

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. Say what STEM means and model the problem a sharpener and a door solve, then lead a short STEM-eyes walk of classroom, corridor and yard where pairs list each find with the problem it solves. Pairs play Guess my find, saying only the problem their best find solves, then copy four finds and draw one on the Investigation Journal page, 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
- Name the problem an everyday invention in school solves, and how people managed before it
- 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. There are no cards to print. Gather clipboards, blank list sheets, pencils and sticky notes. Clear a small noticeboard space for the year's I wonder board.

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
Investigation Journal page	1	pupil	classroom	a blank A4 page with two handwritten headings, my find and the problem it solves, and a box to draw in
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 will meet on the walk: hinges, taps, stopwatch, noticeboard, thermometer.
- **What is STEM?:** Read the key point and name the four STEM words once; they are only named today. Model two finds aloud: a sharpener (the problem is a blunt pencil; before it, people used a small knife) and the classroom door (a gap that lets the cold in; before doors on hinges, a cloth or a bar). Then the gate question: the problem it solves, and what people did before gates.
- **STEM eyes walk:** Pair up, hand each pair one clipboard and pencil, and model the list line on the board: gutter: rain pouring off the roof onto us. Lead as one group; pause at four rich spots (classroom, corridor, yard, and something that helps us find out, like the weather chart) and name one find and its problem aloud. Ask at each stop: what problem does this solve, and what did people do before it existed? For one find, ask how long it has been around. Keep the walk whole; if wet or slow, drop later steps, not this one. Aim to finish inside 14 minutes including return.
- **Guess my find:** Model it once (my find stops my pencil being blunt). Each pair keeps its best find secret and tells the pair beside it only the problem; then five or six pairs play with the whole class. Write each find and its problem on the board as a class list. Help pairs who describe what a thing looks like to say its problem instead.
- **Record on your journal page:** Hold up one Investigation Journal page and show the table and the drawing box before anyone writes. Pupils copy four finds with the problem each solves, then draw one find and its problem. Keep the first journal use light; allow drawings plus a dictated label, and scribe a problem-word bank on the board (cold, wet, dark, blunt, too high, cannot see).
- **What did people use before?:** Pairs pick one find and talk about how people dealt with its problem before it existed, then write the idea on the last lines of the journal page. 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; leave the stickies up.



What it should show

Expect lists with finds from every stop, each with a short problem: gutter (rain off the roof), radiator (a cold room), sharpener (a blunt pencil), ramp (a step a wheelchair cannot get up), gate (a ball running onto the road), weather chart (not knowing what the weather will do). A pair that describes what a thing looks like instead of its problem needs the question: what would go wrong without it?

Misconceptions & interventions

- **STEM is only computers, robots and phones.** Hold up a spoon, point to the ramp and the weather chart, and ask what problem each solves. Revoice: a careful question about a puddle and a door hinge both count.
- **A plant or minibeast in the garden is itself a STEM find.** Redirect: living things are not inventions, but the question about them, or the tool used to study them (a magnifier, a weather chart), is STEM.
- **Old things like a stone bridge or wooden cart are not STEM.** On the then-and-now share, name the older example as an invention of its own day. 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 problem-word bank (cold, wet, dark, blunt). • A less mobile pupil can be class scribe at the front of the walk line, collecting called-out finds on one shared list.	• Add what people did before each find existed.	• Write a second problem one find solves, or say how it has changed over time.

Cross-curricular hook

Link to English oral language — pupils practise genuine I wonder why/how questions and describe a problem clearly enough for others to guess the find.