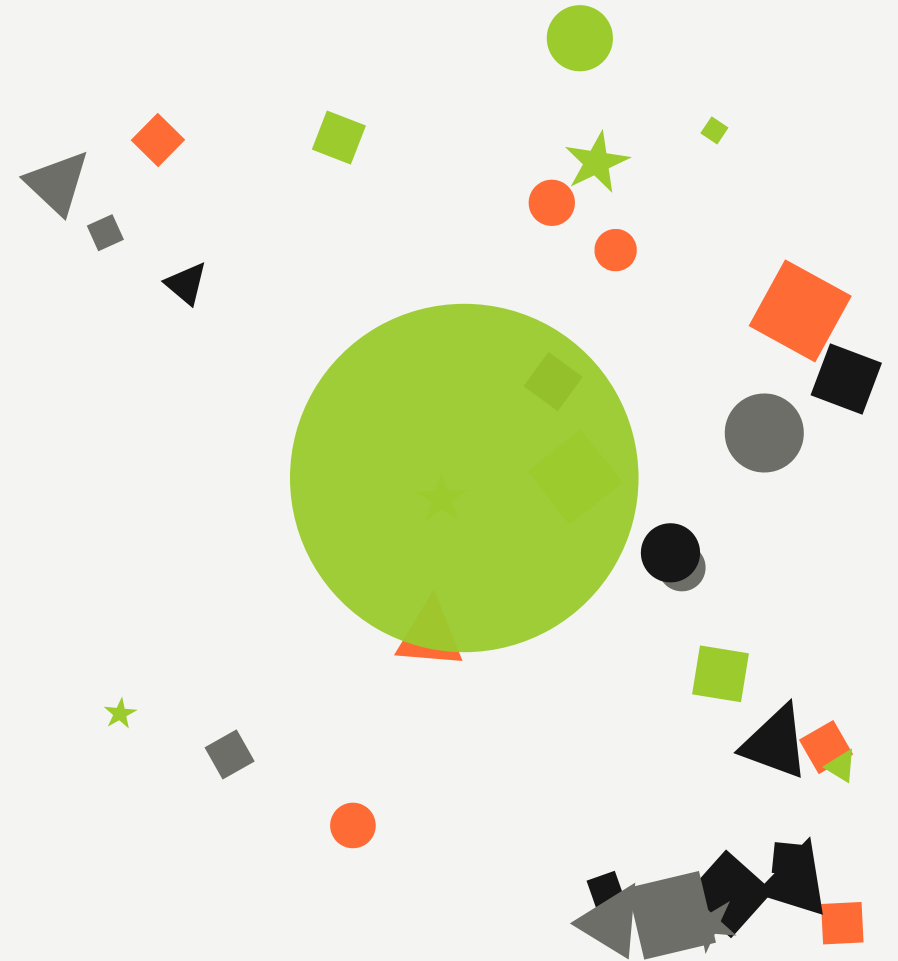


SCIENCE · CLASS 6

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



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

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

1

Transparent

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

2

Translucent

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

3

Opaque

Blocks light completely, e.g. wood.

Make a pinhole camera

1 *Box*

Take a small closed box

2 *Pinhole*

Make a tiny hole on one side

3 *Screen*

Fix tracing paper opposite

4 *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.

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

vs

Mirror image

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

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

1

Shadow tracing

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

2

Material test

Sort objects with a torch.

3

Pinhole camera

Build one in groups.

Homework

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



Great work today!

Next lesson: Mirrors and reflection

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