Lesson 1 · nature-of-stem

STEM That Changed Ireland

Lesson at a glance

Open by asking pupils to name everything they used this morning — tap, light switch, bus — and label it all as STEM. Walk the four-strand table one row at a time, then model the electric-light story aloud as a 'before → what changed' sentence. Groups become experts at one of six Irish STEM stations (bridge, wind farm, Callan, clean water, Dunlop tyre, Holland's submarine), filling the three-box Investigation Journal page, then teach the class. Close by starting the year's 'I wonder' board.

Learning objectives

- Explore how STEM has evolved and is woven through everyday Irish life
- Identify an Irish STEM person, place or invention and explain what it changed
- Present findings clearly to the class and pose a new 'I wonder' question

Before the bell — prep

Print the six station cards (one per group — full text is in the lesson notes) and one three-box Investigation Journal page per group the day before, and set out the six stations around the room. If you have more than six groups, double up two groups on one station and pair them to co-present. Have wall or noticeboard space cleared for the 'I wonder' board cards.

Materials

Item	Qty	Per	Source	Low-cost substitute
station research cards (famous bridge, wind farm, Irish scientist, clean water, air-filled tyre, submarine)	1	group	classroom	display one card at a time on the IWB and rotate groups
Investigation Journal page	1	group	classroom	a sheet of plain paper folded into three boxes
poster paper for presenting	1	group	classroom	the back of scrap paper
coloured pencils	1	group	classroom	ordinary pencils
blank question cards for the 'I wonder' board	1	pupil	classroom	small squares cut from scrap paper

Lesson 1

Safety watch-point

No physical hazards in this lesson; it is research, discussion and presenting only.

Teaching moves

- **What STEM Means:** Read the table one row at a time, not all four boxes in a run — it's dense. After each row, get the class to call out one everyday thing of their own that fits it (a tap, a road, the clock). Land the line: STEM isn't a school subject, it's how people invent and build the world.
- **How One Invention Changed Things:** Model the electric-light example out loud in full so groups copy the shape, not just the facts: 'Before the electric light, people used candles and lamps; it changed life by making it safe and bright after dark.' Ask 'What else got easier once homes had electric light?' and draw out reading at night, hospitals, factories.
- **Research Your STEM Station:** Send each group to one station with the three-box Investigation Journal page (What is it? / What came before? / What changed?). Move between groups prompting the before → what changed shape. For pupils who need support, read the card aloud with the group and have them underline the bold sentence. Fast finishers add a second 'I wonder' question to the back.
- **Teach the Class:** Hold each group to two minutes for what it is, what came before, and what changed. After each one, ask the listening class 'What changed because of this?' so everyone stays folded in, not just the presenters. Praise clear before → after sentences. If groups doubled up, paired co-presenters share one slot — one says the 'before', one the 'what changed'.

What it should show

Each group's three boxes should hold a clear before → what changed contrast: e.g. crossing a river went from slow and risky to quick and safe; electricity now from never-ending wind instead of turf that runs out; clean water straight to the tap instead of hours carried from a well. A group that lists only facts with no 'before' has missed the shape — re-voice 'What did people use before this?' at their station.

Misconceptions & interventions

- **Pupils think STEM only means computers and modern gadgets.** — Hold up the stone-bridge station card — a bridge built two hundred years ago is engineering too. Stress that working out the curved arch so the weight holds itself up is STEM, no electricity involved.
- **Pupils name a famous Irish thing but can't say what changed because of it.** — Point at the bold sentence on their station card and ask 'What did people do BEFORE this existed?' Once they have the before, the change appears by contrast — that's exactly the shape the electric-light example modelled.

Differentiation

Emerging	Developing	Proficient
• Read the station card aloud with the group and have them underline the one bold sentence, then draw rather than write in the three boxes.	• Ask the group to add one more thing that got easier because of their invention, beyond what the card states.	• Have fast finishers write a second 'I wonder' question on the back of the page, or link their station to another group's (e.g. how Callan's electricity work connects to the wind farm).

Cross-curricular hook

Link to History — pupils are placing Irish inventions and inventors like Dunlop of Belfast and Holland of County Clare on a 'before and after' timeline of everyday life.