



Light and Shadows! Year 5 Science at Home

You can help! Your child is exploring how light behaves — travelling in straight lines, reflecting off surfaces and creating shadows. The bright sunshine up here makes this topic very easy to explore outdoors!

Why are we learning this? Light and the sun up here

Up here in the north, we know the sun very well! The way light travels, reflects and creates shadows has always been part of life. First Nations peoples have used shadows to track time. Spear fishing requires understanding how light bends in water (refraction) so you aim where the fish ACTUALLY is, not where it appears to be. When your child explores light, they are discovering science that connects to both everyday tropical life and traditional knowledge on Country.

My child will learn to:

✓ Know light sources

Distinguish between natural light sources (sun, fire) and artificial ones (light bulbs, torches).

✓ Understand straight-line travel

Know that light travels in straight lines — and draw ray diagrams to show this.

✓ Understand shadows

Explain how shadows are formed when an object blocks light.

✓ Explore reflection

Describe how light bounces off smooth surfaces like mirrors and water.

Big ideas to know:

Straight-line travel

Light always travels in straight lines from its source. This is why shadows have clear edges — light cannot bend around corners without help.

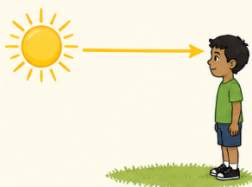
Shadows

A shadow forms when an object blocks light. The shadow is always on the opposite side of the object from the light source. Closer to the light = bigger shadow.

Reflection

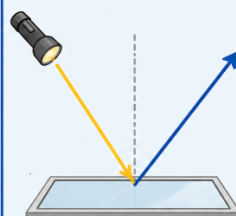
When light hits a smooth, shiny surface, it bounces off at the same angle it hit — this is called reflection. Mirrors, water and polished metal all reflect light well.

Straight Line Travel



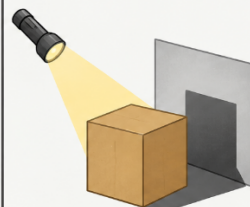
- Light travels in a straight line from its source.
- Ray diagrams show this with arrows.

Reflection



- Light hits a smooth surface and bounces back.
- The angle in = the angle out.

Shadows



- Objects that block light create shadows.
- Shadows change size as the light source moves.



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How light behaves

Behaviour	What happens	Example
Straight-line travel	Light travels in a straight path from its source and does not bend around objects	The sun shines in a straight line — that is why you can block it with your hand to create shade
Reflection	Light bounces off smooth, shiny surfaces at the same angle it hits	Sunlight reflecting off a still pool of water. Mirrors in a bathroom. Shiny metal.
Shadow formation	When an object blocks light, a shadow forms on the opposite side	Hold your hand between a torch and a wall — your hand blocks the light and creates a shadow.
Refraction	Light bends slightly when it moves from air into water or glass	A stick looks bent when you put it in a glass of water — light is bending at the surface.

Think Like a Scientist — Shadow Scientist

On a sunny day, go outside at three different times — morning, midday and afternoon. Trace your shadow each time. How does it change? Measure its length.

Ask: "Why is your shadow shorter at midday? What does that tell you about where the sun is? Could you use your shadow to tell the time?"
Scientists have used shadows as clocks for thousands of years!

You will need: (Materials)

- Torch or lamp
- Small mirror
- Glass of water
- White paper or wall
- Chalk or pencil for shadow tracing
- Coloured cellophane (optional)

Light experiments at home:

1. Torch + wall: make shadow puppets and change the size by moving closer or further away
2. Mirror + sunlight: can you reflect sunlight onto a wall?
3. Glass of water + pencil: put the pencil in the glass and look from the side — does it look bent?
4. Trace your shadow 3 times during the day — morning, noon, afternoon
5. Coloured cellophane over a torch: what happens to the colour of the light?

Questions to ask your child

1. Where is the light source? What direction is the shadow pointing?
 2. Why is the shadow longer in the morning than at midday?
 3. What would happen to the shadow if you moved the object closer to the torch?
 4. Can you see your reflection in still water? What makes it clear or blurry?
 5. Why do you aim the spear slightly away from where you see the fish in the water?
 6. Can light go around corners? How do you know?
 7. What natural light sources can you find? What artificial ones?
- A sunny day and a wall are all you need to explore light! Shadow puppets, reflections in water, and a torch at night all show exactly the same science your child is learning at school.*

Key words to know:

Light	A form of energy that allows us to see
Light source	Something that produces light — the sun, fire, a light bulb, glow worms
Shadow	A dark area formed when an object blocks light from a source
Reflection	When light bounces off a surface — smooth shiny surfaces reflect best
Refraction	When light bends as it passes from one material to another — like air to water
Ray diagram	A diagram using arrows to show the path of light from a source
Transparent	Allows light to pass through — like glass or clear water

Key words to look up

Light · Light source · Shadow · Reflection · Refraction · Ray diagram · Transparent

What school will check

Your child needs to identify sources of light, recognise that light travels in a straight path, and describe how shadows are formed and how light can be reflected.

Try it at home!

On a sunny afternoon, stand with your back to the sun and draw around your feet on the ground. Come back an hour later and check — has your shadow moved? What direction has it moved? Why?

