Lesson 1

living-things

STEM all around us: the story of figuring things out

Lesson at a glance

Open by scanning the classroom — door handle, tap, bin — and ask what would not be here if nobody had ever figured anything out. Define STEM with real hold-ups (weather chart, sharpener, hinge), then lead a short STEM-eyes walk of classroom, corridor and yard with clipboards and prompt cards. Pairs sort finds under Science / Technology / Engineering cards, transfer one item per group into the Investigation Journal, share a then-and-now example, and pin one genuine I wonder sticky on the class board.

Learning objectives

- Recognise that STEM is people working out how the world works and making things better
- Sort everyday school and yard examples into science, technology and engineering
- Contribute at least one genuine I wonder question to the class board

Before the bell — prep

Plan a short four-stop route (classroom → corridor/hall → yard edge or garden) the day before. Print one STEM-eyes prompt-card set and one Science/Technology/Engineering category-card set per pair. Gather clipboards, blank list sheets, pencils and sticky notes. Clear a small noticeboard space for the year's I wonder board.

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Materials

Item	Qty	Per	Source	Low-cost substitute
clipboard with blank list sheet (or lined paper)	1	pair	classroom	a piece of recycled paper folded over a hardback book as a writing surface
STEM eyes prompt cards (Look up high; Look down low; Tools and measures; Built to last; Science eyes)	1	pair	provided printable	five spoken prompts on the board instead of cards
sorting category cards (Science; Technology; Engineering)	1	pair	provided printable	three labelled trays or three large sticky notes as pile headers
Investigation Journal page	1	pupil	classroom	a blank A4 page with three handwritten headings: science, technology, engineering
sticky notes for I wonder questions	1	pupil	classroom	small scrap-paper rectangles and reusable putty or pins for the noticeboard
pencils	1	pupil	classroom	any classroom writing tool

Safety watch-point

Keep the class as one group on a short route; set a clear yard boundary; mind wet surfaces and gates; no climbing.

Teaching moves

- **Getting Started:** Keep it light and still — no clipboards yet. Stand by a door handle, tap or bin and take two or three quick calls. Key question: what in this room would not be here if nobody had ever figured anything out? Steer phones and chairs toward school examples they can later sort: hinges, taps, stopwatch, noticeboard, thermometer.
- **What is STEM?:** Take the four board lines one at a time; do not let the class read ahead. Point to STEM alone first, then hold a weather chart/thermometer for science, a torch or sharpener for technology, a bookend/ramp/hinge for engineering (~90 seconds each). Name maths once via the clock or PE stopwatch without opening a fourth pile. Finish with the gate question and two or three reasons.
- **STEM eyes walk:** Pair up, hand each pair one clipboard, pencil and prompt-card set, and model the list line on the board: drain: carries rain away. Lead as one group; pause at four rich spots and name the STEM angle aloud (science: thermometer/puddle; technology: stopwatch/sharpener; engineering: ramp/gutter/gate). Ask at each stop: what job does this do — find out, tool, or designed and built? Keep the walk whole; if wet or slow, drop later steps, not this one. Aim to finish inside 14 minutes including return.
- **Sort what we found:** Give each pair the three category cards only. Model one worked sort whole-class first (thermometer → science or technology with a reason; sharpener → technology; door ramp → engineering). Circulate asking for reasons, not perfect piles. Accept borderline answers when the reason is sensible.
- **Record on your journal page:** Hold up one Investigation Journal page and show the three group areas before anyone writes. Pupils transfer the best of their walk list — at least one find under each heading, short why beside any two. Keep the first journal use light; allow drawings plus a dictated label, and scribe a one-word reason bank on the board (tool, measure, build, strong, carries water).
- **What did people use before?:** Pairs pick one sorted find and talk what people used before it. Collect three or four class shares as a then-and-now board list (rushlights before electric light; quills/slate before pencil and sharpener; muddy yards before drains). Revoice: the job stayed the same, the way people solved it changed. If the walk overran, take only two shares in about four minutes.
- **Start our I wonder board:** One sticky note each (or per pair if tight) with a genuine I wonder from the walk — starters: I wonder why / how / what would happen if. Pin on the noticeboard; read three aloud and leave them unanswered. While pinning, cold-call a quick oral exit: say STEM in your own words, and name one school thing someone once had to figure out. Collect clipboards and cards; leave the stickies up.

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What it should show

Expect school/yard finds across all three piles: science (thermometer, weather chart, drying puddle, plant labels); technology (sharpener, stopwatch, torch, clock); engineering (hinges, ramp, drain/gutter, gate, bike rack). Borderline items (thermometer as science or technology) are fine with a reason. A list thin on science usually means the pair hunted tools only — point them back to a weather chart, measuring jug or sunny-vs-shady patch.

Misconceptions & interventions

- **STEM is only computers, robots and phones.** — Hold up the spoon, ramp, weather chart or puddle question and ask which pile each belongs in. Revoice: a careful question about a puddle and a door hinge both count.
- **A plant or minibeast in the garden is itself a STEM object to sort.** — Redirect: living things are not the sort item — the question about them, or the tool used to study them, can be science or technology.
- **Old things like a stone bridge or wooden cart are not STEM.** — On the then-and-now share, name the older example as earlier engineering or technology. STEM is the long story of figuring things out; tools and materials change.

Differentiation

Emerging	Developing	Proficient
• Pairs list names only on the clipboard; allow drawings plus a dictated label on the journal page, with the board reason-word bank (tool, measure, build, strong). • A less mobile pupil can be class scribe at the front of the walk line, collecting called-out finds on one shared list.	• Add the job each find does beside the name on the walk list, and write a short why beside at least two journal items.	• Star one journal item that could sit in two groups and write both reasons; aim for two finds in each of the three groups.

Cross-curricular hook

Link to English oral language — pupils practise genuine I wonder why/how questions and give a spoken reason for each sort.