

Where energy comes from: renewable or not?

Lesson at a glance

Open by asking where the energy in a light or tablet comes from, then teach the renewable vs non-renewable contrast with a turf-card model. Groups sort six energy-source cards onto labelled mats, then the teacher drives five new sources on the sorting-tree interactive. The class places sources on a shared Ireland outline map before pairs build a paper pinwheel to feel wind energy. Recording lands on the Investigation Journal page; close with a display-only talk on Ireland's shift toward wind.

Learning objectives

- Sort common energy sources into renewable and non-renewable
- Identify energy sources Ireland uses on a simple outline map
- Describe wind as a renewable source they can feel with a pinwheel

Before the bell – prep

Print one set of six energy-source cards and two labelled mats (Renewable / Non-renewable) per group. Pre-cut paper squares with diagonal slits, one pin and one pencil-with-rubber per pair. Sharpen pencils; count pins into a shallow pot. Have two or three finished pinwheels ready and a blank Ireland outline on the IWB.

Materials

Item	Qty	Per	Source	Low-cost substitute
energy-source cards (wind, sun, turf, gas, moving water, wood)	1	group	provided printable	six sticky notes with the source names and short clues written on them
sorting trays or mats labelled renewable and non-renewable	2	group	classroom	two sheets of paper with the group names written at the top
simple blank outline map of Ireland on the IWB	1	class	classroom	draw a very simple island outline on the board for the whole class to use together
small sticky notes or tokens for placing sources on the class map	6	class	classroom	write source names lightly in marker on the board outline as the class agrees each place
square paper for pinwheels (about 15 cm by 15 cm), slits pre-cut toward the centre	1	pair	classroom	any scrap paper trimmed into a rough square; pre-cut slits still preferred
pencil with rubber	1	pair	classroom	a short stick or straw with a soft eraser piece taped on for the pin
pin or push pin	1	pair	classroom	share a few finished pinwheels so every pupil can still feel a spin without pins
scissors (round tip)	1	pair	classroom	rely on pre-cut slits so pupils only fold and pin
Investigation Journal page	1	pupil	classroom	a blank page where pupils list renewable and non-renewable sources and note that the pinwheel showed wind energy

Safety watch-point

Pins are sharp — one pin per pair, teacher or careful pupil pushes it in, tips away from faces, no running. Collect every pin into the pot before journal time.

Teaching moves

- **Renewable or not?:** Teach only the short board contrast: keeps coming back vs will run out. Model aloud with the turf card — peat takes thousands of years, so non-renewable — before groups touch any cards. Hold wind energy back until the pinwheel spins.
- **Sort the energy sources:** Hand out the six cards and two mats. Circulate asking ‘Will nature make more of this quickly?’ If a group stalls, re-model with turf. If moving water is treated as drinking water, point back to the card clue: rivers and dams that make electricity.
- **Five you did not have:** Drive the sorting-tree interactive yourself in explore mode. Do not re-sort the six settled cards. Spend the bulk of time on ‘wood we plant again’ vs never-replanted forest — same material, different answer — and link back to slow-forming Irish bogs.
- **Energy on the Ireland map:** Use one shared blank Ireland outline on the IWB. Pupil helpers stick tokens while the class calls the place and renewable or not. Keep anchors simple: wind on hills and coasts, turf on bogs, sun on rooftops. Invite ‘I have seen a turbine near...’ stories without exact geography.
- **Feel the wind: build a pinwheel:** Model the folds once on the IWB, then pairs share one build so pin count stays low. When it spins, say aloud: moving air spun your pinwheel; the same idea spins a turbine — that is wind energy, and wind is renewable. If time is tight, skip pupil pinning and pass finished pinwheels for every pupil to blow.
- **Record on your Investigation Journal page:** Tell pupils what to put down: renewable list, non-renewable list, and one note that wind is renewable and the pinwheel spun from moving air. Drawing or short words both fine. Check turf and gas sit in non-renewable before they finish.

What it should show

Renewable pile: wind, sun, moving water, wood (with replanting). Non-renewable pile: turf, gas. On the interactive, waves and underground heat are renewable; coal and oil are non-renewable; replanted wood stays renewable. A working pinwheel spins when blown or held in a gentle breeze. Groups who put wood with turf usually forget the replant idea — re-voice ‘does nature make more quickly?’

Misconceptions & interventions

- **‘Wood is non-renewable because once you cut the tree it’s gone.’** — Say plainly: when trees are replanted, wood is renewable; only a forest never replanted runs out. Contrast with turf, which forms far too slowly to replace.
- **Pupils treat the moving-water card as drinking water and cannot place it.** — Point back to the card clue — rivers and dams that make electricity — and ask whether rivers keep flowing, so the source keeps coming back.
- **‘Renewable means the thing itself is special, not whether it comes back.’** — Use the wood-we-plant-again argument on the sorting-tree: same material, different answer. Renewable is about replacement speed, not the material’s name.

**Differentiation**

Emerging	Developing	Proficient
• Sort only wind, sun and gas first, then add the remaining three cards with a prompt back to the turf model. • If build time is short, share a finished pinwheel so every pupil still feels the spin.	• After sorting, ask the group to say keep-coming-back or will-run-out in their own words for two cards. • Fast finishers spin the pinwheel near an open window and describe what changes the spin.	• Add a sticky note naming one place they have seen that source (turbine, solar panel, fire). • Explain why replanted wood and never-replanted forest land in different groups, linking back to Irish bogs and turf.

Cross-curricular hook

Tie to Geography: place energy sources on the Ireland outline and talk about hills, coasts and bogs pupils may know.