Chapter 3 Checkpoint
Revision (Route A)

Aims

In the activity you will learn more about how we see, how light interacts with materials, and how we see colour.

Task 1: Light

Use these words to complete the sentences about light:

absorb different diffuse focus prism refraction same slower specula transmit

Transparent materials like glass _____ light.

When light passes through glass, it changes direction at the edge. This is called _____. The light travels _____ in the glass. A lens uses refraction to _____ light at a focal point.

When white light passes through a _____ it splits into a spectrum.

Opaque materials like cardboard _____ light.

Task 2: Reflection

Use these numbers to complete the sentences.

20 90 300

Joe shone light at a flat mirror. He measured angles from the normal. The normal is at _____ degrees to the mirror's surface.

The angle of the incident ray was 20 degrees. The angle of the reflected ray was _____ degrees. This obeyed the law of reflection.

The speed of light is _____ million m/s.

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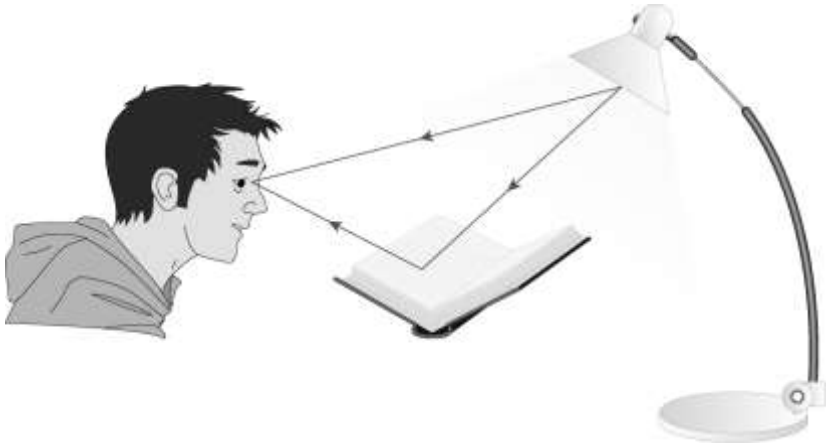
Task 3: Diffuse or specular?



Use the remaining key words from Task 1 to complete the following sentences on reflection.

1 Light reflecting from a sheet of paper is called _____ reflection. It reflects in _____ directions.

Shiny surfaces like a mirror _____ light. Light reflecting from a mirror is called _____ reflection. It reflects in the _____ direction.

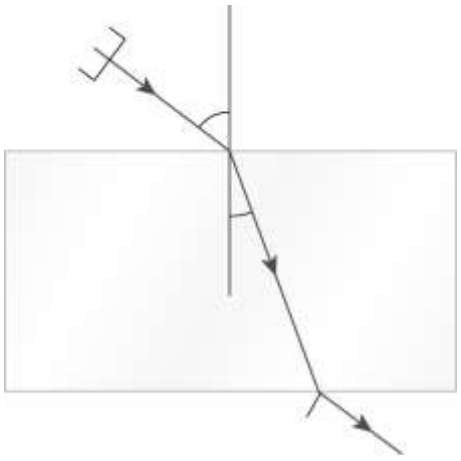
2 Two scientific terms are used in the passage above. How can you remember which way round they go? Write down a way you can remember:

_____

_____

Task 4: Explaining refraction

Look at this diagram of light moving through a glass block.



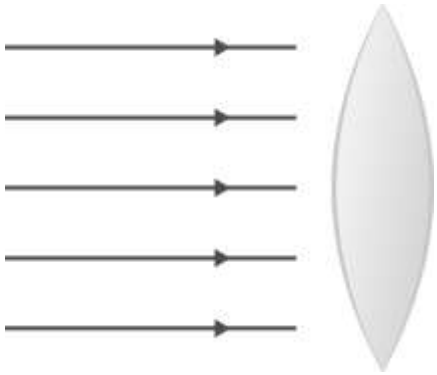
Understanding this diagram can help you explain what happens when light is refracted.

Write an explanation for the refraction of light. Make sure you include these key words.

lights travels glass block direction bend because normal

Task 5: Lenses

How do lenses work? Complete the diagram to show what happens to light as it passes through this lens.



Describe what you have drawn to the person sitting next to you.

Task 6: The eye and the camera

1 Fill in the table to explain what each part of the eye does. In the last column, compare the parts of the eye with parts of a camera.

Part of the eye	What it does	What part does the same job in the camera?
lens		
cornea		
pupil		
iris		
retina		
optic nerve		

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2 Write a full description of how the eye works in the space below. You can use the information in the table above to help you. You should write in full sentences and in a logical sequence.

Use these key words in the order they are given:

light **reflected** **pupil** **cornea** **focus** **retina** **image** **inverted**

3 Use the information in the table above to help you compare the eye and the camera.

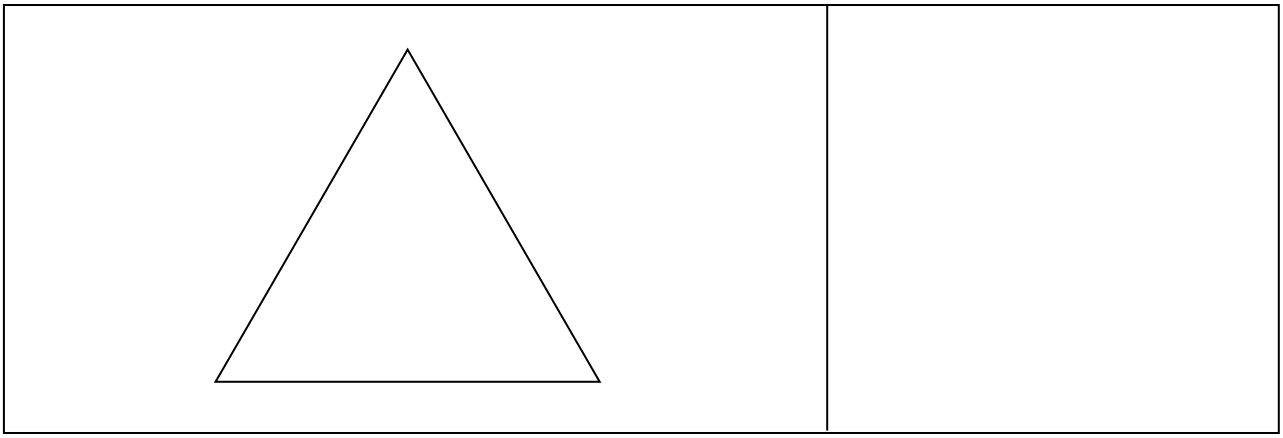
Write down 2 ways that the camera and eye are similar:

Write down 2 ways that the camera and eye are different

Task 7: Prisms and colour

1 Use coloured pens or pencils to show what happens to white light when it enters a prism. In the box on the left write a description of what happens. You should include the key words provided.

white light **colours** **prism** **spectrum** **dispersion**



P1

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Activate

2 Complete these sentences:

The primary colours of light are _____ , _____ , and _____ .

Mixing all three primary colours together gives you _____ light.

A filter transmits light that is its own colour and absorbs all other colours. For example, a red filter _____ red light and a red filter _____ green light.

A coloured object reflects light that is its own colour, for example, a red book _____ red light. A _____ book reflects all colours of light.

3 Complete the table to show how secondary colours are made:

Primary colour	**Primary colour**	**Secondary colour**
red	green	
red	blue	
blue	green	

4 Complete the table to show how coloured filters affect coloured light and the appearance of coloured objects:

Colour of filter	**Colour of book**	**Appearance of book in the light**
blue	blue	
red	blue	
red	yellow	
red	white	
blue	white	