

End-of-year strands tour

CURRICULUM ALIGNMENT

ALG.PRR.4a

identify, explain and apply generalisations, including properties of operations, mathematical models and patterns.

NUM.PVT.4

investigate how decimals and percentages (and fractions) can be compared, ordered and expressed in related terms.

MEA.MSR.4b

find, interpret and deduce measures experimentally with increasing precision.

DAT.DAT.4a

pose questions, collect, compare, summarise and represent data selectively to answer those questions.

INTERACTIVES

Place Value Blocks (Dienes) · display

Shape Mesurer · display

Hundred Square · display

Coordinate Grid · display

Bar Chart Builder · explore

WHAT THIS LESSON TEACHES

The five big families of maths are Number, Measures, Shape and Space, Data and Chance, and Algebra. We break problems apart in each family the same way.

→ In Data and Chance split the totals Walk 12 Cycle 5 Bus 8 Car 3

→ In Measures estimate a short route then measure it with the metre stick

MODEL THIS ON THE BOARD

TOUR A DATA AND CHANCE ACTIVITY

- 1 Read the travel totals Walk 12 Cycle 5 Bus 8 Car 3
- 2 Decide this belongs to the Data and Chance family
- 3 Write the family name beside it on your list

LESSON ARC

Open by getting the five family names into the room with a quick hands-up. On the IWB, walk through four snapshots — 4,073 split into place values, a 6×4 rectangle split for area, the sixes on the hundred square, a grid point split into across-then-up — and draw the shared 'splitting into parts' idea out of the class. Build a travel-to-school bar chart together, then take the Measures beat outside for estimate-then-measure on two routes. Copybook and journal capture close it.

TEACHING MOVES

1. **Watch and Notice.** Point at each snapshot, name its family, and pull the split out of the class rather than stating it. After the first two, break the hold: ask which family the snapshot belongs to, take two hands, revoice a strong answer. Save the link question — 'is there anything the same about how we broke these apart?' — for last and let a pupil reach it.
2. **Try It Together.** Build the bars in the named order — Walk, Cycle, Bus, Car — so the shape develops. Before the Car bar lands, ask the class to predict its height. Watch for pupils reading the y-axis scale instead of counting squares, and revoice: 'so each bar's height is just the frequency from the tally.'
3. **List the Five Families in Your Copy.** Give quiet time to list the five families and jot one thing per family. Walk the room watching the linking line pupils draw — nudge anyone stuck to reuse the splitting-into-parts link from the board. This is copybook practice, not marking.

4. **Class Challenge.** Outside, keep the estimate-before-measure order strict — the estimate must be written before the metre stick comes out. Circulate to catch alignment slips (zero end, no gaps). Keep the group pass-on brisk so every group meets both the Short and Medium routes; reconcile the differences aloud back inside.
5. **What Did We Notice?.** Fish for a genuine second cross-family link beyond splitting — estimating (Measures and Data), the number line (Number, elapsed time, sequences), or scale drawings (Number and Shape). Revoice a strong one: 'so learning that idea once paid off in more than one place.'

COMMON MISCONCEPTIONS

⚠ On the bar chart, pupils count grid squares up the axis instead of reading the y-axis scale, so a bar landing between labelled marks gets called the wrong number.

Stop at the Bus bar and trace a finger from its top straight across to the y-axis. 'The number is where the bar reaches on the scale, not how many squares we drew.' Have a pupil read the value off the axis, not the squares.

⚠ Outside on the Short route, pupils pace a line that is under a metre — they carry the 'one pace is 70 cm' rule from the Medium route where it doesn't fit.

Remind them the Short route is compared to half a metre stick and estimated in centimetres — pacing is only for the longer route. Lay half the metre stick beside the line so they estimate against something they can see.

⚠ When asked for the shared idea across the four snapshots, pupils name what each family does separately ('that one's Number, that one's Shape') rather than the move that is common to all four.

Don't accept the family names as the answer. Ask 'what did we DO to each one?' and point in turn at each split — 4,073 into places, the rectangle into smaller rectangles, the grid point into across-then-up. Let a pupil land on 'we broke each one into parts.'

DIFFERENTIATION

EMERGING

- For the copybook step, pre-write the five family names on the board so pupils only add their one example beside each, not recall the family list from memory.
- On the Short route outside, hand these pupils the half-metre comparison first so they anchor 'under a metre' to something concrete before estimating in centimetres.

DEVELOPING

- After the bar chart, ask pupils to work out how many children were surveyed in total, then which two modes together match the Walk bar.
- Challenge them to find a second cross-family link of their own in the copybook and write the two families it joins.

PROFICIENT

- While others finish the routes, ask: 'the grid point splits into across-then-up — where else this year did an order matter, so doing the parts in the wrong order gave a different answer?' Have them jot an example in the copybook.
- Pull them into a teacher-narrated stretch on the bar chart: if three more children joined the Car group, does that change which bar is tallest? What is the smallest number of new Car children that would beat the Bus bar?

✓ **Cross-curricular:** Tie to Geography — pupils could turn the travel-to-school bar chart into a talking point about local routes, distances, and why some children walk while others come by bus.

ANSWER KEY

a) Walk 15 Cycle 4 Bus 7 Car 6

c) 25 m

Q1: Data and Chance

Q2: Measures

Q3: Measures

Q4: Number, Measures, Shape and Space, Data and Chance, Algebra

Q5: Measures

a) **Never** : It also happens in Shape and Space and Data and Chance.

b) **Sometimes** : True for counting how pupils travel to school; false for reading a bar chart or placing an event on a chance scale.

c) **Always** : Length and distance work is part of the Measures strand.

d) **Always** : Area is a Measures job, but you multiply the length by the width to find it.