

Light: natural and artificial sources, and how we see

Lesson at a glance

Open by closing eyes briefly and naming every light source visible from seats. Pupils sort classroom sources and printed cards into natural or artificial trays, jotting one of each in the Investigation Journal. Teach transparent, translucent and opaque with sample patches, then groups shine a torch through clear plastic, tissue, baking paper, fabric, foil and cardboard onto a white screen. They match screen look to the three words, record results, and close on why we need light to see.

Learning objectives

- Sort light sources into natural and artificial
- Test materials as transparent, translucent or opaque
- Explain that we need light to see

Before the bell – prep

Print one light-source card set per group the day before. Gather torches (share one between two groups if short), white paper or wall screens, desk word cards, and test scraps: clear document wallet, tissue, baking paper, thin fabric, aluminium foil, cardboard. Dim the room slightly if safe.

Materials

Item	Qty	Per	Source	Low-cost substitute
torch	1	group	school kit	one or two class torches used in a station-turn sequence while the rest of the class watch and answer prediction questions, or the torch on a supervised classroom tablet
white screen or large sheet of white paper	1	group	classroom	a clear section of pale wall or the back of a large whiteboard
clear plastic sample (cut from a clear document wallet)	1	group	classroom	clear plastic from clean food packaging (smooth, no sharp edges)
tissue paper sample	1	group	classroom	a thin paper napkin
baking paper sample	1	group	supermarket	greaseproof paper or thin tracing paper
thin fabric scrap	1	group	classroom	an old clean handkerchief or thin tea towel corner
cardboard sample	1	group	classroom	a piece of cereal-box card
aluminium foil sample	1	group	supermarket	the shiny side of a crisp packet rinsed and dried
light-source cards (sun, fire or candle, stars, electric lamp, torch, phone or tablet screen, interactive whiteboard, bicycle light)	1	group	provided printable	write the eight names on scrap paper or sticky notes
sorting trays or floor labels for Natural and Artificial	2	group	classroom	two sheets of paper labelled Natural and Artificial
word cards transparent, translucent and opaque (with sample phrases clear bright patch, soft glow, dark patch)	1	group	provided printable	three sticky notes with the words and sample phrases
Investigation Journal page	1	pupil	provided printable	plain paper listing: each material; screen look; transparent/translucent/opaque; one natural source; one artificial source



Safety watch-point

Never shine torches at eyes or faces—point only at the screen; walk torches off between stations. Never look straight at the sun on any outdoor glimpse.

Teaching moves

- **Getting Started:** Keep the eyes-closed beat to two or three minutes. Ask pupils to name light they can see without leaving seats—window daylight, ceiling lights, the IWB. Park the moon if it comes up: we will check real sources today. Key question only: could we see anything with no light?
- **Two kinds of light source:** Project only the two source definitions. Teach natural and artificial now; hold transparent/translucent/opaque for the torch sequence. Ask whether a switched-off torch counts right now (no). Note stars make their own light but are too faint to light a pencil case.
- **Natural or artificial?:** Show the sorting rule and model the candle flame first—people light it, so artificial. Pairs hunt indoor sources, match printed cards into Natural and Artificial trays, and justify with the board rule. End with a one-minute journal jot: one natural and one artificial source.
- **Words for the torch test, then predict:** Hold up clear plastic, tissue and cardboard; chorally name transparent, translucent, opaque once. Leave those anchors visible. Vote on baking paper, thin fabric and foil using screen-look phrases only. Leave the shiny-foil prediction live—do not correct it yet.
- **Torch test: what lets light through?:** Model cardboard once aloud: predict, hold flat a hand-span from the screen, observe the dark patch, call it opaque. Groups (or station turns) test the full set with steady torch distance, matching screen look to desk word cards. Never shine at faces; walk torches off between stations.
- **Record what the light did:** Five minutes max. Project material → screen look → one science word. If you used stations, leave the class evidence list on the board so every pupil completes a full set. If someone wrote shiny for foil, send them back to the screen and the word cards.
- **Make sense and tidy:** Revoice pupil evidence: we need light to see; natural vs artificial; T/T/O match screen look. Return to the foil prediction—shiny can bounce light, but today's test asked what passes through. Collect torches off, trays clear, walkways free.

What it should show

Natural cards: sun and stars. Artificial: candle/fire, lamp, torch, phone screen, IWB, bicycle light. Clear plastic gives a bright clear patch (transparent); tissue and baking paper a soft glow (translucent); thin fabric often translucent; cardboard and foil a dark patch (opaque). Foil surprises groups who predicted transparent because it is shiny—shiny is not the same as light passing through.



Misconceptions & interventions

- **Foil will let light through because it is shiny.** — After the test, point at the dark screen behind the foil. Say shiny can bounce light sideways, but today's job was what passes through—foil blocks, so it is opaque.
- **A candle is natural because fire comes from nature, or the sun is artificial because it comes through the window.** — Revoice the board rule: sort by whether people made or lit the light. The sun stays natural; the window only lets it in. A candle people light is artificial.
- **Eyes send out light so we can see, or the moon is a light source.** — Keep the Stage 3 model simple: light comes from a source, hits things, and enters our eyes. Park the moon as reflecting the sun's light rather than making its own.



Differentiation

Emerging	Developing	Proficient
• Sort four cards first (sun, lamp, torch, candle) with the board rule visible. • Keep the three desk word cards and sample phrases beside the torch so they match screen look rather than recall definitions.	• Add sources spotted on the hunt that are not on the printed cards and justify each sort. • After the six materials, rank translucent ones from most to least light through (tissue vs baking paper vs fabric).	• Choose one classroom object for a window, a lampshade and a blackout blind and say why using T/T/O evidence. • Critique a wrong-footed foil prediction: explain why shiny bounce is a different job from light passing through.



Cross-curricular hook

Link to Irish history of light—rushlights in rural homes, then candles, oil lamps and electric bulbs—same job, changing artificial sources.