

Light and Shadows

How light travels and why shadows form



TEACHER

Teacher Name

CLASS

6

PERIOD

40 minutes

Lesson plan



01

Warm-up

02

Learn

03

Explore

04

Practise

01

WARM-UP



Learning objectives

- Explain that light travels in straight lines
- Classify transparent, translucent and opaque materials
- Explain how shadows form
- Describe a pinhole camera

YOU ALREADY KNOW

Light comes from sources like the sun and bulbs.



**Why is your shadow long in the
morning and short at noon?**

Think about it

02

LEARN



Light travels in straight lines

Light moves in straight lines called rays.

When an opaque object blocks light, a dark area forms behind it — a shadow. Its size depends on the distances between the light, the object and the screen.



Diagram / picture

Key terms



Transparent

Lets almost all light through,
e.g. glass.



Translucent

Lets some light through, e.g.
butter paper.



Opaque

Blocks light completely, e.g.
wood.

Make a pinhole camera

01

Box

Take a small closed box

02

Pinhole

Make a tiny hole on one side

03

Screen

Fix tracing paper opposite

04

Observe

See an upside-down image

Materials and light

Material	Type	Shadow
Glass	Transparent	Very faint
Oiled paper	Translucent	Light
Cardboard	Opaque	Dark

Test your own materials with a torch.

03

EXPLORE



Did you know?

3 lakh km

light travels each second

8 min

for sunlight to reach
Earth

Upside down

pinhole camera images

Real-life examples



Image 1

Sundials

Shadows tell the time



Image 2

Shadow puppets

Light and hands tell stories



Image 3

Eclipses

The Moon's shadow on Earth

Shadow vs mirror image

Shadow

- ✓ Always dark
- ✓ No colour or detail
- ✓ Light is blocked

Mirror image

- Colour and detail
- Light is reflected
- Same way up

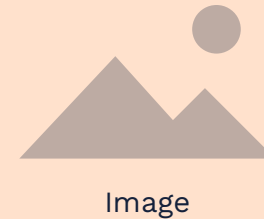
04

PRACTISE



Check your understanding

- Why do shadows form?
- Name one translucent material
- When is your shadow shortest?
- Why is a pinhole image upside down?



Activity time



Shadow tracing

Trace a friend's shadow at three times of day.



Material test

Sort objects with a torch.



Pinhole camera

Build one in groups.

Homework

- Draw how a shadow forms
- List five opaque objects at home
- Write about an eclipse



Image



Great work today!

Next lesson: Mirrors and reflection

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