symbols wrongly
  - ☐ D They forgot to add the other colours
- 12 A pictograph key says **one ■ = 10 pots**. There are **3** symbols for red. A student answered **3**.  
What went wrong? (D1.3 · TH)
- ☐ A They used the wrong row
  - ☐ B They counted the symbols wrongly
  - ☐ C They counted the symbols instead of using the key
  - ☐ D They forgot to add the other colours

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# Spot The Mistake — Pattern Gaps

**MISTAKE** Strand C · Algebra — 8 of the 40 questions (20%) · C1.3

They counted the blanks instead of the jumps. Draw the arrows.

- 1 A pattern goes 27, \_\_\_\_, \_\_\_\_, 36. A student said the rule was add 4.  
What went wrong? (C1.3 · TH)
  - ☐ A They counted the blanks instead of the jumps
  - ☐ B They started from the wrong number
  - ☐ C They added instead of subtracting
  - ☐ D They used the last number as the rule
- 2 A pattern goes 30, \_\_\_\_, \_\_\_\_, 45. A student said the rule was add 7.  
What went wrong? (C1.3 · TH)
  - ☐ A They used the last number as the rule
  - ☐ B They started from the wrong number
  - ☐ C They added instead of subtracting
  - ☐ D They counted the blanks instead of the jumps
- 3 A pattern goes 20, \_\_\_\_, \_\_\_\_, 35. A student said the rule was add 7.  
What went wrong? (C1.3 · TH)
  - ☐ A They added instead of subtracting
  - ☐ B They started from the wrong number
  - ☐ C They used the last number as the rule
  - ☐ D They counted the blanks instead of the jumps
- 4 A pattern goes 6, \_\_\_\_, \_\_\_\_, 15. A student said the rule was add 4.  
What went wrong? (C1.3 · TH)
  - ☐ A They started from the wrong number
  - ☐ B They added instead of subtracting
  - ☐ C They counted the blanks instead of the jumps
  - ☐ D They used the last number as the rule
- 5 A pattern goes 6, \_\_\_\_, \_\_\_\_, 15. A student said the rule was add 4.  
What went wrong? (C1.3 · TH)
  - ☐ A They used the last number as the rule
  - ☐ B They started from the wrong number
  - ☐ C They added instead of subtracting
  - ☐ D They counted the blanks instead of the jumps
- 6 A pattern goes 16, \_\_\_\_, \_\_\_\_, 31. A student said the rule was add 7.  
What went wrong? (C1.3 · TH)
  - ☐ A They added instead of subtracting
  - ☐ B They counted the blanks instead of the jumps
  - ☐ C They used the last number as the rule
  - ☐ D They started from the wrong number

- 7 A pattern goes 25, \_\_\_\_, \_\_\_\_, 34. A student said the rule was add 4.  
What went wrong? (C1.3 · TH)
- ☐ A They counted the blanks instead of the jumps
  - ☐ B They started from the wrong number
  - ☐ C They used the last number as the rule
  - ☐ D They added instead of subtracting
- 8 A pattern goes 6, \_\_\_\_, \_\_\_\_, 21. A student said the rule was add 7.  
What went wrong? (C1.3 · TH)
- ☐ A They started from the wrong number
  - ☐ B They counted the blanks instead of the jumps
  - ☐ C They added instead of subtracting
  - ☐ D They used the last number as the rule
- 9 A pattern goes 17, \_\_\_\_, \_\_\_\_, 26. A student said the rule was add 4.  
What went wrong? (C1.3 · TH)
- ☐ A They added instead of subtracting
  - ☐ B They started from the wrong number
  - ☐ C They counted the blanks instead of the jumps
  - ☐ D They used the last number as the rule
- 10 A pattern goes 23, \_\_\_\_, \_\_\_\_, 35. A student said the rule was add 6.  
What went wrong? (C1.3 · TH)
- ☐ A They used the last number as the rule
  - ☐ B They added instead of subtracting
  - ☐ C They started from the wrong number
  - ☐ D They counted the blanks instead of the jumps
- 11 A pattern goes 7, \_\_\_\_, \_\_\_\_, 16. A student said the rule was add 4.  
What went wrong? (C1.3 · TH)
- ☐ A They used the last number as the rule
  - ☐ B They counted the blanks instead of the jumps
  - ☐ C They added instead of subtracting
  - ☐ D They started from the wrong number
- 12 A pattern goes 8, \_\_\_\_, \_\_\_\_, 17. A student said the rule was add 4.  
What went wrong? (C1.3 · TH)
- ☐ A They counted the blanks instead of the jumps
  - ☐ B They used the last number as the rule
  - ☐ C They started from the wrong number
  - ☐ D They added instead of subtracting

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# Spot The Mistake – Change

**MISTAKE** Strand B · Number and Financial Literacy — 14 of the 40 questions (35%) · F1.1

**They gave the price back instead of the change.**

- 1 Something costs **\$1.80** and the customer pays with **\$5.00**. A student answered **\$1.80**.  
What went wrong? (F1.1 · TH)
  - ☐ A They added instead of subtracting
  - ☐ B They gave the price back instead of the change
  - ☐ C They forgot the dollar sign
  - ☐ D They subtracted the wrong way round
- 2 Something costs **\$4.40** and the customer pays with **\$5.00**. A student answered **\$4.40**.  
What went wrong? (F1.1 · TH)
  - ☐ A They added instead of subtracting
  - ☐ B They gave the price back instead of the change
  - ☐ C They forgot the dollar sign
  - ☐ D They subtracted the wrong way round
- 3 Something costs **\$2.20** and the customer pays with **\$5.00**. A student answered **\$2.20**.  
What went wrong? (F1.1 · TH)
  - ☐ A They gave the price back instead of the change
  - ☐ B They added instead of subtracting
  - ☐ C They subtracted the wrong way round
  - ☐ D They forgot the dollar sign
- 4 Something costs **\$1.40** and the customer pays with **\$5.00**. A student answered **\$1.40**.  
What went wrong? (F1.1 · TH)
  - ☐ A They gave the price back instead of the change
  - ☐ B They subtracted the wrong way round
  - ☐ C They forgot the dollar sign
  - ☐ D They added instead of subtracting
- 5 Something costs **\$3.95** and the customer pays with **\$5.00**. A student answered **\$3.95**.  
What went wrong? (F1.1 · TH)
  - ☐ A They gave the price back instead of the change
  - ☐ B They added instead of subtracting
  - ☐ C They forgot the dollar sign
  - ☐ D They subtracted the wrong way round
- 6 Something costs **\$2.15** and the customer pays with **\$5.00**. A student answered **\$2.15**.  
What went wrong? (F1.1 · TH)
  - ☐ A They added instead of subtracting
  - ☐ B They forgot the dollar sign
  - ☐ C They subtracted the wrong way round
  - ☐ D They gave the price back instead of the change

- 7 Something costs \$4.10 and the customer pays with \$5.00. A student answered \$4.10.  
What went wrong? (F1.1 · TH)
- ☐ A They added instead of subtracting
  - ☐ B They forgot the dollar sign
  - ☐ C They gave the price back instead of the change
  - ☐ D They subtracted the wrong way round
- 8 Something costs \$4.55 and the customer pays with \$5.00. A student answered \$4.55.  
What went wrong? (F1.1 · TH)
- ☐ A They added instead of subtracting
  - ☐ B They forgot the dollar sign
  - ☐ C They subtracted the wrong way round
  - ☐ D They gave the price back instead of the change
- 9 Something costs \$4.70 and the customer pays with \$5.00. A student answered \$4.70.  
What went wrong? (F1.1 · TH)
- ☐ A They subtracted the wrong way round
  - ☐ B They gave the price back instead of the change
  - ☐ C They forgot the dollar sign
  - ☐ D They added instead of subtracting
- 10 Something costs \$3.75 and the customer pays with \$5.00. A student answered \$3.75.  
What went wrong? (F1.1 · TH)
- ☐ A They added instead of subtracting
  - ☐ B They forgot the dollar sign
  - ☐ C They subtracted the wrong way round
  - ☐ D They gave the price back instead of the change
- 11 Something costs \$4.20 and the customer pays with \$5.00. A student answered \$4.20.  
What went wrong? (F1.1 · TH)
- ☐ A They subtracted the wrong way round
  - ☐ B They added instead of subtracting
  - ☐ C They gave the price back instead of the change
  - ☐ D They forgot the dollar sign
- 12 Something costs \$4.30 and the customer pays with \$5.00. A student answered \$4.30.  
What went wrong? (F1.1 · TH)
- ☐ A They forgot the dollar sign
  - ☐ B They subtracted the wrong way round
  - ☐ C They added instead of subtracting
  - ☐ D They gave the price back instead of the change

Twelve fresh questions. The answer key at the back gives the reason and the expectation code — for the child to check their own work afterwards, not for marking.

# Two Steps

**TWO-STEP** Strand B · Number and Financial Literacy — 14 of the 40 questions (35%) · B2.5 · B2.6

Ask how many steps **BEFORE** you start. Then check you did them all.

- 1 A tray holds 5 rows of 5 pots. 4 pots are cracked and thrown away. How many good pots are left? B2.6 · TH  
☐ A 29 ☐ B 6  
☐ C 25 ☐ D 21
- 2 A tray holds 3 rows of 5 pots. 2 pots are cracked and thrown away. How many good pots are left? B2.6 · TH  
☐ A 17 ☐ B 13  
☐ C 15 ☐ D 6
- 3 Brushes come in packs of 5. You buy 6 packs and find 7 loose brushes in a drawer. How many altogether? B2.6 · TH  
☐ A 37 ☐ B 23  
☐ C 18 ☐ D 30
- 4 Brushes come in packs of 10. You buy 5 packs and find 4 loose brushes in a drawer. How many altogether? B2.6 · TH  
☐ A 19 ☐ B 50  
☐ C 54 ☐ D 46
- 5 Marigold mixes 370 ml of green with 90 ml of blue, then pours out 120 ml. How much is left? B2.5 · TH  
☐ A 250 ☐ B 460  
☐ C 340 ☐ D 280
- 6 Marigold mixes 130 ml of green with 100 ml of blue, then pours out 90 ml. How much is left? B2.5 · TH  
☐ A 230 ☐ B 30  
☐ C 40 ☐ D 140
- 7 Brushes come in packs of 10. You buy 3 packs and find 7 loose brushes in a drawer. How many altogether? B2.6 · TH  
☐ A 23 ☐ B 37  
☐ C 30 ☐ D 20
- 8 Brushes come in packs of 5. You buy 8 packs and find 3 loose brushes in a drawer. How many altogether? B2.6 · TH  
☐ A 40 ☐ B 37  
☐ C 16 ☐ D 43
- 9 A tray holds 3 rows of 5 pots. 4 pots are cracked and thrown away. How many good pots are left? B2.6 · TH  
☐ A 19 ☐ B 11  
☐ C 15 ☐ D 4
- 10 Brushes come in packs of 10. You buy 5 packs and find 7 loose brushes in a drawer. How many altogether? B2.6 · TH  
☐ A 22 ☐ B 57  
☐ C 50 ☐ D 43

- 11 Brushes come in packs of 5. You buy 8 packs and find 3 loose brushes in a drawer. How many altogether?

B2.6 · TH

- ☐ A 40  
☐ C 16

- ☐ B 37  
☐ D 43

- 12 Brushes come in packs of 5. You buy 6 packs and find 4 loose brushes in a drawer. How many altogether?

B2.6 · TH

- ☐ A 15  
☐ C 34

- ☐ B 26  
☐ D 30

Twelve fresh questions. The answer key at the back gives the reason and the expectation code – for the child to check their own work afterwards, not for marking.

# Area, Then Cost

**TWO-STEP** Strand E · Spatial Sense — 10 of the 40 questions (25%) · E2.8

Count the squares first. Then work out the money.

- 1 A picture is 6 squares by 2 squares. Glass costs \$5 a square. What does the glass cost? E2.8 · TH  
☐ A \$12 ☐ B \$60  
☐ C \$40 ☐ D \$17
- 2 A picture is 5 squares by 4 squares. Glass costs \$2 a square. What does the glass cost? E2.8 · TH  
☐ A \$18 ☐ B \$22  
☐ C \$20 ☐ D \$40
- 3 A picture is 3 squares by 3 squares. Glass costs \$2 a square. What does the glass cost? E2.8 · TH  
☐ A \$12 ☐ B \$11  
☐ C \$18 ☐ D \$9
- 4 A picture is 3 squares by 3 squares. Glass costs \$10 a square. What does the glass cost? E2.8 · TH  
☐ A \$9 ☐ B \$19  
☐ C \$60 ☐ D \$90
- 5 A picture is 5 squares by 4 squares. Glass costs \$2 a square. What does the glass cost? E2.8 · TH  
☐ A \$40 ☐ B \$20  
☐ C \$18 ☐ D \$22
- 6 A picture is 6 squares by 2 squares. Glass costs \$5 a square. What does the glass cost? E2.8 · TH  
☐ A \$40 ☐ B \$17  
☐ C \$12 ☐ D \$60
- 7 A picture is 5 squares by 4 squares. Glass costs \$2 a square. What does the glass cost? E2.8 · TH  
☐ A \$20 ☐ B \$18  
☐ C \$22 ☐ D \$40
- 8 A picture is 3 squares by 3 squares. Glass costs \$10 a square. What does the glass cost? E2.8 · TH  
☐ A \$9 ☐ B \$19  
☐ C \$60 ☐ D \$90
- 9 A picture is 4 squares by 3 squares. Glass costs \$2 a square. What does the glass cost? E2.8 · TH  
☐ A 27 ☐ B \$14  
☐ C \$12 ☐ D \$24
- 10 A picture is 3 squares by 3 squares. Glass costs \$5 a square. What does the glass cost? E2.8 · TH  
☐ A \$30 ☐ B \$9  
☐ C \$45 ☐ D \$14
- 11 A picture is 3 squares by 3 squares. Glass costs \$5 a square. What does the glass cost? E2.8 · TH  
☐ A \$9 ☐ B \$45  
☐ C \$30 ☐ D \$14

12 A picture is 6 squares by 2 squares. Glass costs \$5 a square. What does the glass cost? E2.8 · TH

☐ A \$12

☐ B \$40

☐ C \$60

☐ D \$17

Twelve fresh questions. The answer key at the back gives the reason and the expectation code — for the child to check their own work afterwards, not for marking.

# Good Guessing

**ESTIMATE** Strand B · Number and Financial Literacy – 14 of the 40 questions (35%) · B2.3 · B1.3

Round it first. Then ask: does my exact answer look about right?

- 1 Without working it out exactly, about how much is  $406 + 419$ ? (B2.3 · TH)
 

☐ A about 406  
☐ C about 1000

☐ B about 800  
☐ D about 0
- 2 Which is a **sensible** estimate for the number of pots on one shelf? (B2.3 · TH)
 

☐ A about 2400  
☐ C about 24000

☐ B about 2  
☐ D about 24
- 3 Which is a **sensible** estimate for the number of pots on one shelf? (B2.3 · TH)
 

☐ A about 6700  
☐ C about 6

☐ B about 67000  
☐ D about 67
- 4 Which is a **sensible** estimate for the number of pots on one shelf? (B2.3 · TH)
 

☐ A about 5  
☐ C about 5500

☐ B about 55000  
☐ D about 55
- 5 Which is a **sensible** estimate for the number of pots on one shelf? (B2.3 · TH)
 

☐ A about 6  
☐ C about 6700

☐ B about 67  
☐ D about 67000
- 6 Which is a **sensible** estimate for the number of pots on one shelf? (B2.3 · TH)
 

☐ A about 4  
☐ C about 4000

☐ B about 40000  
☐ D about 40
- 7 Round **436** to the nearest **hundred**. (B1.3 · KU)
 

☐ A 400  
☐ C 30

☐ B 500  
☐ D 440
- 8 Without working it out exactly, about how much is  $285 + 393$ ? (B2.3 · TH)
 

☐ A about 285  
☐ C about 900

☐ B about 100  
☐ D about 700
- 9 Round **401** to the nearest **hundred**. (B1.3 · KU)
 

☐ A 33  
☐ C 400

☐ B 500  
☐ D 3
- 10 Without working it out exactly, about how much is  $274 + 441$ ? (B2.3 · TH)
 

☐ A about 700  
☐ C about 900

☐ B about 274  
☐ D about 100
- 11 Round **913** to the nearest **hundred**. (B1.3 · KU)
 

☐ A 910  
☐ C 78

☐ B 900  
☐ D 1000

**12** Without working it out exactly, about how much is  $443 + 465$ ? B2.3 · TH

☐ A about 100

☐ B about 900

☐ C about 443

☐ D about 1100

Twelve fresh questions. The answer key at the back gives the reason and the expectation code — for the child to check their own work afterwards, not for marking.

# Working Backwards

**BACKWARDS** Strand B · Number and Financial Literacy — 14 of the 40 questions (35%) · B2.6 · F1.1 · C1.3

You are given the answer. Find what went in.

- 1 Some brushes were shared equally between 4 people and each got 4. How many were there to start? B2.1 · TH

☐ A 8  
☐ C 16

☐ B 33  
☐ D 4
- 2 A pattern has the rule add 10. Its 7th number is 37. What number did it start on? C1.3 · TH

☐ A 47  
☐ C 27

☐ B -23  
☐ D -13
- 3 A pattern has the rule add 10. Its 6th number is 40. What number did it start on? C1.3 · TH

☐ A 30  
☐ C -10

☐ B 0  
☐ D 50
- 4 A tray holds 20 pots in 2 equal rows. How many in each row? B2.6 · TH

☐ A 18  
☐ C 20

☐ B 2  
☐ D 10
- 5 A pattern has the rule add 5. Its 5th number is 49. What number did it start on? C1.3 · TH

☐ A 54  
☐ C 34

☐ B 29  
☐ D 44
- 6 A tray holds 20 pots in 4 equal rows. How many in each row? B2.6 · TH

☐ A 16  
☐ C 5

☐ B 20  
☐ D 4
- 7 Some brushes were shared equally between 2 people and each got 2. How many were there to start? B2.1 · TH

☐ A 2  
☐ C 4

☐ B 70  
☐ D 26
- 8 Some brushes were shared equally between 5 people and each got 6. How many were there to start? B2.1 · TH

☐ A 11  
☐ C 30

☐ B 5  
☐ D 6
- 9 A customer paid with \$5.00 and got \$2.65 change. What did the item cost? F1.1 · TH

☐ A \$2.35  
☐ C \$2.65

☐ B \$5.00  
☐ D \$7.65
- 10 A tray holds 50 pots in 5 equal rows. How many in each row? B2.6 · TH

☐ A 45  
☐ C 50

☐ B 5  
☐ D 10

**11** A customer paid with \$5.00 and got \$2.35 change. What did the item cost? F1.1 · TH

☐ A \$2.35

☐ B \$2.65

☐ C \$5.00

☐ D \$7.35

**12** A tray holds 50 pots in 5 equal rows. How many in each row? B2.6 · TH

☐ A 10

☐ B 50

☐ C 5

☐ D 45

Twelve fresh questions. The answer key at the back gives the reason and the expectation code — for the child to check their own work afterwards, not for marking.

# Fill In Every Box

**FORMAT** Strand B · Number and Financial Literacy — 14 of the 40 questions (35%) · C2.2 · E1.1 · D2.1

**More than one answer is right. Do not stop at the first one.**

- 1 Select **every** number you would say counting by 10s. (B1.4 · KU)

Fill in every box that applies.

- |                               |                               |
|-------------------------------|-------------------------------|
| <input type="checkbox"/> A 41 | <input type="checkbox"/> B 21 |
| <input type="checkbox"/> C 31 | <input type="checkbox"/> D 60 |
| <input type="checkbox"/> E 50 |                               |

- 2 Select **every** solid that has no vertices. (E1.1 · KU)

Fill in every box that applies.

- |                                           |                                             |
|-------------------------------------------|---------------------------------------------|
| <input type="checkbox"/> A cylinder       | <input type="checkbox"/> B sphere           |
| <input type="checkbox"/> C square pyramid | <input type="checkbox"/> D triangular prism |
| <input type="checkbox"/> E cube           |                                             |

- 3 Select **every** number you would say counting by 2s. (B1.4 · KU)

Fill in every box that applies.

- |                               |                              |
|-------------------------------|------------------------------|
| <input type="checkbox"/> A 16 | <input type="checkbox"/> B 4 |
| <input type="checkbox"/> C 9  | <input type="checkbox"/> D 7 |
| <input type="checkbox"/> E 5  |                              |

- 4 A spinner has 8 equal parts: 6 red, 1 blue, 1 green. Select **every** true statement. (D2.1 · TH)

Fill in every box that applies.

- ☐ A landing on red is likely  
☐ B red and blue are equally likely  
☐ C landing on blue is unlikely  
☐ D landing on green is certain  
☐ E landing on red is impossible

- 5 Select **every** number you would say counting by 5s. (B1.4 · KU)

Fill in every box that applies.

- |                               |                               |
|-------------------------------|-------------------------------|
| <input type="checkbox"/> A 30 | <input type="checkbox"/> B 35 |
| <input type="checkbox"/> C 11 | <input type="checkbox"/> D 26 |
| <input type="checkbox"/> E 21 |                               |

- 6 Select **every** number you would say counting by 2s. (B1.4 · KU)

Fill in every box that applies.

- |                               |                               |
|-------------------------------|-------------------------------|
| <input type="checkbox"/> A 6  | <input type="checkbox"/> B 11 |
| <input type="checkbox"/> C 10 | <input type="checkbox"/> D 13 |
| <input type="checkbox"/> E 9  |                               |

- 7 Select **every** number you would say counting by 5s. (B1.4 · KU)

Fill in every box that applies.

- |                               |                               |
|-------------------------------|-------------------------------|
| <input type="checkbox"/> A 21 | <input type="checkbox"/> B 25 |
| <input type="checkbox"/> C 26 | <input type="checkbox"/> D 11 |
| <input type="checkbox"/> E 15 |                               |

**8** Select **every** one that equals 20. C2.2 · AP

Fill in every box that applies.

☐ A  $20 + 0$

☐ B  $10 + 10$

☐ C  $20 \times 2$

☐ D  $20 - 3$

**9** A spinner has 8 equal parts: 6 red, 1 blue, 1 green. Select **every** true statement. D2.1 · TH

Fill in every box that applies.

☐ A red and blue are equally likely

☐ B landing on red is impossible

☐ C landing on green is certain

☐ D landing on red is likely

☐ E landing on blue is unlikely

**10** Select **every** one that equals 16. C2.2 · AP

Fill in every box that applies.

☐ A  $16 + 0$

☐ B  $21 - 5$

☐ C  $16 \times 2$

☐ D  $16 - 3$

**11** Select **every** solid that has no vertices. E1.1 · KU

Fill in every box that applies.

☐ A cube

☐ B cylinder

☐ C square pyramid

☐ D sphere

☐ E triangular prism

**12** Select **every** number you would say counting by 2s. B1.4 · KU

Fill in every box that applies.

☐ A 8

☐ B 4

☐ C 13

☐ D 5

☐ E 9

Twelve fresh questions. The answer key at the back gives the reason and the expectation code – for the child to check their own work afterwards, not for marking.

# Put Them In Order

**FORMAT** Strand B · Number and Financial Literacy — 14 of the 40 questions (35%) · B1.2 · E2.2 · B1.7

On a screen you would drag these. Work out every value first.

- 1 Which list is in order from **smallest to largest**? B1.2 · AP

☐ A 408, 318, 480, 183

☐ C 480, 408, 318, 183

☐ B 183, 318, 408, 480

☐ D 53
- 2 Which list is in order from **smallest to largest**? B1.2 · AP

☐ A 804, 480, 408, 48

☐ C 804, 408, 48, 480

☐ B 408, 48, 480, 804

☐ D 48, 408, 480, 804
- 3 Which list is in order from **shortest to longest**? E2.2 · TH

☐ A 30 mm → 3 cm → 12 cm

☐ C 81

☐ B 12 cm → 3 cm → 30 mm

☐ D 12 cm → 30 mm → 3 cm
- 4 Which list is in order from **smallest to largest**? B1.2 · AP

☐ A 804, 480, 183, 48

☐ C 804, 48, 480, 183

☐ B 48, 183, 480, 804

☐ D 183, 48, 480, 804
- 5 Which list is in order from **shortest to longest**? E2.2 · TH

☐ A 12 cm → 2 m → 500 mm

☐ C 2

☐ B 12 cm → 500 mm → 2 m

☐ D 2 m → 500 mm → 12 cm
- 6 Which list of fractions is in order from **smallest to largest**? B1.7 · TH

☐ A  $\frac{2}{3}$ ,  $\frac{1}{2}$ ,  $\frac{1}{8}$

☐ C  $\frac{1}{8}$ ,  $\frac{1}{2}$ ,  $\frac{2}{3}$

☐ B  $\frac{1}{2}$ ,  $\frac{1}{8}$ ,  $\frac{2}{3}$

☐ D 43
- 7 Which list of fractions is in order from **smallest to largest**? B1.7 · TH

☐ A 6

☐ C  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{8}$

☐ B 52

☐ D  $\frac{1}{8}$ ,  $\frac{1}{3}$ ,  $\frac{1}{2}$
- 8 Which list is in order from **shortest to longest**? E2.2 · TH

☐ A 65

☐ C 500 mm → 3 cm → 30 mm

☐ B 500 mm → 30 mm → 3 cm

☐ D 3 cm → 30 mm → 500 mm
- 9 Which list of fractions is in order from **smallest to largest**? B1.7 · TH

☐ A  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{3}{4}$

☐ C  $\frac{1}{3}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$

☐ B  $\frac{3}{4}$ ,  $\frac{1}{2}$ ,  $\frac{1}{3}$

☐ D 98
- 10 Which list of fractions is in order from **smallest to largest**? B1.7 · TH

☐ A  $\frac{3}{4}$ ,  $\frac{1}{2}$ ,  $\frac{1}{8}$

☐ C  $\frac{1}{8}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$

☐ B 19

☐ D  $\frac{1}{2}$ ,  $\frac{1}{8}$ ,  $\frac{3}{4}$
- 11 Which list is in order from **smallest to largest**? B1.2 · AP

☐ A 318, 408, 702, 804

☐ C 804, 702, 408, 318

☐ B 35

☐ D 702, 804, 408, 318

**12** Which list of fractions is in order from **smallest to largest**? B1.7 · TH

☐ A 14

☐ B  $\frac{1}{8}$ ,  $\frac{1}{4}$ ,  $\frac{1}{3}$

☐ C 15

☐ D  $\frac{1}{3}$ ,  $\frac{1}{4}$ ,  $\frac{1}{8}$

Twelve fresh questions. The answer key at the back gives the reason and the expectation code – for the child to check their own work afterwards, not for marking.

# Week 1

Ten questions, mixed the way the real assessment is mixed – four Number, two Spatial Sense, two Algebra, two Data.

**One week at a time. Ten questions is about fifteen minutes, which is the point – short enough that it actually happens.**

- 1 With **base ten materials**, 4 hundred-flats, 0 ten-rods and 1 unit-cubes are laid out. What number is that?

B1.5 · KU

- ☐ A 5 ☐ B 410  
☐ C 41 ☐ D 401

- 2 Marigold mixes **310 ml** of green with **240 ml** of blue, then pours out **150 ml**. How much is left? B2.5 · TH

- ☐ A 400 ☐ B 70  
☐ C 550 ☐ D 160

- 3 A spinner has 8 equal parts: 6 red, 1 blue, 1 green. Select **every** true statement. D2.1 · TH

Fill in every box that applies.

- ☐ A landing on red is impossible  
☐ B landing on green is certain  
☐ C red and blue are equally likely  
☐ D landing on blue is unlikely  
☐ E landing on red is likely

- 4 On a **hundreds chart** you are on **64**. You move **two squares right**. What number are you on? B1.4 · AP

- ☐ A 66 ☐ B 74  
☐ C 62 ☐ D 84

- 5 A picture is **5 squares by 4 squares**. Glass costs **\$5 a square**. What does the glass cost? E2.8 · TH

- ☐ A \$100 ☐ B \$25  
☐ C \$45 ☐ D \$20

- 6 A **digital clock** shows **9:55**. Where is the **minute hand** on an **analog clock** showing the same time? E2.6 · AP

- ☐ A pointing at the 11 on the clock face  
☐ B pointing at the 9  
☐ C pointing at the 55  
☐ D pointing at the 2

- 7 A **table of values** shows: (1, 9) · (2, 13) · (3, 17)

What is the **term value** when the **position number** is 6? C1.2 · AP

- ☐ A 24 ☐ B 6  
☐ C 33 ☐ D 29

- 8 Counting **backward**: **500, 450, 400, 350, ...** What comes next? C1.4 · AP

- ☐ A 250 ☐ B 400  
☐ C 300 ☐ D 349

9 A line plot of brushes per jar:

1 •  
3 •  
4 •  
5 •  
6 ••

How many jars had 4 brushes? D1.3 · KU

☐ A 1

☐ B 2

☐ C 6

☐ D 4

10 A bar graph is scaled so that one square = 5 pots. The green bar is 6 squares tall. How many pots is that?

D1.5 · AP

☐ A 6

☐ B 30

☐ C 35

☐ D 5

Weekly beats daily. Mark against the expectation code, not out of ten. A code missed twice is worth teaching; one miss is noise.

## Week 2

Ten questions, mixed the way the real assessment is mixed – four Number, two Spatial Sense, two Algebra, two Data.

**One week at a time. Ten questions is about fifteen minutes, which is the point – short enough that it actually happens.**

- 1 Which list of fractions is in order from **smallest to largest**? B1.7 · TH

☐ A  $\frac{3}{4}$ ,  $\frac{1}{2}$ ,  $\frac{1}{4}$   
☐ C 53

☐ B  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{3}{4}$   
☐ D  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$
- 2 Is **137** an **even number** or an **odd number**? B1.1 · KU

☐ A neither  
☐ C both

☐ B even  
☐ D odd
- 3 Something costs **\$4.30** and the customer pays with **\$5.00**. A student answered **\$4.30**. What went wrong? F1.1 · TH

☐ A They forgot the dollar sign  
☐ B They subtracted the wrong way round  
☐ C They gave the price back instead of the change  
☐ D They added instead of subtracting
- 4 A tray holds **20** pots in **4** equal rows. How many in each row? B2.6 · TH

☐ A 20  
☐ C 5

☐ B 4  
☐ D 16
- 5 A picture is **4 squares by 3 squares**. Glass costs **\$2 a square**. What does the glass cost? E2.8 · TH

☐ A 12  
☐ C \$24

☐ B \$14  
☐ D \$12
- 6 A **digital clock** shows **2:50**. Where is the **minute hand** on an **analog clock** showing the same time? E2.6 · AP

☐ A pointing at the 1  
☐ B pointing at the 50  
☐ C pointing at the 10 on the clock face  
☐ D pointing at the 2
- 7 A pattern goes **14, \_\_, \_\_, 23**. A student said the rule was **add 4**. What went wrong? C1.3 · TH

☐ A They counted the blanks instead of the jumps  
☐ B They added instead of subtracting  
☐ C They used the last number as the rule  
☐ D They started from the wrong number
- 8 A **table of values** shows: **(1, 7) · (2, 9) · (3, 11)**  
 What is the **term value** when the **position number** is **6**? C1.2 · AP

☐ A 6  
☐ C 17

☐ B 19  
☐ D 12

- 9 Marigold wants to know which colour the whole school likes best. What should she do? D1.2 · TH
- ☐ A ask her three closest friends
  - ☐ B pick the colour she sells the most of
  - ☐ C ask lots of people and record every answer in a tally table
  - ☐ D guess, because she knows the shop well

10 A line plot of brushes per jar:

1   ●●●  
2   ●  
4   ●●●●  
5   ●

How many jars had 1 brushes? D1.3 · KU

- ☐ A 9
- ☐ B 1
- ☐ C 4
- ☐ D 3

Weekly beats daily. Mark against the expectation code, not out of ten. A code missed twice is worth teaching; one miss is noise.

## Week 3

Ten questions, mixed the way the real assessment is mixed – four Number, two Spatial Sense, two Algebra, two Data.

**One week at a time. Ten questions is about fifteen minutes, which is the point – short enough that it actually happens.**

- 1 Marigold mixes **330 ml** of green with **230 ml** of blue, then pours out **160 ml**. How much is left? (B2.5 · TH)
 

☐ A 100  
☐ C 400

☐ B 170  
☐ D 560
- 2 Select **every** solid that has **no vertices**. (E1.1 · KU)  
 Fill in every box that applies.
 

☐ A square pyramid  
☐ C cylinder  
☐ E triangular prism

☐ B cube  
☐ D sphere
- 3 Count **backward** by tens from **100**. What is the **fourth** number you say? (B1.4 · AP)
 

☐ A 70  
☐ C 60

☐ B 90  
☐ D 80
- 4 A student worked out **814 – 94** and got **730**.  
 What went wrong? (B2.5 · TH)
 

☐ A They lined the numbers up wrongly  
☐ B They added instead of subtracting  
☐ C They forgot to take the borrowed ten away from the tens column  
☐ D They forgot to write the hundreds digit
- 5 A picture is **6 squares by 2 squares**. Glass costs **\$2 a square**. What does the glass cost? (E2.8 · TH)
 

☐ A \$24  
☐ C \$12

☐ B \$16  
☐ D \$14
- 6 A **digital clock** shows **12:35**. Where is the **minute hand** on an **analog clock** showing the same time? (E2.6 · AP)
 

☐ A pointing at the 35  
☐ B pointing at the 12  
☐ C pointing at the 10  
☐ D pointing at the 7 on the clock face
- 7 What number goes in the box? **5 + □ = 12** (C2.1 · AP)
 

☐ A 12  
☐ C 17

☐ B 7  
☐ D 5
- 8 A pattern goes **20, \_\_\_\_, \_\_\_\_, 29**. A student said the rule was **add 4**.  
 What went wrong? (C1.3 · TH)
 

☐ A They started from the wrong number  
☐ B They used the last number as the rule  
☐ C They counted the blanks instead of the jumps  
☐ D They added instead of subtracting

9 Brush sizes sold: 9, 9, 9, 9.

Are the **mean** and the **mode** the same? (D2.2 · TH)

- ☐ A you cannot tell without more numbers
- ☐ B only if you sort them first
- ☐ C yes
- ☐ D no

10 Marigold wants to know which colour the whole school likes best. What should she do? (D1.2 · TH)

- ☐ A ask her three closest friends
- ☐ B ask lots of people and record every answer in a tally table
- ☐ C guess, because she knows the shop well
- ☐ D pick the colour she sells the most of

Weekly beats daily. Mark against the expectation code, not out of ten. A code missed twice is worth teaching; one miss is noise.

## Week 4

Ten questions, mixed the way the real assessment is mixed – four Number, two Spatial Sense, two Algebra, two Data.

**One week at a time. Ten questions is about fifteen minutes, which is the point – short enough that it actually happens.**

- 1 Is **180** an even number or an odd number? (B1.1 · KU)
 

☐ A both  
☐ C even

☐ B neither  
☐ D odd
- 2 Something costs **\$3.25** and the customer pays with **\$5.00**. A student answered **\$3.25**. What went wrong? (F1.1 · TH)
 

☐ A They subtracted the wrong way round  
☐ B They forgot the dollar sign  
☐ C They added instead of subtracting  
☐ D They gave the price back instead of the change
- 3 A pattern has the rule **add 10**. Its **6th** number is **36**. What number did it start on? (C1.3 · TH)
 

☐ A -14  
☐ C -4

☐ B 46  
☐ D 26
- 4 Marigold pours **12** jars, each **one half** full. How many **full** jars of paint is that altogether? (B2.7 · AP)
 

☐ A 6  
☐ C 12

☐ B 10  
☐ D 24
- 5 A picture is **4 squares by 3 squares**. Glass costs **\$5 a square**. What does the glass cost? (E2.8 · TH)
 

☐ A \$12  
☐ C \$17

☐ B \$35  
☐ D \$60
- 6 An **analog clock** has the hour hand just past **10** and the minute hand on the **12**. What would a **digital clock** show? (E2.6 · AP)
 

☐ A 13  
☐ C 0:10

☐ B 10:15  
☐ D 10:00
- 7 A border repeats: ■ ■ ▲ ■ ■ ▲ ■ ■ ▲  
How many shapes are in the **pattern core**? (C1.1 · KU)
 

☐ A 9  
☐ C 6

☐ B 3  
☐ D 4
- 8 What number goes in the box?  $7 + \square = 19$  (C2.1 · AP)
 

☐ A 7  
☐ C 12

☐ B 19  
☐ D 26
- 9 A pictograph key says **one ■ = 10 pots**. There are **3** symbols for red. A student answered **3**. What went wrong? (D1.3 · TH)
 

☐ A They counted the symbols instead of using the key  
☐ B They forgot to add the other colours  
☐ C They used the wrong row  
☐ D They counted the symbols wrongly

10 Brush sizes sold: 5, 5, 5, 5.

Are the **mean** and the **mode** the same? D2.2 · TH

- ☐ A yes
- ☐ B you cannot tell without more numbers
- ☐ C only if you sort them first
- ☐ D no

.....  
Weekly beats daily. Mark against the expectation code, not out of ten. A code missed twice is worth teaching; one miss is noise.

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# Week 5

Ten questions, mixed the way the real assessment is mixed – four Number, two Spatial Sense, two Algebra, two Data.

**One week at a time. Ten questions is about fifteen minutes, which is the point – short enough that it actually happens.**

- 1 A spinner has 8 equal parts: 6 red, 1 blue, 1 green. Select **every** true statement. D2.1 · TH  
Fill in every box that applies.
  - ☐ A landing on red is impossible
  - ☐ B red and blue are equally likely
  - ☐ C landing on blue is unlikely
  - ☐ D landing on green is certain
  - ☐ E landing on red is likely
- 2 Count **backward** by tens from **89**. What is the **fourth** number you say? B1.4 · AP
  - ☐ A 49
  - ☐ B 59
  - ☐ C 69
  - ☐ D 79
- 3 A student worked out **743 – 102** and got **651**.  
What went wrong? B2.5 · TH
  - ☐ A They forgot to write the hundreds digit
  - ☐ B They forgot to take the borrowed ten away from the tens column
  - ☐ C They lined the numbers up wrongly
  - ☐ D They added instead of subtracting
- 4 Which is a **sensible** estimate for the number of pots on one shelf? B2.3 · TH
  - ☐ A about 49000
  - ☐ B about 49
  - ☐ C about 4900
  - ☐ D about 4
- 5 A picture is **3 squares by 3 squares**. Glass costs **\$2 a square**. What does the glass cost? E2.8 · TH
  - ☐ A \$12
  - ☐ B \$11
  - ☐ C \$18
  - ☐ D \$9
- 6 An **analog clock** has the hour hand just past **6** and the minute hand on the **12**. What would a **digital clock** show? E2.6 · AP
  - ☐ A 6:00
  - ☐ B 99
  - ☐ C 6:15
  - ☐ D 0:06
- 7 A pattern: **5, 10, 20, 40, ...** What comes next? C1.4 · TH
  - ☐ A 60
  - ☐ B 120
  - ☐ C 45
  - ☐ D 80
- 8 A border repeats: ★ • ★ ★ • ★ ★ • ★  
How many shapes are in the **pattern core**? C1.1 · KU
  - ☐ A 6
  - ☐ B 9
  - ☐ C 3
  - ☐ D 4

- 9 A bar graph is scaled so that **one square = 5 pots**. The green bar is **3 squares** tall. How many pots is that?

D1.5 · AP

- ☐ A 15  
☐ C 20

- ☐ B 3  
☐ D 5

- 10 A pictograph key says **one ■ = 10 pots**. There are **3** symbols for red. A student answered **3**.  
What went wrong? D1.3 · TH

- ☐ A They forgot to add the other colours  
☐ B They counted the symbols wrongly  
☐ C They used the wrong row  
☐ D They counted the symbols instead of using the key

Weekly beats daily. Mark against the expectation code, not out of ten. A code missed twice is worth teaching; one miss is noise.

## Week 6

Ten questions, mixed the way the real assessment is mixed – four Number, two Spatial Sense, two Algebra, two Data.

**One week at a time. Ten questions is about fifteen minutes, which is the point – short enough that it actually happens.**

- 1 Something costs **\$2.05** and the customer pays with **\$5.00**. A student answered **\$2.05**.  
What went wrong? (F1.1 · TH)
  - ☐ A They forgot the dollar sign
  - ☐ B They added instead of subtracting
  - ☐ C They gave the price back instead of the change
  - ☐ D They subtracted the wrong way round
- 2 A pattern has the rule **add 5**. Its **4th** number is **39**. What number did it start on? (C1.3 · TH)
  - ☐ A 24
  - ☐ B 44
  - ☐ C 34
  - ☐ D 29
- 3 Marigold pours **10** jars, each **one half** full. How many **full** jars of paint is that altogether? (B2.7 · AP)
  - ☐ A 10
  - ☐ B 8
  - ☐ C 20
  - ☐ D 5
- 4 With **base ten materials**, 4 hundred-flats, 8 ten-rods and 7 unit-cubes are laid out. What number is that? (B1.5 · KU)
  - ☐ A 487
  - ☐ B 19
  - ☐ C 127
  - ☐ D 478
- 5 A picture is **4 squares by 3 squares**. Glass costs **\$2 a square**. What does the glass cost? (E2.8 · TH)
  - ☐ A \$24
  - ☐ B 84
  - ☐ C \$14
  - ☐ D \$12
- 6 A **digital clock** shows **12:20**. Where is the **minute hand** on an **analog clock** showing the same time? (E2.6 · AP)
  - ☐ A pointing at the 4 on the clock face
  - ☐ B pointing at the 7
  - ☐ C pointing at the 20
  - ☐ D pointing at the 12
- 7 A **table of values** shows: **(1, 3) · (2, 5) · (3, 7)**  
What is the **term value** when the **position number** is **9**? (C1.2 · AP)
  - ☐ A 9
  - ☐ B 18
  - ☐ C 21
  - ☐ D 19
- 8 A pattern: **500, 600, 700, 800, ...** What comes next? (C1.4 · AP)
  - ☐ A 900
  - ☐ B 810
  - ☐ C 700
  - ☐ D 1800

9 A line plot of brushes per jar:



How many jars had 1 brushes? D1.3 · KU

- ☐ A 1
- ☐ B 9
- ☐ C 3
- ☐ D 4

10 On a graph where one square = 5 pots, green is 8 squares and red is 8 squares. How many more pots is the taller one? D1.5 · TH

- ☐ A 0
- ☐ B 80
- ☐ C 40
- ☐ D 82

Weekly beats daily. Mark against the expectation code, not out of ten. A code missed twice is worth teaching; one miss is noise.

## Week 7

Ten questions, mixed the way the real assessment is mixed – four Number, two Spatial Sense, two Algebra, two Data.

**One week at a time. Ten questions is about fifteen minutes, which is the point – short enough that it actually happens.**

- 1 Count backward by tens from 93. What is the fourth number you say? (B1.4 · AP)
 

☐ A 53  
☐ C 63

☐ B 83  
☐ D 73
- 2 A student worked out  $734 - 76$  and got 668. What went wrong? (B2.5 · TH)
 

☐ A They added instead of subtracting  
☐ B They forgot to write the hundreds digit  
☐ C They lined the numbers up wrongly  
☐ D They forgot to take the borrowed ten away from the tens column
- 3 Round 909 to the nearest hundred. (B1.3 · KU)
 

☐ A 24  
☐ C 900

☐ B 1000  
☐ D 910
- 4 Which list is in order from shortest to longest? (E2.2 · TH)
 

☐ A 59  
☐ C 2 m → 500 mm → 30 mm

☐ B 30 mm → 500 mm → 2 m  
☐ D 2 m → 30 mm → 500 mm
- 5 A picture is 4 squares by 3 squares. Glass costs \$5 a square. What does the glass cost? (E2.8 · TH)
 

☐ A \$12  
☐ C \$60

☐ B \$35  
☐ D \$17
- 6 A digital clock shows 3:05. Where is the minute hand on an analog clock showing the same time? (E2.6 · AP)
 

☐ A pointing at the 1 on the clock face  
☐ B pointing at the 4  
☐ C pointing at the 3  
☐ D pointing at the 5
- 7 A pattern goes 21, \_\_\_\_, \_\_\_\_, 30. A student said the rule was add 4. What went wrong? (C1.3 · TH)
 

☐ A They added instead of subtracting  
☐ B They used the last number as the rule  
☐ C They started from the wrong number  
☐ D They counted the blanks instead of the jumps
- 8 A table of values shows: (1, 5) · (2, 7) · (3, 9) What is the term value when the position number is 6? (C1.2 · AP)
 

☐ A 17  
☐ C 15

☐ B 6  
☐ D 12

- 9 A frequency table of favourite colours: red = 5 · blue = 9 · green = 2 · yellow = 2.

How many people were asked altogether? D1.2 · AP

☐ A 4  
☐ C 16

☐ B 18  
☐ D 9

- 10 A line plot of brushes per jar:

1 ●●  
2 ●  
3 ●  
4 ●  
5 ●  
6 ●

How many jars had 3 brushes? D1.3 · KU

☐ A 3  
☐ C 2

☐ B 7  
☐ D 1

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## Week 8

Ten questions, mixed the way the real assessment is mixed – four Number, two Spatial Sense, two Algebra, two Data.

**One week at a time. Ten questions is about fifteen minutes, which is the point – short enough that it actually happens.**

- 1 A pattern has the rule **add 4**. Its **5th** number is **38**. What number did it start on? C1.3 · TH

☐ A 26  
☐ C 42

☐ B 34  
☐ D 22
- 2 Marigold pours **6** jars, each **one third** full. How many **full** jars of paint is that altogether? B2.7 · AP

☐ A 2  
☐ C 3

☐ B 18  
☐ D 6
- 3 Which is the **expanded form** of **809**? B1.5 · KU

☐ A  $809 + 0$   
☐ C  $800 + 0 + 90$

☐ B  $8 + 0 + 9$   
☐ D  $800 + 9$
- 4 A tray holds **3** rows of **5** pots. **3** pots are cracked and thrown away. How many good pots are left? B2.6 · TH

☐ A 18  
☐ C 12

☐ B 5  
☐ D 15
- 5 A picture is **3** squares by **3** squares. Glass costs **\$5** a square. What does the glass cost? E2.8 · TH

☐ A \$30  
☐ C \$9

☐ B \$14  
☐ D \$45
- 6 An **analog clock** has the hour hand just past **4** and the minute hand on the **12**. What would a **digital clock** show? E2.6 · AP

☐ A 36  
☐ C 4:15

☐ B 4:00  
☐ D 0:04
- 7 What number goes in the box?  $4 + \square = 24$  C2.1 · AP

☐ A 20  
☐ C 24

☐ B 4  
☐ D 28
- 8 A pattern goes **6**,     ,     , **21**. A student said the rule was **add 7**. What went wrong? C1.3 · TH

☐ A They used the last number as the rule  
☐ B They started from the wrong number  
☐ C They counted the blanks instead of the jumps  
☐ D They added instead of subtracting
- 9 Brush sizes sold: **8, 8, 8, 8**. Are the **mean** and the **mode** the same? D2.2 · TH

☐ A yes  
☐ B you cannot tell without more numbers  
☐ C only if you sort them first  
☐ D no

10 A tally table shows  | for red. How many people chose red? D1.2 · KU

☐ A 5

☐ B 7

☐ C 29

☐ D 6

Weekly beats daily. Mark against the expectation code, not out of ten. A code missed twice is worth teaching; one miss is noise.

## Week 9

Ten questions, mixed the way the real assessment is mixed – four Number, two Spatial Sense, two Algebra, two Data.

**One week at a time. Ten questions is about fifteen minutes, which is the point – short enough that it actually happens.**

- 1 A student worked out  $299 - 96$  and got **213**.  
What went wrong? (B2.5 · TH)
  - ☐ A They forgot to take the borrowed ten away from the tens column
  - ☐ B They lined the numbers up wrongly
  - ☐ C They added instead of subtracting
  - ☐ D They forgot to write the hundreds digit
- 2 Which is a **sensible** estimate for the number of pots on one shelf? (B2.3 · TH)
  - ☐ A about 40000
  - ☐ B about 4
  - ☐ C about 40
  - ☐ D about 4000
- 3 Which list of fractions is in order from **smallest to largest**? (B1.7 · TH)
  - ☐ A 98
  - ☐ B  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{8}$
  - ☐ C 59
  - ☐ D  $\frac{1}{8}$ ,  $\frac{1}{3}$ ,  $\frac{1}{2}$
- 4 Is **140** an **even number** or an **odd number**? (B1.1 · KU)
  - ☐ A even
  - ☐ B both
  - ☐ C neither
  - ☐ D odd
- 5 A picture is **5 squares by 4 squares**. Glass costs **\$5 a square**. What does the glass cost? (E2.8 · TH)
  - ☐ A \$20
  - ☐ B \$45
  - ☐ C \$25
  - ☐ D \$100
- 6 An **analog clock** has the hour hand just past **1** and the minute hand on the **3**. What would a **digital clock** show? (E2.6 · AP)
  - ☐ A 1:15
  - ☐ B 3:01
  - ☐ C 1:03
  - ☐ D 1:30
- 7 A border repeats: ● ▲ ▲ ■ ● ▲ ▲ ■ ● ▲ ▲ ■  
How many shapes are in the **pattern core**? (C1.1 · KU)
  - ☐ A 5
  - ☐ B 12
  - ☐ C 8
  - ☐ D 4
- 8 In the number sentence  $7 + \square = 12$ , what does the  $\square$  stand for? (C2.1 · KU)
  - ☐ A a number we do not know yet
  - ☐ B a shape you have to draw
  - ☐ C the number 7 again
  - ☐ D the answer to the whole sentence

- 9 A pictograph key says one ■ = 10 pots. There are 4 symbols for red. A student answered 4.

What went wrong? (D1.3 · TH)

- ☐ A They counted the symbols instead of using the key
- ☐ B They counted the symbols wrongly
- ☐ C They used the wrong row
- ☐ D They forgot to add the other colours

- 10 Brush sizes sold: 10, 5, 5, 5.

Are the **mean** and the **mode** the same? (D2.2 · TH)

- ☐ A no
- ☐ B you cannot tell without more numbers
- ☐ C yes
- ☐ D only if you sort them first

Weekly beats daily. Mark against the expectation code, not out of ten. A code missed twice is worth teaching; one miss is noise.

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# Week 10

Ten questions, mixed the way the real assessment is mixed – four Number, two Spatial Sense, two Algebra, two Data.

One week at a time. Ten questions is about fifteen minutes, which is the point – short enough that it actually happens.

- 1 Marigold pours 4 jars, each one quarter full. How many full jars of paint is that altogether? B2.7 · AP

☐ A 0  
☐ C 16

☐ B 1  
☐ D 4
- 2 Which is the expanded form of 392? B1.5 · KU

☐ A  $392 + 0$   
☐ C  $300 + 90 + 2$

☐ B  $3 + 9 + 2$   
☐ D  $300 + 9 + 20$
- 3 Marigold mixes 390 ml of green with 290 ml of blue, then pours out 170 ml. How much is left? B2.5 · TH

☐ A 680  
☐ C 510

☐ B 220  
☐ D 100
- 4 Select every solid that has no vertices. E1.1 · KU  
 Fill in every box that applies.
 

☐ A square pyramid  
☐ C cylinder  
☐ E cube

☐ B sphere  
☐ D triangular prism
- 5 A picture is 4 squares by 3 squares. Glass costs \$10 a square. What does the glass cost? E2.8 · TH

☐ A \$22  
☐ C \$120

☐ B \$70  
☐ D \$12
- 6 An analog clock has the hour hand just past 8 and the minute hand on the 12. What would a digital clock show? E2.6 · AP

☐ A 0:08  
☐ C 8:15

☐ B 61  
☐ D 8:00
- 7 A pattern: 12, 24, 48, 96, ... What comes next? C1.4 · TH

☐ A 108  
☐ C 288

☐ B 192  
☐ D 144
- 8 A border repeats: ▲ ● ▲ ● ▲ ●  
 How many shapes are in the pattern core? C1.1 · KU

☐ A 2  
☐ C 4

☐ B 6  
☐ D 3
- 9 On a graph where one square = 2 pots, blue is 3 squares and green is 7 squares. How many more pots is the taller one? D1.5 · TH

☐ A 8  
☐ C 4

☐ B 20  
☐ D 14

10 A pictograph key says one ■ = 5 pots. There are 3 symbols for red. A student answered 3.

What went wrong? (D1.3 · TH)

- ☐ A They counted the symbols wrongly
- ☐ B They forgot to add the other colours
- ☐ C They counted the symbols instead of using the key
- ☐ D They used the wrong row

.....  
Weekly beats daily. Mark against the expectation code, not out of ten. A code missed twice is worth teaching; one miss is noise.

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# Answers

For checking your own work after you finish. Every answer says *why* – read that part even when you got it right.

## Sheet 3

- 1 C – They forgot to take the borrowed ten away from the tens column [B2.5] · When you borrow a ten you must reduce the tens column by one. The correct answer is 245. Being exactly 10 out is the giveaway for a missed regroup.
- 2 B – They forgot to take the borrowed ten away from the tens column [B2.5] · When you borrow a ten you must reduce the tens column by one. The correct answer is 282. Being exactly 10 out is the giveaway for a missed regroup.
- 3 D – They forgot to take the borrowed ten away from the tens column [B2.5] · When you borrow a ten you must reduce the tens column by one. The correct answer is 698. Being exactly 10 out is the giveaway for a missed regroup.
- 4 C – They forgot to take the borrowed ten away from the tens column [B2.5] · When you borrow a ten you must reduce the tens column by one. The correct answer is 153. Being exactly 10 out is the giveaway for a missed regroup.
- 5 A – They forgot to take the borrowed ten away from the tens column [B2.5] · When you borrow a ten you must reduce the tens column by one. The correct answer is 92. Being exactly 10 out is the giveaway for a missed regroup.
- 6 A – They forgot to take the borrowed ten away from the tens column [B2.5] · When you borrow a ten you must reduce the tens column by one. The correct answer is 195. Being exactly 10 out is the giveaway for a missed regroup.
- 7 B – They forgot to take the borrowed ten away from the tens column [B2.5] · When you borrow a ten you must reduce the tens column by one. The correct answer is 459. Being exactly 10 out is the giveaway for a missed regroup.
- 8 B – They forgot to take the borrowed ten away from the tens column [B2.5] · When you borrow a ten you must reduce the tens column by one. The correct answer is 542. Being exactly 10 out is the giveaway for a missed regroup.
- 9 A – They forgot to take the borrowed ten away from the tens column [B2.5] · When you borrow a ten you must reduce the tens column by one. The correct answer is 294. Being exactly 10 out is the giveaway for a missed regroup.
- 10 A – They forgot to take the borrowed ten away from the tens column [B2.5] · When you borrow a ten you must reduce the tens column by one. The correct answer is 95. Being exactly 10 out is the giveaway for a missed regroup.
- 11 D – They forgot to take the borrowed ten away from the tens column [B2.5] · When you borrow a ten you must reduce the tens column by one. The correct answer is 170. Being exactly 10 out is the giveaway for a missed regroup.
- 12 B – They forgot to take the borrowed ten away from the tens column [B2.5] · When you borrow a ten you must reduce the tens column by one. The correct answer is 172. Being exactly 10 out is the giveaway for a missed regroup.

## Sheet 4

- 1 C – They found the perimeter instead of the area [E2.7] · Perimeter is the fence round the edge (18 cm). Area is the space inside ( $6 \times 3 = 18$  square cm). Different jobs, different units.
- 2 B – They found the perimeter instead of the area [E2.7] · Perimeter is the fence round the edge (18 cm). Area is the space inside ( $7 \times 2 = 14$  square cm). Different jobs, different units.
- 3 C – They found the perimeter instead of the area [E2.7] · Perimeter is the fence round the edge (18 cm). Area is the space inside ( $5 \times 4 = 20$  square cm). Different jobs, different units.
- 4 A – They found the perimeter instead of the area [E2.7] · Perimeter is the fence round the edge (18 cm). Area is the space inside ( $5 \times 4 = 20$  square cm). Different jobs, different units.
- 5 A – They found the perimeter instead of the area [E2.7] · Perimeter is the fence round the edge (18 cm). Area is the space inside ( $7 \times 2 = 14$  square cm). Different jobs, different units.
- 6 A – They found the perimeter instead of the area [E2.7] · Perimeter is the fence round the edge (18 cm). Area is the space inside ( $6 \times 3 = 18$  square cm). Different jobs, different units.
- 7 D – They found the perimeter instead of the area [E2.7] · Perimeter is the fence round the edge (26 cm). Area is the space inside ( $8 \times 5 = 40$  square cm). Different jobs, different units.
- 8 C – They found the perimeter instead of the area [E2.7] · Perimeter is the fence round the edge (18 cm). Area is the space inside ( $5 \times 4 = 20$  square cm). Different jobs, different units.
- 9 D – They found the perimeter instead of the area [E2.7] · Perimeter is the fence round the edge (18 cm). Area is the space inside ( $5 \times 4 = 20$  square cm). Different jobs, different units.
- 10 B – They found the perimeter instead of the area [E2.7] · Perimeter is the fence round the edge (26 cm). Area is the space inside ( $8 \times 5 = 40$  square cm). Different jobs, different units.
- 11 D – They found the perimeter instead of the area [E2.7] · Perimeter is the fence round the edge (18 cm). Area is the space inside ( $5 \times 4 = 20$  square cm). Different jobs, different units.

- 12 B — They found the perimeter instead of the area [E2.7] · Perimeter is the fence round the edge (18 cm). Area is the space inside ( $5 \times 4 = 20$  square cm). Different jobs, different units.

Sheet 5

- 1 D — They counted the symbols instead of using the key [D1.3] · Each symbol stands for 10 pots, so the answer is  $4 \times 10 = 40$ . Reading a pictograph one-for-one is the single commonest data error.
- 2 D — They counted the symbols instead of using the key [D1.3] · Each symbol stands for 2 pots, so the answer is  $4 \times 2 = 8$ . Reading a pictograph one-for-one is the single commonest data error.
- 3 C — They counted the symbols instead of using the key [D1.3] · Each symbol stands for 10 pots, so the answer is  $7 \times 10 = 70$ . Reading a pictograph one-for-one is the single commonest data error.
- 4 D — They counted the symbols instead of using the key [D1.3] · Each symbol stands for 5 pots, so the answer is  $5 \times 5 = 25$ . Reading a pictograph one-for-one is the single commonest data error.
- 5 D — They counted the symbols instead of using the key [D1.3] · Each symbol stands for 10 pots, so the answer is  $7 \times 10 = 70$ . Reading a pictograph one-for-one is the single commonest data error.
- 6 A — They counted the symbols instead of using the key [D1.3] · Each symbol stands for 4 pots, so the answer is  $4 \times 4 = 16$ . Reading a pictograph one-for-one is the single commonest data error.
- 7 D — They counted the symbols instead of using the key [D1.3] · Each symbol stands for 2 pots, so the answer is  $6 \times 2 = 12$ . Reading a pictograph one-for-one is the single commonest data error.
- 8 D — They counted the symbols instead of using the key [D1.3] · Each symbol stands for 10 pots, so the answer is  $7 \times 10 = 70$ . Reading a pictograph one-for-one is the single commonest data error.
- 9 D — They counted the symbols instead of using the key [D1.3] · Each symbol stands for 5 pots, so the answer is  $7 \times 5 = 35$ . Reading a pictograph one-for-one is the single commonest data error.
- 10 A — They counted the symbols instead of using the key [D1.3] · Each symbol stands for 5 pots, so the answer is  $6 \times 5 = 30$ . Reading a pictograph one-for-one is the single commonest data error.
- 11 B — They counted the symbols instead of using the key [D1.3] · Each symbol stands for 4 pots, so the answer is  $7 \times 4 = 28$ . Reading a pictograph one-for-one is the single commonest data error.
- 12 C — They counted the symbols instead of using the key [D1.3] · Each symbol stands for 10 pots, so the answer is  $3 \times 10 = 30$ . Reading a pictograph one-for-one is the single commonest data error.
- \*\*\*\*\*

Generated, not typed. Every answer was computed by the same code that printed the question, so the key cannot drift.

# Answers, continued

## Sheet 6

- 1 A — They counted the blanks instead of the jumps [C1.3] · There are **3 jumps** between 27 and 36, not 2.  $9 \div 3 = 3$ , so the rule is add 3. Draw the arrows and count the arrows.
- 2 D — They counted the blanks instead of the jumps [C1.3] · There are **3 jumps** between 30 and 45, not 2.  $15 \div 3 = 5$ , so the rule is add 5. Draw the arrows and count the arrows.
- 3 D — They counted the blanks instead of the jumps [C1.3] · There are **3 jumps** between 20 and 35, not 2.  $15 \div 3 = 5$ , so the rule is add 5. Draw the arrows and count the arrows.
- 4 C — They counted the blanks instead of the jumps [C1.3] · There are **3 jumps** between 6 and 15, not 2.  $9 \div 3 = 3$ , so the rule is add 3. Draw the arrows and count the arrows.
- 5 D — They counted the blanks instead of the jumps [C1.3] · There are **3 jumps** between 6 and 15, not 2.  $9 \div 3 = 3$ , so the rule is add 3. Draw the arrows and count the arrows.
- 6 B — They counted the blanks instead of the jumps [C1.3] · There are **3 jumps** between 16 and 31, not 2.  $15 \div 3 = 5$ , so the rule is add 5. Draw the arrows and count the arrows.
- 7 A — They counted the blanks instead of the jumps [C1.3] · There are **3 jumps** between 25 and 34, not 2.  $9 \div 3 = 3$ , so the rule is add 3. Draw the arrows and count the arrows.
- 8 B — They counted the blanks instead of the jumps [C1.3] · There are **3 jumps** between 6 and 21, not 2.  $15 \div 3 = 5$ , so the rule is add 5. Draw the arrows and count the arrows.
- 9 C — They counted the blanks instead of the jumps [C1.3] · There are **3 jumps** between 17 and 26, not 2.  $9 \div 3 = 3$ , so the rule is add 3. Draw the arrows and count the arrows.
- 10 D — They counted the blanks instead of the jumps [C1.3] · There are **3 jumps** between 23 and 35, not 2.  $12 \div 3 = 4$ , so the rule is add 4. Draw the arrows and count the arrows.
- 11 B — They counted the blanks instead of the jumps [C1.3] · There are **3 jumps** between 7 and 16, not 2.  $9 \div 3 = 3$ , so the rule is add 3. Draw the arrows and count the arrows.
- 12 A — They counted the blanks instead of the jumps [C1.3] · There are **3 jumps** between 8 and 17, not 2.  $9 \div 3 = 3$ , so the rule is add 3. Draw the arrows and count the arrows.

## Sheet 7

- 1 B — They gave the price back instead of the change [F1.1] · The change is  $\$5.00 - \$1.80 = \$3.20$ . Reading the question one more time before answering catches this every time.
- 2 B — They gave the price back instead of the change [F1.1] · The change is  $\$5.00 - \$4.40 = \$0.60$ . Reading the question one more time before answering catches this every time.
- 3 A — They gave the price back instead of the change [F1.1] · The change is  $\$5.00 - \$2.20 = \$2.80$ . Reading the question one more time before answering catches this every time.
- 4 A — They gave the price back instead of the change [F1.1] · The change is  $\$5.00 - \$1.40 = \$3.60$ . Reading the question one more time before answering catches this every time.
- 5 A — They gave the price back instead of the change [F1.1] · The change is  $\$5.00 - \$3.95 = \$1.05$ . Reading the question one more time before answering catches this every time.
- 6 D — They gave the price back instead of the change [F1.1] · The change is  $\$5.00 - \$2.15 = \$2.85$ . Reading the question one more time before answering catches this every time.
- 7 C — They gave the price back instead of the change [F1.1] · The change is  $\$5.00 - \$4.10 = \$0.90$ . Reading the question one more time before answering catches this every time.
- 8 D — They gave the price back instead of the change [F1.1] · The change is  $\$5.00 - \$4.55 = \$0.45$ . Reading the question one more time before answering catches this every time.
- 9 B — They gave the price back instead of the change [F1.1] · The change is  $\$5.00 - \$4.70 = \$0.30$ . Reading the question one more time before answering catches this every time.
- 10 D — They gave the price back instead of the change [F1.1] · The change is  $\$5.00 - \$3.75 = \$1.25$ . Reading the question one more time before answering catches this every time.
- 11 C — They gave the price back instead of the change [F1.1] · The change is  $\$5.00 - \$4.20 = \$0.80$ . Reading the question one more time before answering catches this every time.
- 12 D — They gave the price back instead of the change [F1.1] · The change is  $\$5.00 - \$4.30 = \$0.70$ . Reading the question one more time before answering catches this every time.

## Sheet 8

- 1 D — 21 [B2.6] · Two steps.  $5 \times 5 = 25$ , then  $25 - 4 = 21$ . Ask how many steps before you start.

- 2 B — 13 [B2.6] · Two steps.  $3 \times 5 = 15$ , then  $15 - 2 = 13$ . Ask how many steps before you start.
- 3 A — 37 [B2.6] · Two steps.  $6 \times 5 = 30$ , then  $+ 7 = 37$ .
- 4 C — 54 [B2.6] · Two steps.  $5 \times 10 = 50$ , then  $+ 4 = 54$ .
- 5 C — 340 [B2.5] · Two steps.  $370 + 90 = 460$ , then  $- 120 = 340$  ml.
- 6 D — 140 [B2.5] · Two steps.  $130 + 100 = 230$ , then  $- 90 = 140$  ml.
- 7 B — 37 [B2.6] · Two steps.  $3 \times 10 = 30$ , then  $+ 7 = 37$ .
- 8 D — 43 [B2.6] · Two steps.  $8 \times 5 = 40$ , then  $+ 3 = 43$ .
- 9 B — 11 [B2.6] · Two steps.  $3 \times 5 = 15$ , then  $15 - 4 = 11$ . Ask how many steps before you start.
- 10 B — 57 [B2.6] · Two steps.  $5 \times 10 = 50$ , then  $+ 7 = 57$ .
- 11 D — 43 [B2.6] · Two steps.  $8 \times 5 = 40$ , then  $+ 3 = 43$ .
- 12 C — 34 [B2.6] · Two steps.  $6 \times 5 = 30$ , then  $+ 4 = 34$ .
- .....

Generated, not typed. Every answer was computed by the same code that printed the question, so the key cannot drift.

# Answers, continued

## Sheet 9

- 1 B — \$60 [E2.8] · Two steps. Area =  $6 \times 2 = 12$  squares. Cost =  $12 \times \$5 = \$60$ . Stopping at the area is the trap.
- 2 D — \$40 [E2.8] · Two steps. Area =  $5 \times 4 = 20$  squares. Cost =  $20 \times \$2 = \$40$ . Stopping at the area is the trap.
- 3 C — \$18 [E2.8] · Two steps. Area =  $3 \times 3 = 9$  squares. Cost =  $9 \times \$2 = \$18$ . Stopping at the area is the trap.
- 4 D — \$90 [E2.8] · Two steps. Area =  $3 \times 3 = 9$  squares. Cost =  $9 \times \$10 = \$90$ . Stopping at the area is the trap.
- 5 A — \$40 [E2.8] · Two steps. Area =  $5 \times 4 = 20$  squares. Cost =  $20 \times \$2 = \$40$ . Stopping at the area is the trap.
- 6 D — \$60 [E2.8] · Two steps. Area =  $6 \times 2 = 12$  squares. Cost =  $12 \times \$5 = \$60$ . Stopping at the area is the trap.
- 7 D — \$40 [E2.8] · Two steps. Area =  $5 \times 4 = 20$  squares. Cost =  $20 \times \$2 = \$40$ . Stopping at the area is the trap.
- 8 D — \$90 [E2.8] · Two steps. Area =  $3 \times 3 = 9$  squares. Cost =  $9 \times \$10 = \$90$ . Stopping at the area is the trap.
- 9 D — \$24 [E2.8] · Two steps. Area =  $4 \times 3 = 12$  squares. Cost =  $12 \times \$2 = \$24$ . Stopping at the area is the trap.
- 10 C — \$45 [E2.8] · Two steps. Area =  $3 \times 3 = 9$  squares. Cost =  $9 \times \$5 = \$45$ . Stopping at the area is the trap.
- 11 B — \$45 [E2.8] · Two steps. Area =  $3 \times 3 = 9$  squares. Cost =  $9 \times \$5 = \$45$ . Stopping at the area is the trap.
- 12 C — \$60 [E2.8] · Two steps. Area =  $6 \times 2 = 12$  squares. Cost =  $12 \times \$5 = \$60$ . Stopping at the area is the trap.

## Sheet 10

- 1 B — about 800 [B2.3] · Round each to the nearest hundred:  $400 + 400 = 800$ . The exact answer is 825. Estimating first tells you whether your exact answer looks sensible.
- 2 D — about 24 [B2.3] · A shelf holds tens of pots, not thousands and not three. Checking whether an answer is sensible catches more mistakes than recalculating does.
- 3 D — about 67 [B2.3] · A shelf holds tens of pots, not thousands and not three. Checking whether an answer is sensible catches more mistakes than recalculating does.
- 4 D — about 55 [B2.3] · A shelf holds tens of pots, not thousands and not three. Checking whether an answer is sensible catches more mistakes than recalculating does.
- 5 B — about 67 [B2.3] · A shelf holds tens of pots, not thousands and not three. Checking whether an answer is sensible catches more mistakes than recalculating does.
- 6 D — about 40 [B2.3] · A shelf holds tens of pots, not thousands and not three. Checking whether an answer is sensible catches more mistakes than recalculating does.
- 7 A — 400 [B1.3] · Look at the tens digit (3). 5 or more rounds up. So 436 rounds to 400.
- 8 D — about 700 [B2.3] · Round each to the nearest hundred:  $300 + 400 = 700$ . The exact answer is 678. Estimating first tells you whether your exact answer looks sensible.
- 9 C — 400 [B1.3] · Look at the tens digit (0). 5 or more rounds up. So 401 rounds to 400.
- 10 A — about 700 [B2.3] · Round each to the nearest hundred:  $300 + 400 = 700$ . The exact answer is 715. Estimating first tells you whether your exact answer looks sensible.
- 11 B — 900 [B1.3] · Look at the tens digit (1). 5 or more rounds up. So 913 rounds to 900.
- 12 B — about 900 [B2.3] · Round each to the nearest hundred:  $400 + 500 = 900$ . The exact answer is 908. Estimating first tells you whether your exact answer looks sensible.

## Sheet 11

- 1 C — 16 [B2.1] · Undo the sharing:  $4 \times 4 = 16$  brushes to start.
- 2 B — -23 [C1.3] · There are 6 jumps back from the 7th number:  $37 - (6 \times 10) = -23$ .
- 3 C — -10 [C1.3] · There are 5 jumps back from the 6th number:  $40 - (5 \times 10) = -10$ .
- 4 D — 10 [B2.6] · Work backwards through the array:  $20 \div 2 = 10$  in each row.
- 5 B — 29 [C1.3] · There are 4 jumps back from the 5th number:  $49 - (4 \times 5) = 29$ .
- 6 C — 5 [B2.6] · Work backwards through the array:  $20 \div 4 = 5$  in each row.
- 7 C — 4 [B2.1] · Undo the sharing:  $2 \times 2 = 4$  brushes to start.
- 8 C — 30 [B2.1] · Undo the sharing:  $6 \times 5 = 30$  brushes to start.
- 9 A — \$2.35 [F1.1] · Work backwards:  $\$5.00 - \$2.65 = \$2.35$ .
- 10 D — 10 [B2.6] · Work backwards through the array:  $50 \div 5 = 10$  in each row.
- 11 B — \$2.65 [F1.1] · Work backwards:  $\$5.00 - \$2.35 = \$2.65$ .
- 12 A — 10 [B2.6] · Work backwards through the array:  $50 \div 5 = 10$  in each row.



# Answers, continued

## Sheet 12

- 1 D and E — 60, 50 [B1.4] · Counting by 10s means every number in the 10 times table. Check each one — there is more than one right answer.
- 2 A and B — cylinder, sphere [E1.1] · A vertex is a corner where edges meet. A cylinder and a sphere have none. Check with real objects — a tin and a ball.
- 3 A and B — 4, 16 [B1.4] · Counting by 2s means every number in the 2 times table. Check each one — there is more than one right answer.
- 4 A and C — landing on red is likely, landing on blue is unlikely [D2.1] · Likely means more than half. 6 out of 8 is more than half, so red is likely. 1 out of 8 is unlikely, not impossible — those are different words.
- 5 A and B — 30, 35 [B1.4] · Counting by 5s means every number in the 5 times table. Check each one — there is more than one right answer.
- 6 A and C — 10, 6 [B1.4] · Counting by 2s means every number in the 2 times table. Check each one — there is more than one right answer.
- 7 B and E — 25, 15 [B1.4] · Counting by 5s means every number in the 5 times table. Check each one — there is more than one right answer.
- 8 A and B —  $10 + 10$ ,  $20 + 0$  [C2.2] · More than one is right. Work out all of them before you stop — finding one and moving on is how this mark gets lost.
- 9 D and E — landing on red is likely, landing on blue is unlikely [D2.1] · Likely means more than half. 6 out of 8 is more than half, so red is likely. 1 out of 8 is unlikely, not impossible — those are different words.
- 10 A and B —  $16 + 0$ ,  $21 - 5$  [C2.2] · More than one is right. Work out all of them before you stop — finding one and moving on is how this mark gets lost.
- 11 B and D — cylinder, sphere [E1.1] · A vertex is a corner where edges meet. A cylinder and a sphere have none. Check with real objects — a tin and a ball.
- 12 A and B — 8, 4 [B1.4] · Counting by 2s means every number in the 2 times table. Check each one — there is more than one right answer.

## Sheet 13

- 1 B — 183, 318, 408, 480 [B1.2] · Compare the hundreds first. Only look at the tens if the hundreds match.
- 2 D — 48, 408, 480, 804 [B1.2] · Compare the hundreds first. Only look at the tens if the hundreds match.
- 3 A —  $30\text{ mm} \rightarrow 3\text{ cm} \rightarrow 12\text{ cm}$  [E2.2] · Change them all into the same unit first — millimetres is easiest.  $10\text{ mm} = 1\text{ cm}$  and  $100\text{ mm} = 1\text{ m}$ .
- 4 B — 48, 183, 480, 804 [B1.2] · Compare the hundreds first. Only look at the tens if the hundreds match.
- 5 B —  $12\text{ cm} \rightarrow 500\text{ mm} \rightarrow 2\text{ m}$  [E2.2] · Change them all into the same unit first — millimetres is easiest.  $10\text{ mm} = 1\text{ cm}$  and  $100\text{ mm} = 1\text{ m}$ .
- 6 C —  $1/8$ ,  $1/2$ ,  $2/3$  [B1.7] · A bigger bottom number means a SMALLER share — one eighth is smaller than one third. Draw them if you are unsure.
- 7 D —  $1/8$ ,  $1/3$ ,  $1/2$  [B1.7] · A bigger bottom number means a SMALLER share — one eighth is smaller than one third. Draw them if you are unsure.
- 8 D —  $3\text{ cm} \rightarrow 30\text{ mm} \rightarrow 500\text{ mm}$  [E2.2] · Change them all into the same unit first — millimetres is easiest.  $10\text{ mm} = 1\text{ cm}$  and  $100\text{ mm} = 1\text{ m}$ .
- 9 C —  $1/3$ ,  $1/2$ ,  $3/4$  [B1.7] · A bigger bottom number means a SMALLER share — one eighth is smaller than one third. Draw them if you are unsure.
- 10 C —  $1/8$ ,  $1/2$ ,  $3/4$  [B1.7] · A bigger bottom number means a SMALLER share — one eighth is smaller than one third. Draw them if you are unsure.
- 11 A — 318, 408, 702, 804 [B1.2] · Compare the hundreds first. Only look at the tens if the hundreds match.
- 12 B —  $1/8$ ,  $1/4$ ,  $1/3$  [B1.7] · A bigger bottom number means a SMALLER share — one eighth is smaller than one third. Draw them if you are unsure.

## Sheet 14

- 1 D — 401 [B1.5] · A flat is 100, a rod is 10, a cube is 1.  $4 \times 100 + 0 \times 10 + 1 \times 1 = 401$ . That is also its **expanded form**.
- 2 A — 400 [B2.5] · Two steps.  $310 + 240 = 550$ , then  $- 150 = 400\text{ ml}$ .
- 3 D and E — landing on red is likely, landing on blue is unlikely [D2.1] · Likely means more than half. 6 out of 8 is more than half, so red is likely. 1 out of 8 is unlikely, not impossible — those are different words.
- 4 A — 66 [B1.4] · Each square right is one more. Each square down is ten more.
- 5 A — \$100 [E2.8] · Two steps. Area =  $5 \times 4 = 20$  squares. Cost =  $20 \times \$5 = \$100$ . Stopping at the area is the trap.
- 6 A — pointing at the 11 on the clock face [E2.6] · Each number on the face is 5 minutes.  $55\text{ minutes} \div 5 = 11$ , so the minute hand points there. The hour hand points near the 9.
- 7 D — 29 [C1.2] · The first number in each pair is the **position number** (also called the term number). The second is the **term value**. Each time the position goes up 1, the value goes up 4.
- 8 C — 300 [C1.4] · Counting backward by 50. A pattern that goes down is still a pattern with a rule.
- 9 A — 1 [D1.3] · A line plot stacks one dot for each thing counted. Count the dots in the 4 row — there are 1. The number on the left is the value, not the count.

10      B — 30 [D1.5] · Always read the scale before the bars. 6 squares × 5 pots = 30 pots. Counting the squares as pots is the trap.

Generated, not typed. Every answer was computed by the same code that printed the question, so the key cannot drift.

# Answers, continued

## Sheet 15

- 1 D —  $1/4$ ,  $1/2$ ,  $3/4$  [B1.7] · A bigger bottom number means a SMALLER share — one eighth is smaller than one third. Draw them if you are unsure.
- 2 D — odd [B1.1] · Look only at the last digit. 7 is odd, so 137 is odd. Even numbers can be shared into two equal groups; odd ones always have one left over.
- 3 C — They gave the price back instead of the change [F1.1] · The change is  $\$5.00 - \$4.30 = \$0.70$ . Reading the question one more time before answering catches this every time.
- 4 C — 5 [B2.6] · Work backwards through the array:  $20 \div 4 = 5$  in each row.
- 5 C — \$24 [E2.8] · Two steps. Area =  $4 \times 3 = 12$  squares. Cost =  $12 \times \$2 = \$24$ . Stopping at the area is the trap.
- 6 C — pointing at the 10 on the clock face [E2.6] · Each number on the face is 5 minutes.  $50 \text{ minutes} \div 5 = 10$ , so the minute hand points there. The hour hand points near the 2.
- 7 A — They counted the blanks instead of the jumps [C1.3] · There are 3 jumps between 14 and 23, not 2.  $9 \div 3 = 3$ , so the rule is add 3. Draw the arrows and count the arrows.
- 8 C — 17 [C1.2] · The first number in each pair is the position number (also called the term number). The second is the term value. Each time the position goes up 1, the value goes up 2.
- 9 C — ask lots of people and record every answer in a tally table [D1.2] · Asking lots of people and recording every answer is called a survey. Asking only friends gives you your friends' answer, not the school's.
- 10 D — 3 [D1.3] · A line plot stacks one dot for each thing counted. Count the dots in the 1 row — there are 3. The number on the left is the value, not the count.

## Sheet 16

- 1 C — 400 [B2.5] · Two steps.  $330 + 230 = 560$ , then  $- 160 = 400$  ml.
- 2 C and D — cylinder, sphere [E1.1] · A vertex is a corner where edges meet. A cylinder and a sphere have none. Check with real objects — a tin and a ball.
- 3 A — 70 [B1.4] · 100, 90, 80, 70 — the fourth number you say is 70. Counting backward is the same skill in reverse.
- 4 C — They forgot to take the borrowed ten away from the tens column [B2.5] · When you borrow a ten you must reduce the tens column by one. The correct answer is 720. Being exactly 10 out is the giveaway for a missed regroup.
- 5 A — \$24 [E2.8] · Two steps. Area =  $6 \times 2 = 12$  squares. Cost =  $12 \times \$2 = \$24$ . Stopping at the area is the trap.
- 6 D — pointing at the 7 on the clock face [E2.6] · Each number on the face is 5 minutes.  $35 \text{ minutes} \div 5 = 7$ , so the minute hand points there. The hour hand points near the 12.
- 7 B — 7 [C2.1] · Ask: 5 and what makes 12? Count on from 5, or take 5 away from 12. Either way the box is 7.
- 8 C — They counted the blanks instead of the jumps [C1.3] · There are 3 jumps between 20 and 29, not 2.  $9 \div 3 = 3$ , so the rule is add 3. Draw the arrows and count the arrows.
- 9 C — yes [D2.2] · Mode = 9 (the one that turns up most). Mean =  $36 \div 4 = 9$ . They match because every number is the same.
- 10 B — ask lots of people and record every answer in a tally table [D1.2] · Asking lots of people and recording every answer is called a survey. Asking only friends gives you your friends' answer, not the school's.

## Sheet 17

- 1 C — even [B1.1] · Look only at the last digit. 0 is even, so 180 is even. Even numbers can be shared into two equal groups; odd ones always have one left over.
- 2 D — They gave the price back instead of the change [F1.1] · The change is  $\$5.00 - \$3.25 = \$1.75$ . Reading the question one more time before answering catches this every time.
- 3 A — -14 [C1.3] · There are 5 jumps back from the 6th number:  $36 - (5 \times 10) = -14$ .
- 4 A — 6 [B2.7] · 12 lots of one half =  $12 \div 2 = 6$  full jars. Try it with real cups of water — two halves make one whole.
- 5 D — \$60 [E2.8] · Two steps. Area =  $4 \times 3 = 12$  squares. Cost =  $12 \times \$5 = \$60$ . Stopping at the area is the trap.
- 6 D — 10:00 [E2.6] · Multiply the minute-hand number by 5.  $12 \times 5 = 0$  minutes. So the time is 10:00 — o'clock.
- 7 B — 3 [C1.1] · The pattern core is the smallest bit that starts over — here it is ■ ■ ▲, which is 3 shapes. Some people call it the repeating unit.
- 8 C — 12 [C2.1] · Ask: 7 and what makes 19? Count on from 7, or take 7 away from 19. Either way the box is 12.
- 9 A — They counted the symbols instead of using the key [D1.3] · Each symbol stands for 10 pots, so the answer is  $3 \times 10 = 30$ . Reading a pictograph one-for-one is the single commonest data error.
- 10 A — yes [D2.2] · Mode = 5 (the one that turns up most). Mean =  $20 \div 4 = 5$ . They match because every number is the same.

## Sheet 18

- 1 C and E — landing on red is likely, landing on blue is unlikely [D2.1] · Likely means more than half. 6 out of 8 is more than half, so red is likely. 1 out of 8 is unlikely, not impossible — those are different words.
- 2 B — 59 [B1.4] · 89, 79, 69, 59 — the fourth number you say is 59. Counting backward is the same skill in reverse.
- 3 B — They forgot to take the borrowed ten away from the tens column [B2.5] · When you borrow a ten you must reduce the tens column by one. The correct answer is 641. Being exactly 10 out is the giveaway for a missed regroup.
- 4 B — about 49 [B2.3] · A shelf holds tens of pots, not thousands and not three. Checking whether an answer is sensible catches more mistakes than recalculating does.
- 5 C — \$18 [E2.8] · Two steps. Area =  $3 \times 3 = 9$  squares. Cost =  $9 \times \$2 = \$18$ . Stopping at the area is the trap.
- 6 A — 6:00 [E2.6] · Multiply the minute-hand number by 5.  $12 \times 5 = 0$  minutes. So the time is 6:00 — o'clock.
- 7 D — 80 [C1.4] · Each number is double the one before. Doubling grows much faster than adding — notice how quickly it climbs.
- 8 C — 3 [C1.1] · The pattern core is the smallest bit that starts over — here it is ★ • ★, which is 3 shapes. Some people call it the repeating unit.
- 9 A — 15 [D1.5] · Always read the scale before the bars. 3 squares  $\times$  5 pots = 15 pots. Counting the squares as pots is the trap.
- 10 D — They counted the symbols instead of using the key [D1.3] · Each symbol stands for 10 pots, so the answer is  $3 \times 10 = 30$ . Reading a pictograph one-for-one is the single commonest data error.

Generated, not typed. Every answer was computed by the same code that printed the question, so the key cannot drift.

# Answers, continued

## Sheet 19

- 1 C — They gave the price back instead of the change [F1.1] · The change is  $\$5.00 - \$2.05 = \$2.95$ . Reading the question one more time before answering catches this every time.
- 2 A — 24 [C1.3] · There are 3 jumps back from the 4th number:  $39 - (3 \times 5) = 24$ .
- 3 D — 5 [B2.7] · 10 lots of one half =  $10 \div 2 = 5$  full jars. Try it with real cups of water — two halves make one whole.
- 4 A — 487 [B1.5] · A flat is 100, a rod is 10, a cube is 1.  $4 \times 100 + 8 \times 10 + 7 \times 1 = 487$ . That is also its **expanded form**.
- 5 A — \$24 [E2.8] · Two steps. Area =  $4 \times 3 = 12$  squares. Cost =  $12 \times \$2 = \$24$ . Stopping at the area is the trap.
- 6 A — pointing at the 4 on the clock face [E2.6] · Each number on the face is 5 minutes.  $20 \text{ minutes} \div 5 = 4$ , so the minute hand points there. The hour hand points near the 12.
- 7 D — 19 [C1.2] · The first number in each pair is the **position number** (also called the term number). The second is the **term value**. Each time the position goes up 1, the value goes up 2.
- 8 A — 900 [C1.4] · Adding 100 changes only the hundreds digit. Say the numbers out loud and you can hear the pattern.
- 9 C — 3 [D1.3] · A line plot stacks one dot for each thing counted. Count the dots in the 1 row — there are 3. The number on the left is the value, not the count.
- 10 A — 0 [D1.5] · Two steps. Find the difference in squares (0), then multiply by the scale (5) to get 0 pots.

## Sheet 20

- 1 C — 63 [B1.4] · 93, 83, 73, 63 — the fourth number you say is 63. Counting backward is the same skill in reverse.
- 2 D — They forgot to take the borrowed ten away from the tens column [B2.5] · When you borrow a ten you must reduce the tens column by one. The correct answer is 658. Being exactly 10 out is the giveaway for a missed regroup.
- 3 C — 900 [B1.3] · Look at the tens digit (0). 5 or more rounds up. So 909 rounds to 900.
- 4 B — 30 mm → 500 mm → 2 m [E2.2] · Change them all into the same unit first — millimetres is easiest.  $10 \text{ mm} = 1 \text{ cm}$  and  $100 \text{ cm} = 1 \text{ m}$ .
- 5 C — \$60 [E2.8] · Two steps. Area =  $4 \times 3 = 12$  squares. Cost =  $12 \times \$5 = \$60$ . Stopping at the area is the trap.
- 6 A — pointing at the 1 on the clock face [E2.6] · Each number on the face is 5 minutes.  $5 \text{ minutes} \div 5 = 1$ , so the minute hand points there. The hour hand points near the 3.
- 7 D — They counted the blanks instead of the jumps [C1.3] · There are 3 jumps between 21 and 30, not 2.  $9 \div 3 = 3$ , so the rule is add 3. Draw the arrows and count the arrows.
- 8 C — 15 [C1.2] · The first number in each pair is the **position number** (also called the term number). The second is the **term value**. Each time the position goes up 1, the value goes up 2.
- 9 B — 18 [D1.2] · The word **frequency** just means how many times something turned up. Add every frequency to get the total asked.
- 10 D — 1 [D1.3] · A line plot stacks one dot for each thing counted. Count the dots in the 3 row — there are 1. The number on the left is the value, not the count.

## Sheet 21

- 1 D — 22 [C1.3] · There are 4 jumps back from the 5th number:  $38 - (4 \times 4) = 22$ .
- 2 A — 2 [B2.7] · 6 lots of one third =  $6 \div 3 = 2$  full jars. Try it with real cups of water — two halves make one whole.
- 3 D —  $800 + 9$  [B1.5] · Expanded form shows what each digit is worth: 8 hundreds, 0 tens and 9 ones. A zero digit is simply left out.
- 4 C — 12 [B2.6] · Two steps.  $3 \times 5 = 15$ , then  $15 - 3 = 12$ . Ask how many steps before you start.
- 5 D — \$45 [E2.8] · Two steps. Area =  $3 \times 3 = 9$  squares. Cost =  $9 \times \$5 = \$45$ . Stopping at the area is the trap.
- 6 B — 4:00 [E2.6] · Multiply the minute-hand number by 5.  $12 \times 5 = 0$  minutes. So the time is 4:00 — o'clock.
- 7 A — 20 [C2.1] · Ask: 4 and what makes 24? Count on from 4, or take 4 away from 24. Either way the box is 20.
- 8 C — They counted the blanks instead of the jumps [C1.3] · There are 3 jumps between 6 and 21, not 2.  $15 \div 3 = 5$ , so the rule is add 5. Draw the arrows and count the arrows.
- 9 A — yes [D2.2] · Mode = 8 (the one that turns up most). Mean =  $32 \div 4 = 8$ . They match because every number is the same.
- 10 D — 6 [D1.2] · Tally marks are grouped in fives, with the fifth stroke laid across the other four. Count the groups of five first, then the singles.

## Sheet 22

- 1 A — They forgot to take the borrowed ten away from the tens column [B2.5] · When you borrow a ten you must reduce the tens column by one. The correct answer is 203. Being exactly 10 out is the giveaway for a missed regroup.
- 2 C — about 40 [B2.3] · A shelf holds tens of pots, not thousands and not three. Checking whether an answer is sensible catches more mistakes than recalculating does.

- 3 D —  $1/8, 1/3, 1/2$  [B1.7] · A bigger bottom number means a SMALLER share — one eighth is smaller than one third. Draw them if you are unsure.
- 4 A — **even** [B1.1] · Look only at the last digit. 0 is even, so 140 is even. Even numbers can be shared into two equal groups; odd ones always have one left over.
- 5 D — \$100 [E2.8] · Two steps. Area =  $5 \times 4 = 20$  squares. Cost =  $20 \times \$5 = \$100$ . Stopping at the area is the trap.
- 6 A — 1:15 [E2.6] · Multiply the minute-hand number by 5.  $3 \times 5 = 15$  minutes. So the time is 1:15 — quarter past.
- 7 D — 4 [C1.1] · The **pattern core** is the smallest bit that starts over — here it is ● ▲ ▲ ■, which is 4 shapes. Some people call it the repeating unit.
- 8 A — **a number we do not know yet** [C2.1] · A box, a letter or a shape can all stand in for a number we have not worked out yet. That stand-in is called a **variable**.
- 9 A — **They counted the symbols instead of using the key** [D1.3] · Each symbol stands for 10 pots, so the answer is  $4 \times 10 = 40$ . Reading a pictograph one-for-one is the single commonest data error.
- 10 A — **no** [D2.2] · Mode = 5 (the one that turns up most). Mean =  $25 \div 4 = 6.25$ . One odd number pulls the mean away from the mode.
- .....

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# Answers, continued

## Sheet 23

- 1 B — 1 [B2.7] · 4 lots of one quarter =  $4 \div 4 = 1$  full jars. Try it with real cups of water — two halves make one whole.
- 2 C —  $300 + 90 + 2$  [B1.5] · Expanded form shows what each digit is worth: 3 hundreds, 9 tens and 2 ones. A zero digit is simply left out.
- 3 C — 510 [B2.5] · Two steps.  $390 + 290 = 680$ , then  $- 170 = 510$  ml.
- 4 B and C — cylinder, sphere [E1.1] · A vertex is a corner where edges meet. A cylinder and a sphere have none. Check with real objects — a tin and a ball.
- 5 C — \$120 [E2.8] · Two steps. Area =  $4 \times 3 = 12$  squares. Cost =  $12 \times \$10 = \$120$ . Stopping at the area is the trap.
- 6 D — 8:00 [E2.6] · Multiply the minute-hand number by 5.  $12 \times 5 = 0$  minutes. So the time is 8:00 — o'clock.
- 7 B — 192 [C1.4] · Each number is double the one before. Doubling grows much faster than adding — notice how quickly it climbs.
- 8 A — 2 [C1.1] · The **pattern core** is the smallest bit that starts over — here it is ▲ ●, which is 2 shapes. Some people call it the repeating unit.
- 9 A — 8 [D1.5] · Two steps. Find the difference in squares (4), then multiply by the scale (2) to get 8 pots.
- 10 C — They counted the symbols instead of using the key [D1.3] · Each symbol stands for 5 pots, so the answer is  $3 \times 5 = 15$ . Reading a pictograph one-for-one is the single commonest data error.

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