

Pictograms with a scale (one symbol = 2)

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.

NUM.FRC.3a

compare and express in equivalent terms; and order fractions.

INTERACTIVES [Pictogram Builder](#) · challenge, display, explore

WHAT THIS LESSON TEACHES

In a pictogram one symbol can stand for two things so we count on in twos instead of one by one.

- A row of five symbols on a key of two shows a count of ten.
- Key: one symbol = 2 children.
- Four whole symbols and a half-symbol show a count of nine.

MODEL THIS ON THE BOARD

READING A PICTOGRAM KEY OF TWO

- 1 Read the key: one symbol means 2.
- 2 Count the whole symbols in twos.
- 3 Add 1 for any half-symbol at the end.

DISCUSSION STARTER

REFLECT When one symbol stands for two, how do you show an odd number like 7?

LESSON ARC

Open with a one-symbol-per-child pictogram on the IWB and let pupils feel the drudgery of ten symbols in one row. Pivot to the pictogram-builder interactive on a key of two: read the key first, count on in twos, and land the half-symbol as one because half of two is one. Pupils write the key and two rows in their copy, then take turns building and reading counts at the board. The Student Activity Book practice page follows.

TEACHING MOVES

1. **Getting Started.** Put the one-symbol-per-child pictogram up and let the class groan at the ten-symbol top row. Take two or three 'how could we make this quicker' answers but don't confirm the key-of-two idea yet — leave it for Watch and Notice to land.
2. **Watch and Notice.** Point at the key before touching any row: 'one symbol = 2'. Have the class count '2, 4, 6, 8' aloud along the four-symbol row before you confirm. Hold your nerve on the half-symbol row — wait for a pupil to say the half means one because half of two is one; don't say it for them.
3. **Try It Together.** Call a different pupil to build each count (6, 4, 5, 7) on the interactive while the rest count on in twos aloud. Before each reveal, ask the watchers to predict the row. On the 5 and 7 rows, pause before the last symbol: 'whole one or half one?'

4. **Write the Key in Your Copy.** Pupils write 'one symbol = 2' at the top of the copy, then draw a row for 6 and a row for 7. Walk the room checking one thing only — is the half-symbol on the 7 row and not the 6 row? Glancing, not marking.
5. **Class Challenge.** A different pupil takes the board for each round (read 6, build 10, read 5, build 11); the class counts in twos and agrees the answer before anyone presses Check. Keep it brisk — on the read-5 and build-11 rounds just ask 'what's the half worth?' rather than re-teaching the whole rule.
6. **What Did We Notice?** Ask why a half-symbol means one on a key of two and revoice a strong answer: 'the half is worth one because it's half of what the whole symbol is worth.' Then draw out that without the key, two people could read the same row as wildly different counts.

COMMON MISCONCEPTIONS

- ⚠ Pupils count the symbols one by one instead of in twos — five symbols reads as 'five', not ten. Cover the key with your hand and ask 'what does one symbol mean today?' Uncover it, then count the row aloud together in twos, tapping each symbol: '2, 4, 6, 8, 10.'
- ⚠ Pupils treat the half-symbol as worth two, so four-and-a-half symbols reads as ten instead of nine. On the interactive, put a whole symbol and a half-symbol side by side. 'The whole one is worth two — so half of it is worth...?' Rebuild the row and count '2, 4, 6, 8' then land on the half as '...9'.
- ⚠ Pupils try to build an odd count with whole symbols only, then get stuck — 'you can't make seven'. Build to six with three whole symbols, then ask 'how much more do we need?' One more — but a whole symbol is two, so we need half of one. Show the half-symbol going down.

DIFFERENTIATION

EMERGING

- Stay on even counts (6, 8, 10) at the board so these pupils only ever place whole symbols and count in twos — bring in the half-symbol once the twos count is secure.
- In the copy, give them the key already written so they only draw the rows, not invent the header.

DEVELOPING

- After the copy rows, ask them to draw a count of 13 and explain in one sentence why they need six whole symbols and a half.
- Show a row of three-and-a-half symbols and ask what count it shows before you say the key aloud.

PROFICIENT

- Pose: if the key changed to 'one symbol = 4', what would the half-symbol be worth now? Ask them to build a count of 10 on that new key and justify it in the copy.
- Ask them to narrate the read-11 row to a pupil in the emerging group as if teaching it — naming the key, the twos, and the half.

↗ **Cross-curricular:** Tie to SESE — pupils tally how many classmates walk, cycle or come by car to school, then show one favourite as a key-of-two pictogram.

ANSWER KEY

Scaffold: visual check on the page

Q1: 6

Q2: 4

Q3: 5

Q4: 7

Q5: 8

- a) **Always** : Half of two is one, so a half-symbol means one.
- b) **Always** : Four times two is eight so it is always true.
- c) **Never** : You must count in twos because each symbol means two.
- d) **Never** : Four whole symbols make eight so it cannot show seven.

EXTENSION SHEET · STRETCH ANSWERS

Investigation: When one square means two — open-ended; scan pupils' working for valid solution paths rather than a single answer.