

Data detectives: module review

CURRICULUM ALIGNMENT

DAT.DAT.2

pose questions of interest, record and use data as evidence to answer those questions and communicate the findings.

INTERACTIVES

Tally Chart · display

Pictogram Builder · display, explore

Bar Chart Builder · challenge, display

WHAT THIS LESSON TEACHES

A tally, a pictogram and a block graph can all show the very same set of answers. The longest tally, the longest picture row and the tallest tower all name the winner.

→ Banana with 6 is taller than apple with 4, so banana had more votes.

→ Tallest 6 and shortest 3 means 3 more for the top answer.

MODEL THIS ON THE BOARD

SAME FRUIT VOTES THREE WAYS

- 1 The tally says apple has 4, banana has 6 and orange has 3.
- 2 Build three towers: apple 4 blocks, banana 6 blocks, orange 3 blocks.
- 3 The tallest tower is banana. The shortest is orange.
- 4 Banana has $6 - 3 = 3$ more votes than orange.
- 5 Longest tally, longest picture row and tallest tower all name banana.

LESSON ARC

Open with the same fruit survey shown three ways on the IWB — tally, pictogram and block graph — and ask which is easiest to read. Point the winner on each picture so the class sees longest tally, longest picture row and tallest tower name the same fruit. Pupils build a pictogram from a given tally, one fruit row at a time, counting pictures aloud. Class Challenge: build three towers, name tallest and shortest, then find the gap.

TEACHING MOVES

1. **Getting Started.** Show the three fruit-survey pictures side by side and give five seconds of quiet think-time before hands. Take three answers on which is easiest to read and hold them lightly — the next beat will prove all three match.
2. **Watch and Notice.** Point at the orange row on the tally, then the pictogram, then the block graph before moving on. Revoice: longest tally, longest pictures, tallest tower — same winner. Catch anyone who thinks the pictures show different surveys.
3. **Try It Together.** Keep the scale at one picture for one vote. One pupil builds each fruit row on the board while the class counts the pictures aloud before the next turn. End with a class check that picture counts match the tally marks.
4. **Write your choice in your copy.** Leave tally, pictures and towers written clearly on the IWB so pupils can copy a choice. Walk the room for a clear written preference — no marking; this is whole-class copybook practice.
5. **Class Challenge.** Keep board turns brisk: pupils build the three towers, check each answer, class confirms, move on. On the last question hold out for the gap ($6 - 3 = 3$), not just the two fruit names.

6. What Did We Notice?. Ask what is the same about a tally, a pictogram and a block graph. Listen for same votes or longest/tallest names the winner. Revoice: three pictures, one story — and head off the idea that the numbers change when the picture changes.

COMMON MISCONCEPTIONS

⚠ Pupils treat the tally, pictogram and block graph as three different surveys because the pictures look different.

Point to the same fruit on all three displays in turn and revoice: longest tally, longest pictures, tallest tower — same winner, same votes.

⚠ Pupils name the tallest and shortest towers but stop there, saying the fruit names instead of the gap when asked how many more.

Hold the two tower heights on the board and count the extra blocks aloud: 6 take away 3 is 3. Push for the number, not just the two names.

⚠ When building the pictogram, pupils place a random number of icons instead of one picture per tally mark.

Pause after the first row and count icons with the class against the tally total before the next pupil's turn.

DIFFERENTIATION

EMERGING

- On the Class Challenge, ask only for tallest and shortest first; add the how-many-more gap once those two names are secure.
- Pre-count the tally marks with the pupil at the board so they only place matching icons or blocks, not invent the totals.

DEVELOPING

- After the towers are built, change one total on the tally and ask which tower must grow or shrink, and by how many.
- Ask how they know banana beat apple without recounting every block from zero.

PROFICIENT

- Once the gap is found, ask: if orange gained 2 more votes, which display changes, and does the winner stay the same? Answer from the board towers.
- Invite a one-sentence justification of which picture best shows how many more — tally, pictures or towers — spoken to the class.

➤ **Cross-curricular:** Tie to SPHE healthy-eating: class fruit-break choices become tomorrow's tally, then a pictogram on the IWB.

ANSWER KEY

c) Car

Q1: Car

Q2: Car

Q3: Apple

Q4: 3

Q5: Yes (banana)

Q6: 3

a) **Always** : All three displays match the same set of answers so the winner is the same.

b) **Never** : The same number of votes looks different but means the same total.

c) **Always** : More votes always make a taller tower on a block graph.

d) **Sometimes** : Some pupils find towers easiest, others prefer tallies or pictures.

EXTENSION SHEET · STRETCH ANSWERS

S1: 29

S2: 30

S3: 3

S4: 4