

Class maths fair

CURRICULUM ALIGNMENT

DAT.DAT.4b

critically analyse and evaluate findings; and communicate inferences, conclusions and implications from the findings.

DISCUSSION STARTER

REFLECT

Which strand of maths do you most want to keep working on next year?

LESSON ARC

Open with three hands-up answers on what makes a short maths presentation easy to follow, then pre-check desks for a finished year investigation. Sketch Question / Method / Result / One surprise on the board and walk one known sample in three formats. A volunteer builds one stall outline live; every pupil writes a four-part outline and stall label on A4 before the fair opens. Run two host-and-visit waves with pushing questions. Close on methods that transfer to new questions.

TEACHING MOVES

- 1. Getting Started.** Take only three hands-up answers — listen for clear question, showing working, one surprise, eye contact. Run the desk pre-check straight after: anyone without finished notes gets the shared school-height or class-shop investigation. Do not invent a new investigation on the spot.
- 2. Watch and Notice.** Sketch the four headings on the board and fill each with one short sentence from a known class investigation — three minutes, not a speech. Hold up the blank poster, the single slide shape on the IWB, and the physical model or paper net. Ask: what stays the same about the maths in every format?
- 3. Try It Together.** Spend three to four minutes on the volunteer model only, locking the class to the four headings. Then every desk: own four-part outline plus one stall label on A4. Scan before you close — no pupil enters the fair without both pieces. Pause anyone whose result has no method, or whose surprise is only 'it was hard'.
- 4. Class Challenge.** Split the room for Wave 1. Protect a full three minutes per stall so hosts reach all four parts; visitors circulate in small groups. Call swap after eight to nine minutes for Wave 2. When you hear only 'what was the answer?', coach the visitor toward 'what would change if...?' or 'which method would you trust more?' If a host freezes, point at their label and have them read the question first.
- 5. What Did We Notice?.** Ask which method seen today could answer a completely different question, and why. Listen for ratio, per-unit cost, mean versus median, scale, or balance-equation thinking. Revoice: 'so the method is bigger than the one problem it first answered.' If praise lands only on performance, push for the piece of maths that made the stall clear.

COMMON MISCONCEPTIONS

⚠ Pupils write the surprise as ‘it was hard’ or ‘I got stuck’ — a feeling, not a mathematical surprise. Stop and ask: what did the numbers do that you did not expect? Push for two methods agreeing, a discount that stacked oddly, or a mean that misled. Model one mathematical surprise from the school-height or class-shop sample.

⚠ Visitors only ask ‘what was the answer?’ and hosts only repeat the number already on the stall. Coach the visitor on the spot: ‘what would change if...?’ or ‘which method is more reliable?’ Celebrate the push, not the repeated result.

⚠ Hosts read every number on the poster aloud with no story, or freeze and never start. Point to the stall label and have them read the question first. Revoice a strong outline that leads with the question, then method, before any result.

DIFFERENTIATION

EMERGING

- Assign the shared school-height or class-shop investigation and pre-write the four outline headings on their A4 so they only fill one sentence under each.
- If a full three-minute host slot is too much, let them give a one-minute greeting beside a clear label while stronger hosts take the longer slots.

DEVELOPING

- After their outline is down, ask them to swap a vague surprise for a mathematical one before Wave 1 starts.
- As visitors, require one question that starts ‘what would change if...’ rather than ‘what was the answer?’

PROFICIENT

- During their host slot, ask them to name how the same method could answer a new question outside the original investigation.
- As visitors, push the presenter past the stall: ‘you used the mean — what changes if a new estate adds 30 pupils?’

✓ **Cross-curricular:** Tie to English oral language — each host opens with one clear sentence that names the question before any numbers.

ANSWER KEY

W1: 36 cm^2

W2: 2 (2 ones)

Q1: $3/11$

Q2: €2,387

a) **Sometimes** : True for positives; not true if one is negative or zero.

b) **Sometimes** : True for any non-zero number. $0 \div 0$ is undefined.

c) **Always** : Yes — a rectangle has 4 right angles; a square is a special case.

d) **Never** : Only one angle can be 90° ; the other two add to 90° .

EXTENSION SHEET · STRETCH ANSWERS

S1: $15 (3/4 = 15/20)$

S2: $x = 12$

S3: €109.97

S4: $485,708 = 400,000 + 80,000 + 5,000 + 700 + 8$

S5: €99.16