

Light: reflection, colour and a closer look

Lesson at a glance

Hook with a torch aimed at a hand mirror so a bright spot lands on the wall, and ask how the light got there. Whole class watches white light split through a prism onto white card, then rotate through Bounce (torch, mirror, target card) and Closer-look (magnifier, tiny-print card) stations. Trios then run a bounce investigation with a spoken prediction and fixed torch. Record on the Investigation Journal page, then consolidate bounce and spectrum on the light-rays interactive.

Learning objectives

- Show that light can bounce off a mirror to hit a target
- Observe white light splitting into a spectrum of colours
- Use a magnifier to make small print look larger and say that lenses bend light

Before the bell – prep

Print tiny-print cards and blue/red target cards the day before. Pre-stage six tables (three Bounce kits: torch, mirror, target; three Closer-look: magnifier, tiny-print card) and spare Bounce kits for the later reset. Prism, torch and white card at the front. Dim blinds. Water-tray-plus-angled-mirror is the dull-day spectrum backup.

Materials

Item	Qty	Per	Source	Low-cost substitute
small hand mirror	1	group	school kit	a clean stainless-steel spoon back or a CD shiny side used carefully as a reflector
small LED torch	1	group	school kit	phone torch held by the teacher at the demo table only
plastic or glass triangular prism (for the whole-class demonstration at the front)	1	class	school science kit	shallow clear tray of water with a small mirror propped at an angle under the surface, white card, and a torch (aim at the submerged mirror; never look at the sun)
shallow clear tray, small mirror, and white card (backup for the front demonstration if there is no prism)	1	class	classroom	white plate or lid under a clear tub of water with any small hand mirror angled in
hand magnifier	1	group	school kit	a clear curved plastic bottle base washed and dried (weaker but usable)
tiny-print cards (provided printable)	1	group	provided printable	a postage-stamp corner of a newspaper weather line or a short playful sentence written tiny by hand on a sticky note (no science claim about light)
target cards (Blue target / Red target)	1	group	provided printable	a sticky note with a drawn star and the colour name written large

Safety watch-point

Never shine torches in eyes; never look at the sun or focus sunlight with a magnifier onto skin or paper. Two-hand grip on mirrors and glass; wipe water spills at once. Prism and water tray stay teacher-side.

Teaching moves

- **Getting Started:** Have one mirror and torch in hand only. Dim the room a little, bounce a bright spot onto the wall or board, and ask how the light got there. Take two or three ideas without correcting yet — wrong guesses are useful starting points.
- **What light can do:** Project only the two short key pictures. Start with the partner curiosity question (bounce or split?). Work the mirror model aloud once before stations: wonder, predict, test by tilting, observe the spot, think the path. Send groups on their curiosity choice.
- **Explore the light stations:** Run the prism split at the front first (about 3 minutes) so every group sees one clear band and names colours. Park the prism, then rotate six groups across Bounce and Closer-look tables (about six minutes each). Watch for aiming at the mirror not the target, and slow rushers with one 'what did you see?' question.
- **Bounce and hit the target:** Reset under two minutes — kits are already staged. Name roles (torch still, mirror tilt, spotter), place each trio's target, and insist on a spoken prediction before anything moves. Circulate asking whether light went straight to the mirror then changed direction. Hood the torch if the room is bright.
- **Record what light did:** Open the Investigation Journal page. Coach the board checklist aloud: mirror, split colours, magnifier change, bounce hit and what was tilted. Push for one note or drawing per part; distinguish 'I saw...' from 'so I think...' as you circulate.
- **The path light takes:** Drive the light-rays interactive in guided mode on the IWB, one step at a time. Pupils predict aloud before each advance. Tie language to the hands-on bounce and the front spectrum. Leave two big rules only — bounce and split — and check the 'does light leave our eyes?' misconception.
- **What we found out:** Take three quick partner shares on which station surprised them, then revoice bounce and spectrum firmly in child language. Magnifier bending light is a short Station C recap only. Count mirrors and magnifiers back in; dry any water tray.

What it should show

Bounce: the bright spot hits the target when the torch stays still and only the mirror tilts — light travels to the mirror then changes direction. Spectrum: a band from red through violet on the white card. Magnifier: tiny print becomes readable; pupils say the curved glass bends light. A miss usually means the torch was waved or aimed at the target; fix the torch and re-tilt slowly. A faint spectrum means more room dimming or the water-plus-angled-mirror backup.

**Misconceptions & interventions**

- **Light leaves our eyes to see the board or the target.** — Ask where the light starts — torch, screen or sun — and trace the path with a finger to the eye. Nothing leaves the eye; light arrives there.
- **The mirror makes light, or the prism paints colours onto white light.** — Hold the unlit mirror and ask if it glows. At the prism, restate that white light already holds the colours and the prism only spreads them out.
- **To hit the target you shine the torch at the target, not at the mirror.** — Freeze the hands and revoice the model: torch stays aimed at the mirror; only the tilt steers the spot. Have them try one slow tilt from a still torch.

**Differentiation**

Emerging	Developing	Proficient
• Start at Bounce first — landing the spot is the clearest success — and pair with a peer who holds the torch still while they only tilt. • Accept a labelled drawing of the bounce path or the colour band if written notes are thin.	• After one hit, retarget once (blue to red card) with a fresh spoken prediction before tilting. • Add one sentence linking Station C: the print looked larger because the lens bent the light.	• If a spare small mirror is on the Bounce table, try a second-bounce path to the same target and sketch both legs on spare paper. • Fair-test critique: name what must stay the same (torch still, same height) for a fair bounce comparison.

**Cross-curricular hook**

English oral language: partner shares on which station surprised them most, using because to justify.