

Tally charts to frequency tables

CURRICULUM ALIGNMENT

DAT.DAT.3

pose questions of interest and collect, display and critically analyse data in a range of ways for a range of purposes and communicate the findings.

INTERACTIVES Tally Chart · challenge, display

WHAT THIS LESSON TEACHES

A tally counts things as they happen: one mark for each, and every fifth mark crosses the four before it to make a gate of five. To make a frequency table, count the gates in fives first, then add the loose marks.

- Two full gates plus three loose marks make the frequency 13.
- If eight pupils chose football, the frequency for football is 8.

MODEL THIS ON THE BOARD

TALLY TO FREQUENCY

- 1 The Walk row has two full gates and two loose marks.
- 2 Count the gates in fives first: $5 + 5 = 10$.
- 3 Add the loose marks: $10 + 2 = 12$.
- 4 Write **12** in the frequency box for Walk.

Walk

DISCUSSION STARTER

REFLECT

Is a frequency table easier to read than a tally? Why?

LESSON ARC

Open with a finished travel-to-school tally on the IWB and ask whether pupils can name each row's number without recounting every stroke — that frustration sells the frequency table. Walk one worked example pivoting on 'count the gates in fives first, then add the loose marks': 13 from two gates plus three. Pupils build the frequency column in their copy, then add for a total and subtract for a difference. The Class Challenge climbs from single-row reads to total and difference questions.

TEACHING MOVES

1. **Getting Started.** Display the finished travel-to-school tally as pupils settle. Take two or three hands on 'which row has most', then press the real question: 'can you say the exact number without counting every line again?' Let that difficulty sit — don't rescue it. It's the reason the frequency table is worth having.
2. **Watch and Notice.** Point at the gates and narrate the counting rhythm: 'five, ten — eleven, twelve, thirteen.' Land the empty row deliberately — pupils skip it, but the 0 still belongs in the column. These are static snapshots; point and narrate, don't tap or drag.
3. **Try It Together.** Call one pupil per row to the board; the class checks the number against the marks before you accept it. Insist on 'five, ten, then count on' — not stroke-by-stroke. After the four frequencies are in, model the total ($13+5+8+4=30$) and the difference (most chosen minus least, $13-4=9$) aloud so pupils see both reading moves before they produce them.

4. **Build the Frequency Column in Your Copy.** Pupils copy the tally rows and write a frequency column, then a total line underneath. Walk the room watching specifically for pupils counting every stroke instead of counting gates in fives — that's the habit to catch here, not the arithmetic.
5. **Class Challenge.** Keep the board work brisk — pupils take turns, check each answer, class confirms, move on. Before the difference question, remind them of the rule modelled earlier: find the most and least chosen, take the smaller from the bigger. Let a confident pupil work it while the class predicts the answer first.
6. **What Did We Notice?.** Steer the talk to the trade-off: revoice a strong answer as 'the tally is for catching the data, the table is for sharing it.' Listen for pupils naming the tally as easier while counting and the table as easier to read once counting's done.

COMMON MISCONCEPTIONS

⚠ Pupils reach the empty row and skip it entirely, leaving a blank in the frequency column instead of writing 0.

Pause at the empty row in Try It Together and ask the class directly what number goes there. Make them say and write 'zero' — a row with no marks still has a frequency, and the row stays in the table.

⚠ Pupils count every single stroke one by one — 'one, two, three, four, five, six...' — ignoring the gates, so they're slow and miscount the long rows.

Stop and re-point at one full gate on the IWB: 'a gate is always five — you never recount it.' Make the whole class chant 'five, ten' for the two gates, then count on the loose marks. Demand the rhythm, not the individual strokes.

⚠ Asked for the difference, pupils add the two frequencies or subtract the wrong way round (smaller take bigger).

Name the move plainly at the board: 'a difference means take the smaller away from the bigger.' Point to Walk (13) and Bus (4) and show $13 - 4 = 9$ more — say 'nine MORE walked' so the comparison stays attached to the numbers.

DIFFERENTIATION

EMERGING

- Pre-circle the gates on the IWB tally so pupils only have to chant 'five, ten' then count the loose marks — the grouping is done for them.
- Stay on the single-gate and two-gate rows in copybook; the longer rows and the total line are teacher-supported at your table.

DEVELOPING

- After the copybook total, ask: if three more pupils said they cycle, what's the new total and the new difference between most and least chosen?
- Give a missing-row puzzle — show the total is 30 and three of the four frequencies, and ask pupils to work back to the fourth.

PROFICIENT

- While the class finishes the Class Challenge, narrate a harder variant from the front: 'if the total had to be exactly 40, what frequencies could the four rows have?' — let strong pupils find more than one answer in their copy.
- Ask them to invent a tally that is quick to count and one that is slow, and explain to the class what makes the difference.

✂ **Cross-curricular:** Tie to Geography — run a real travel-to-school tally for your own class, then build the frequency table from the marks you collect.

ANSWER KEY

a) 12, 8

b) 26, 4

c) 50

Q1: 20

Q2: 19

Spot: Emma counted each full gate as 4 instead of 5, giving $4 + 4 + 4 + 2 = 14$. Three gates are $5 + 5 + 5 = 15$, plus 2 single marks makes 17. The correct frequency is 17.

EXTENSION SHEET · STRETCH ANSWERS

S1: 7

S2: 13

S3: 16

S4: 19

S5: 14