

Mass: weighing in g and kg

CURRICULUM ALIGNMENT

MEA.MSR.4b find, interpret and deduce measures experimentally with increasing precision.

WHAT THIS LESSON TEACHES

Mass tells how much matter is in an object and is what a weighing scale reads. Light classroom objects are measured in grams (g) and heavier ones in kilograms (kg), with 1000 g equal to 1 kg.

→ A Maths book has a mass of about 240 g.

→ A bag of flour is 2 kg (which is 2000 g).

MODEL THIS ON THE BOARD

READING A LUNCHBOX MASS ON THE SCALE

- 1 Look at the round dial of the classroom scale.
- 2 The needle points to the mark labelled **350**.
- 3 The unit on the dial is grams, so the lunchbox mass is 350 g.

LESSON ARC

Have the copybooks already sitting on the front scale as pupils arrive, then weigh four real objects one at a time — Maths book, register, 2 kg flour, feather — reading each mass aloud and switching to kilograms at the flour. Pupils predict-then-weigh a lunchbox, pencil case and a stack of three books at the front, giving reasons before the dial settles. They record three masses and units in their copybook, then weigh five circulating objects in groups before the activity-book page.

TEACHING MOVES

1. **Getting Started.** Load the copybooks onto the front scale before pupils settle so a reading is already showing. Take three hands-up guesses for the heaviest of feather / Maths book / flour — don't confirm, tell them the scale will settle it in a minute.
2. **Watch and Notice.** Hold each object up first, then set it on the pan and read the mass aloud. At the register, ask 'heavier or lighter than the book?' before revealing — it usually surprises them. At the flour, land the switch: '2 kilograms, and that's the same as 2,000 grams, because 1,000 grams make 1 kilogram.'
3. **Try It Together.** For each object, get a prediction AND a reason out loud before it hits the scale. On the three stacked books, hold out for the multiplying reason — revoice 'if one book is about 240 grams, three should be near 700, let's check' — then weigh.
4. **Write Each Mass and Its Unit in Your Copy.** Walk the room glancing for a clear mass and unit on each line — this is copybook practice, not marking. The flour line is today's only kilogram: check pupils write both 2,000 g and 2 kg. Watch for anyone underlining a unit by judging the object rather than the size of the number.
5. **Class Challenge.** Keep the pass-on brisk — order the objects lightest to heaviest (glue-stick → pencil case → stapler → lunchbox → water bottle) so numbers build. Circulate and check readings on the spot; at the water bottle ask which unit now feels right. If you have one scale, run the five as front rotation stations.

6. **What Did We Notice?.** Push for 'the size of the number' as the deciding thing, not the object. Revoice a strong answer: 'so we pick the unit that keeps the number easy to say.' Head off any idea that one unit is more correct — 2 kg and 2,000 g are equally true.

COMMON MISCONCEPTIONS

⚠ Pupils say the register must be lighter than the Maths book because it looks thinner — they judge mass by size or shape rather than what the scale reads.

Before revealing the register's mass, take a vote on heavier-or-lighter, then weigh it and let the surprise land. Say 'the scale decides, not how big it looks' and point back to the two numbers side by side.

⚠ Pupils write the water bottle as '1 g' or muddle grams and kilograms when a reading crosses 1,000 — 'it's 1,200 grams so that's 1,200 kilograms too.'

At the scale, write 1,000 g and 1 kg one above the other and count: 'one thousand grams IS one kilogram — same amount, two names.' Only ask for a kilogram value on objects that actually cross 1,000 g today; keep decimal conversion for next lesson.

DIFFERENTIATION

EMERGING

- Give these pupils only the lightest two circulating objects (glue-stick tub, pencil case) so every reading stays in whole grams under 1,000 — no unit switch to manage.
- Let them copy the three copybook lines straight from the demo masses first, then underline the unit; the 'say why' comes as a spoken answer, not written.

DEVELOPING

- After the copybook lines, ask them to order the five circulating objects lightest to heaviest from their recorded masses before the class confirms.
- Give a missing-value prompt: 'the stapler was 380 g — how much would two staplers be?' — reasoning, not re-weighing.

PROFICIENT

- Pose at the IWB: 'How many Maths books would you need to reach 1 kilogram? Estimate first, then say how you worked it out' — a whole-class stretch narrated from the front while others finish weighing.
- Ask them to name an object from today that could sensibly be written in EITHER unit and justify both readings to the class.

➤ **Cross-curricular:** Tie to the science strand — pupils predict then weigh classroom materials and discuss why mass doesn't change when you change an object's shape.

ANSWER KEY

a) 240 g

b) 350 g

Q1: 240 g

Q2: 1 g

Q3: 2 kg

Q4: 590 g

a) Always : Exactly 1000 grams make one kilogram.

b) Never : A feather has a tiny mass of about 1 g.

c) Always : Any weight in kilograms can be written in grams: 2 kg is 2000 g.

d) Sometimes : Grams suit them well, yet the same mass can also be written with a decimal kilogram.

EXTENSION SHEET · STRETCH ANSWERS

S1: 0.981 kg

S2: 0.8921