



Wider Curriculum Unit Plan for Home learning

Subject: Science

Unit: Light

Year: 6

Session

Session 1

Why do we need light?

- In year 3, you learnt about shadows. Look at what the children on the concept cartoon have said (session resources). Which statements do you agree and disagree with and why?
- Try out some of the [illusions](#) and discover just how tricky it can be for our brains to accurately interpret the images from our eyes. Click on any of the images to begin an exploration of optical illusions.
- What do you already know about the topic of light? Do you have any questions?
- Imagine Earth without artificial light that has been created by humans. How would this affect our lives? Use the [satellite pictures of Earth at night-time](#) to show where in the world people rely most on created light. Why is light so important?

Session 2

How does light help us to see?

- Look at the picture of the eye in the session resources. How do we see things? How can you see your pencil? If I turned off the lights could you still see it? What if you covered your eyes tightly, could you see it then? Would you be able to see a white cat in a dark room?
- Watch the [video](#) and explain in your own words how we see using a source of light.
- Make a simple drawing of how we see things – use arrows and words to explain how an object is seen. This [video](#) will give you more information.

Session 3

How do our eyes work?

- Watch the two videos [here](#) and [here](#) (1minute 19 to end – this video shows an animal eye) to learn more about how the eye works.
- Read the letter in the session resources.
- Using what you have learnt about the eye, write a response letter, giving information and advice.

Session 4

What evidence would prove that light travels in straight lines?

- How do we see the sun and the moon? Use the images in the session resources to decide which images are correct and which are incorrect.
- Look at investigations A and B in the session resources. Think about the questions.
- What do these two investigations tell us about the way that light travels?
- Watch the [video](#) that shows how light travels (including an example of investigation B).

Session 5

What is light and where does it come from?

- This [video lesson](#) recaps some of the work covered so far and some work from previous years that will be useful in this unit. It covers: light sources; reflection; darkness and shadows; and transparent, translucent and opaque materials.

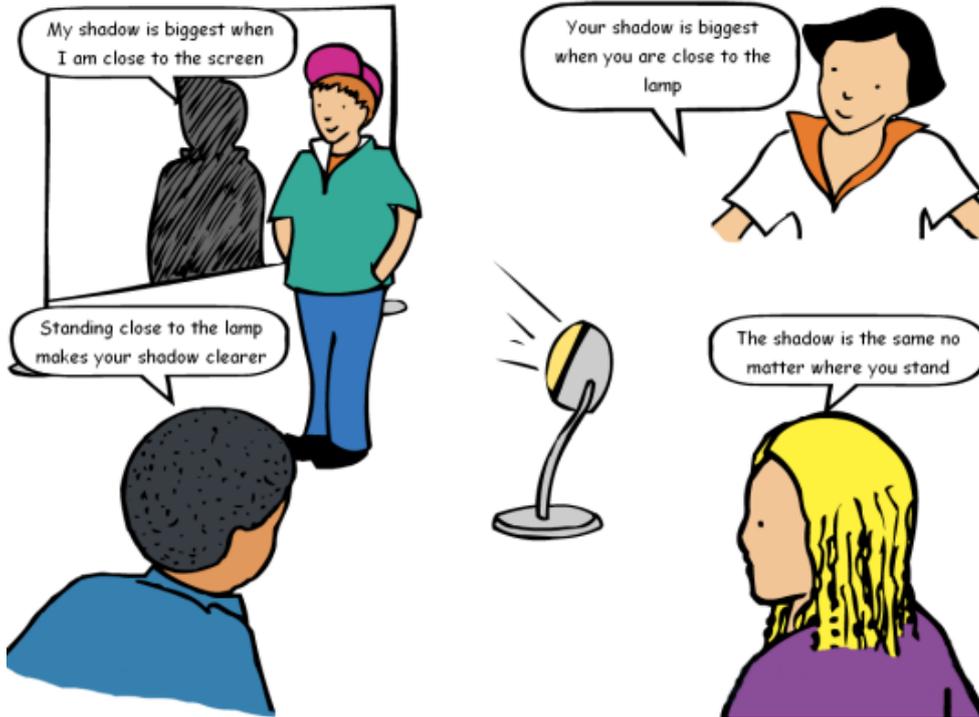
Session 6	<p>What is reflection and how can we use it?</p> <ul style="list-style-type: none"> Watch the video and complete the lesson here. Make sure you have a go at the quiz first in order to recap previous learning.
Session 7	<p>What is refraction and how can we use it?</p> <ul style="list-style-type: none"> Watch the video and complete the lesson here. Make sure you have a go at the quiz first in order to recap previous learning.
Session 8	<p>Where do different colours come from?</p> <ul style="list-style-type: none"> Watch the video and complete the lesson here. Make sure you have a go at the quiz first in order to recap previous learning.
Session 9	<p>What are some of the uses of light?</p> <ul style="list-style-type: none"> Watch the video and complete the lesson here. Make sure you have a go at the quiz first in order to recap previous learning.
Session 10	<p>Assessment</p> <ul style="list-style-type: none"> Assess what you understand about light through our work in this unit using the questions in the session resources. The answers are given at the end of the assessment for you to check your own work.
Sessions 11 & 12	<p>Patricia Bath</p> <ul style="list-style-type: none"> Watch the video about Patricia Bath and her life. Imagine you are Patricia Bath talking to a blind patient who suffers from cataracts. Complete research on cataract operations and complete the tasks in the resources below. Write an account of a person who can see again for the first time in thirty years.

Optional separation of sessions 11 and 12

Session 11	<p>Patricia Bath – part 1</p> <ul style="list-style-type: none"> Watch the video about Patricia Bath and her life. Imagine you are Patricia Bath talking to a blind patient who suffers from cataracts. Complete research on cataract operations and complete the tasks in the resources below.
Session 12	<p>Patricia Bath – part 2</p> <ul style="list-style-type: none"> Look back at your research of Patricia Bath in session 11 Write an account of a person who can see again for the first time in thirty years.

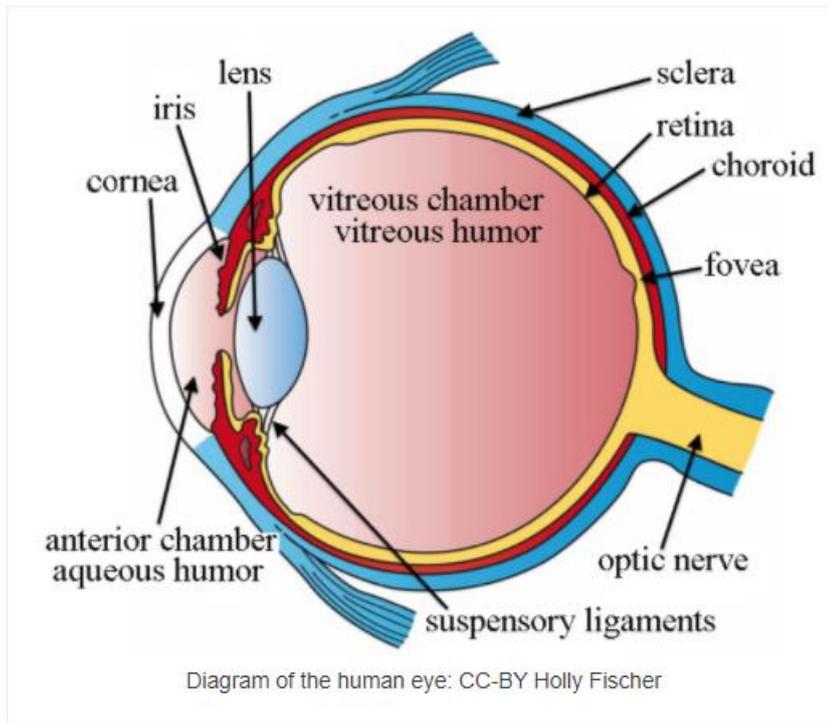
Concept Cartoons

Shadow Screen



What do you think?

Session 2



Session 3

Dear Year 6,

My eyes are very important to me. They are complicated organs which allow my brain to see perceive the world around me.

However, my grandmother struggles to see very well though. I'm worried that as I get older, my eyesight might get worse.

What can I do to keep them healthy?

Yours,

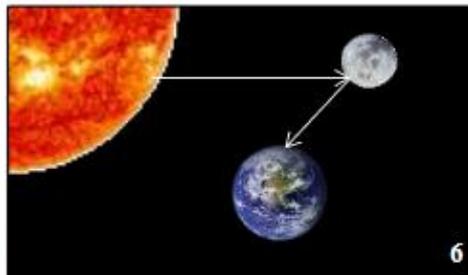
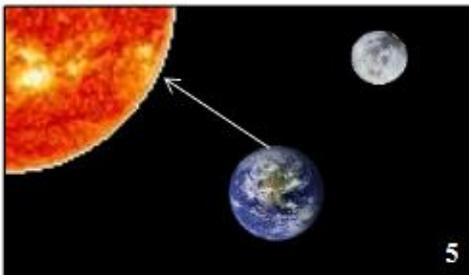
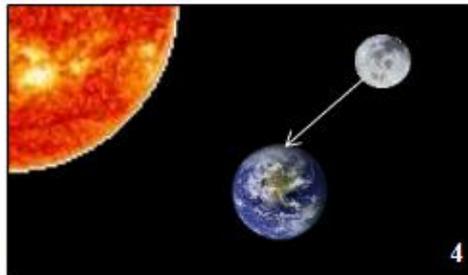
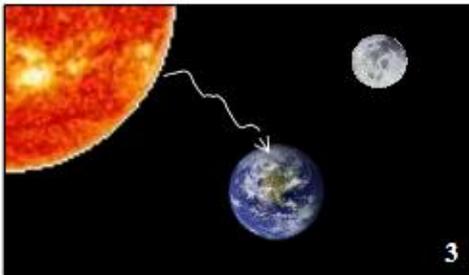
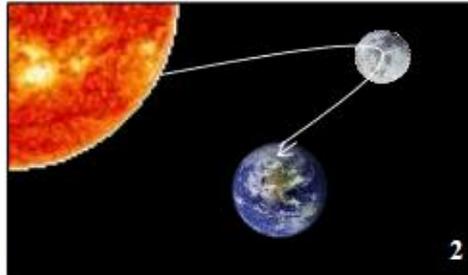
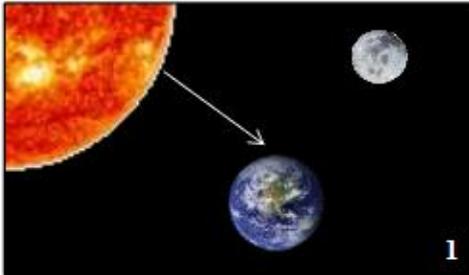
Dr Reece Urcher

Session 4

How do we see things?

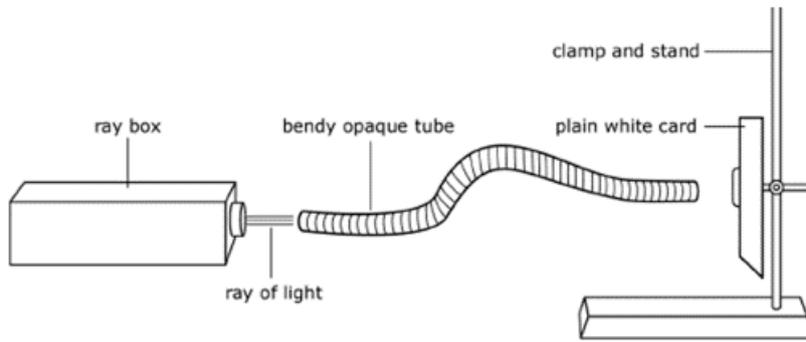
Which one of these images correctly shows how we see the Sun?
Which one of these images correctly shows how we see the Moon?

Why are the other images wrong?



A

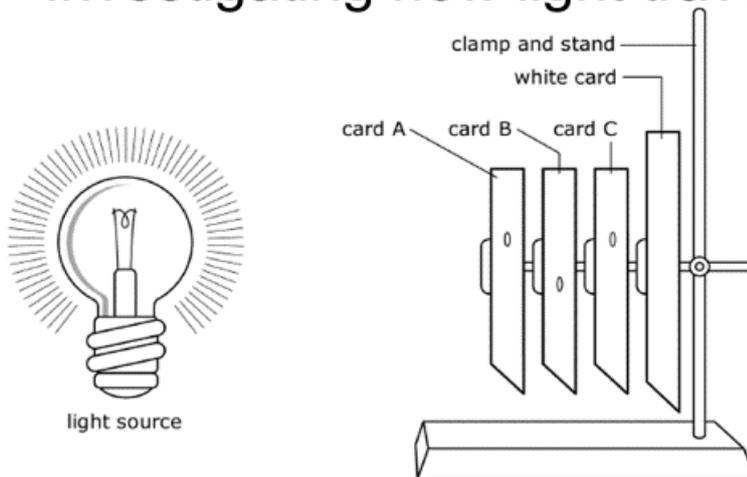
Investigating how light travels?



How could you get the light to shine on the card?

B

Investigating how light travels?

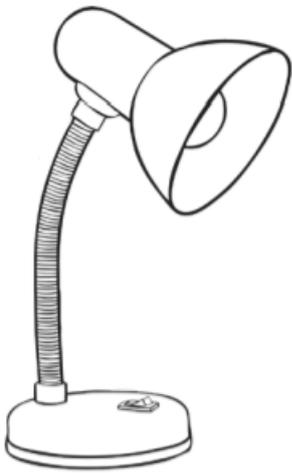


Cards A, B and C are black. How could you get the light to shine on the white card?

Light Assessment

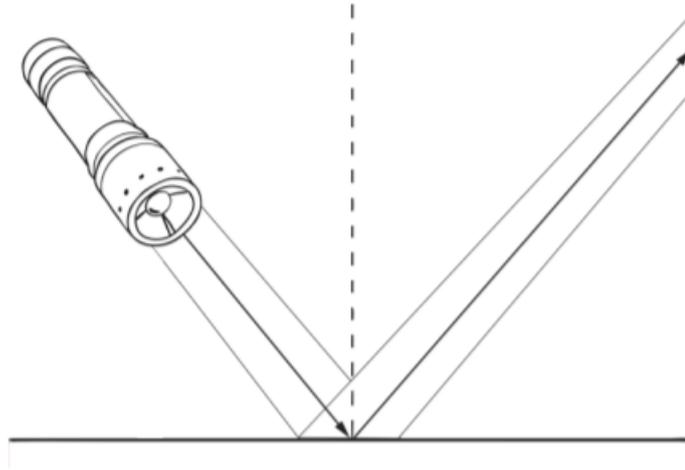
How we see things

1. Name 3 light sources.
2. How can we see the moon at night?
3. Fill in the gap in this sentence:
Light travels in a _____ line
4. Draw two lines and arrows to show how the eye sees the apple.

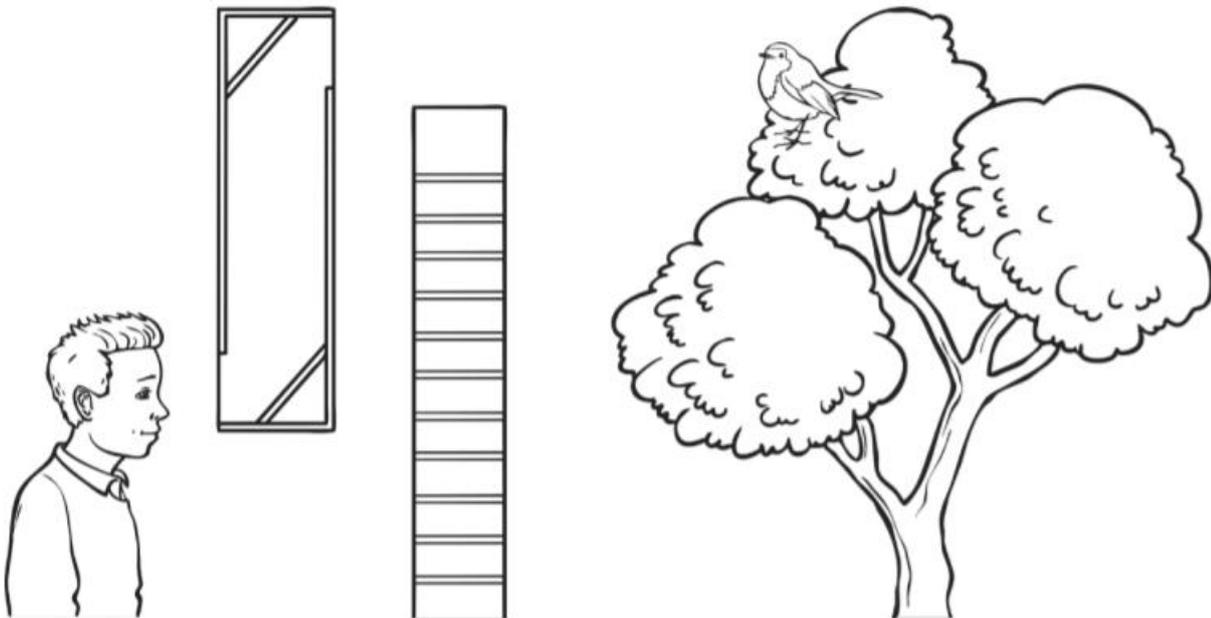


Reflections

5. Place these labels correctly on the diagram.
Angle of reflection
Angle of incidence



6. Draw 4 lines on the diagram to show how the person can see the bird through the periscope.



Travelling Light

7. Name two precautions people can take to protect themselves from the harmful rays of the sun.
8. True or false?
 - a) Light travels faster than sound
 - b) Light can travel through space
 - c) The moon is a light source
 - d) Stars shine because they reflect the sun's light

9. Write the meanings of these words:

a) Opaque

b) Translucent

c) Transparent

Session 10

Light Assessment - ANSWERS

How we see things

1. Name 3 light sources.

Examples: the sun, fire, stars, candles, light bulbs, gas lamps, fireworks
NOT the moon

2. How can we see the moon at night?

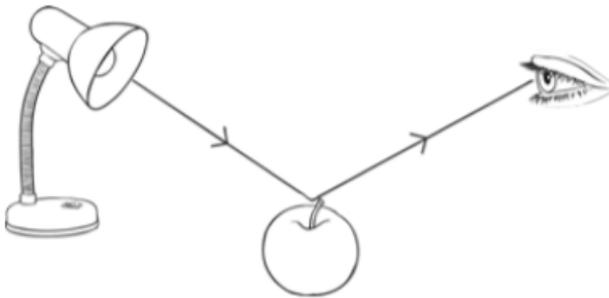
It reflects the sun's light.

It reflects the light to Earth.

3. Fill in the gap in this sentence:

Light travels in a straight line.

4. Draw two lines and arrows to show how the eye sees the apple.

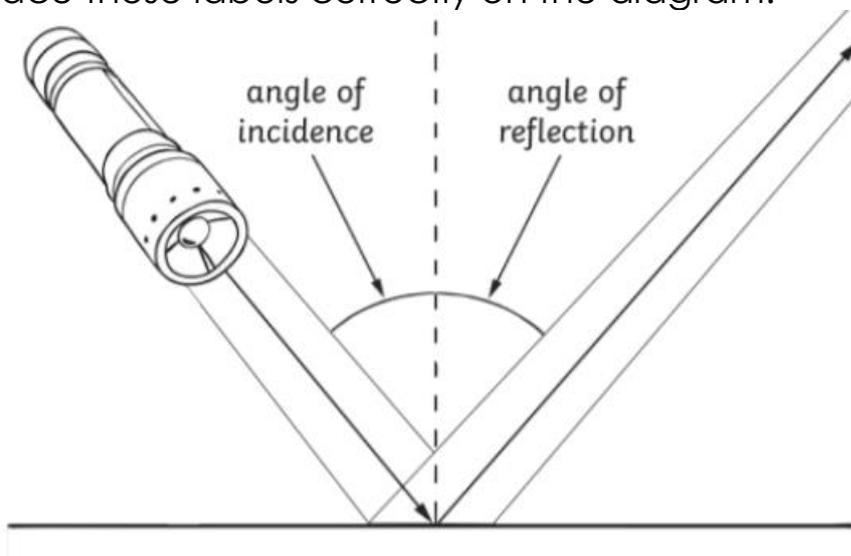


the correct directions.

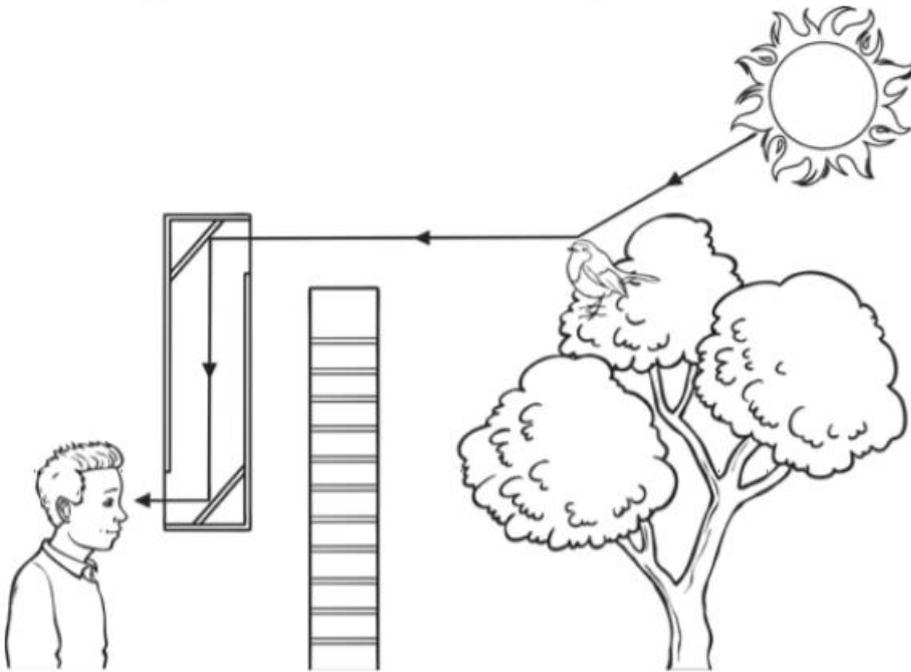
Straight lines with arrows pointing in

Reflections

5. Place these labels correctly on the diagram.



6. Draw 4 lines on the diagram to show how the person can see the bird through the periscope.



Travelling Light

7. Name two precautions people can take to protect themselves from the harmful rays of the sun.

Examples: sunglasses, sun cream, clothes that cover the body, stay indoors/in the shade, sun hat

8. True or false?

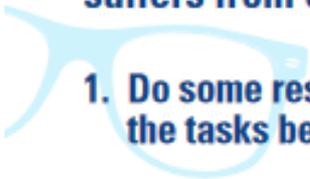
- e) Light travels faster than sound TRUE
- f) Light can travel through space TRUE
- g) The moon is a light source FALSE
- h) Stars shine because they reflect the sun's light FALSE

9. Write the meanings of these words:

- d) Opaque – lets no light through
- e) Translucent – lets some light through but not detailed shapes
- f) Transparent – lets almost all light through so shapes can be seen clearly



Imagine you are Patricia Bath talking to a blind patient who suffers from cataracts



1. Do some research into cataract operations to help complete the tasks below:

Explain what cataracts are and the symptoms

Describe what the treatment is to cure cataracts

Talk to them about what they can expect after treatment

Describe how the operation will work

Think of what else you can say to reassure them about what is going to happen

2. Now write an account of a person who can see again for the first time in thirty years.



Word bank

cataracts lens transparent lasers dissolves
damaged Laserphaco probe treating
affected blurred misty