

Year 6: Light

Topic overview for teachers

Age 10-11



This topic overview is based on the PLAN knowledge matrix (for England). Please use link:

<https://www.planassessment.com/light-y6>

The matrix includes:

- National Curriculum learning objectives
- Key learning
- Key vocabulary
- Common misconceptions
- Possible activities & evidence

Year 6 – Light

| Topic | Key Learning | page |
|--|--|------|
| <i>Light travels in straight lines</i> | <ul style="list-style-type: none">• We see things because light travels from a light source into our eyes.• Light travels in straight lines. | 3 |
| <i>Seeing shiny and matt objects</i> | <ul style="list-style-type: none">• The idea that light travels in straight lines can explain how non-luminous objects are seen.• All surfaces reflect some light.• Shiny surfaces reflect light better than matt surfaces. | 4 |
| <i>Making and measuring shadows</i> | <ul style="list-style-type: none">• The idea that light travels in straight lines explains why shadows have the same shape as the objects that cast them.• That the size of a shadow depends on the relative position of the light source and the object. | 5 |
| <i>What time is the Sun highest in the sky?</i> | <ul style="list-style-type: none">• The size of the Sun's shadow changes throughout the day.• The Sun rises in the East and sets in the West.• The Sun is highest in the sky in the middle of the day. | 6 |



Light

Light travels in straight lines

Key Learning

- We see things because **light** travels from a **light source** into our eyes.
- Light travels in **straight lines**.

I can...

- draw **ray diagrams** showing how **light** travels from a **light source** into an eye.

Activities and websites

- Exploring prior knowledge about light and how it travels through materials.

www.youtube.com/watch?v=a8xt_m4iMYc

- Observing what you can and can't see and representing how light travels.
- Drawing ray diagrams.
- *Optional activities to explore questions you have about light and find out more about it.*

https://kids.kiddle.co/Speed_of_light and/or

www.youtube.com/watch?v=Z2ii1ydXKZY

www.dkfindout.com/uk/science/amazing-inventions/light-bulb



Light

Seeing shiny and matt objects

Key Learning

- The idea that **light** travels in **straight lines** can explain how **non-luminous** objects are seen.
- All **surfaces reflect** some light.
- **Shiny** surfaces reflect light better than **matt** surfaces.

I can...

- record the results of a reflection investigation in a **Carroll diagram**.
- draw **ray diagrams** to show how **non-luminous** objects are seen directly, and when they are seen reflected in a **mirror**.

Activities and websites

- **Exploring prior knowledge about the reflection of light.**

www.bbc.co.uk/bitesize/clips/zs3ygk7

- **Investigating the reflective properties of objects.**
- **Recording results in a Carroll diagram.**
- *Optional activities to find out more about the reflection of light.*

www.beano.com/games/lazer-maze

www.bbc.co.uk/bitesize/topics/zbssgk7/articles/zqdx82



Light

Making and measuring shadows

Key Learning

- The idea that light travels in straight lines explains why **shadows** have the same shape as the **objects** that cast them.
- That the size of a shadow depends on the relative position of the light source and the object.

I can...

- record my measurements in a table.
- plot a line graph showing how the size of an object's shadow depends on the distance between the light source and the object.

Activities and websites

- **Exploring prior knowledge about shadows: where and how are shadows made?**

www.youtube.com/watch?v=3Mv4qa5c0q8

- **Measuring the size of a shadow as you change the distance of the object from the light source.**
- *Optional activities for exploring more about shadows and how they are used.*

www.youtube.com/watch?v=a4Fv98jttYA&t=1s

www.youtube.com/watch?v=ss9FAdhX4mI

www.bbc.co.uk/bitesize/clips/z87jmp3

www.carlemuseum.org/blogs/making-art/copy-paper-box-shadow-puppet-theater



Light

What time is the Sun highest in the sky?

Key Learning

- The size of the Sun's **shadow** changes throughout the day.
- The Sun rises in the East and sets in the West.
- The Sun is highest in the sky in the middle of the day.

I can...

- observe and record the size of shadows through the day.
- plot a line graph of results taken to one decimal place.
- draw a conclusion from my data.

Activities and websites

- **Exploring prior knowledge about shadows on a sunny day.**
- **Taking accurate measurements of a shadow throughout the day and plotting a line graph.**
- *Optional activity: You may like to explore sundials and make one.*