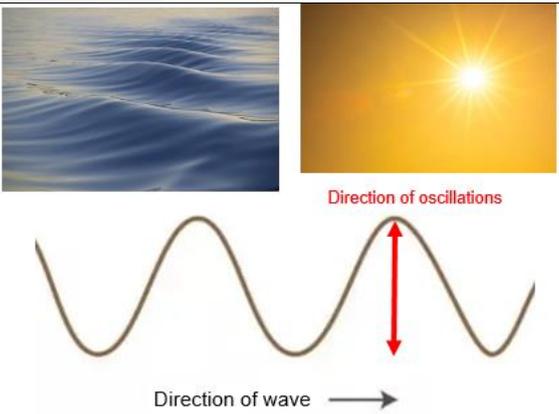
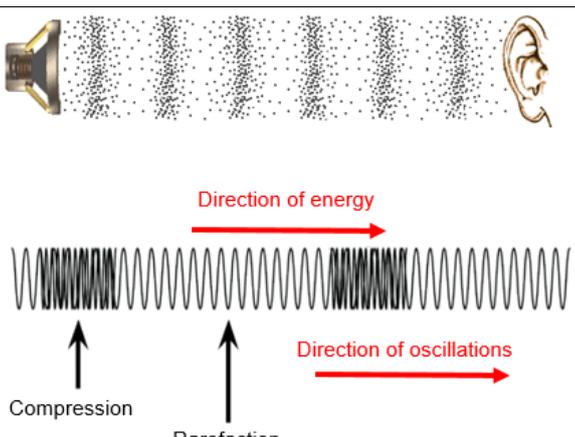


Do Now:

1. What does the law of conservation of energy state cannot happen to energy? (2)
2. State the stored energy in an object that is held high up in the air. (1)
3. State the energy stored in a moving object. (1)
4. Define dependent variable. (1)
5. Convert 35cm into mm. (1)

Challenge: Describe the energy transfer that takes place when a ball is dropped from 1m and falls to the ground. (3)

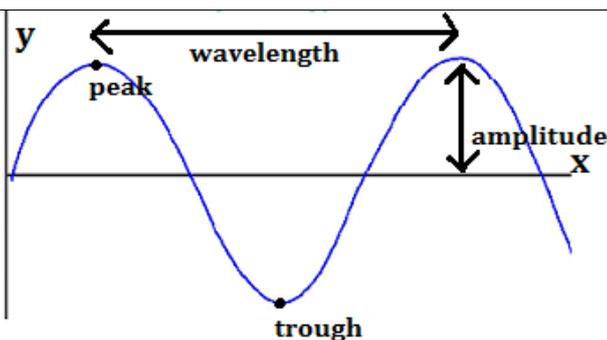
New information

	<p>Waves transfer energy without transferring matter</p> <p>Transverse waves:</p> <ul style="list-style-type: none"> • Examples of transverse waves are light waves and water waves • The oscillations in a transverse wave are perpendicular (at a right-angle) to the direction of the energy transfer.
	<p>Longitudinal waves:</p> <ol style="list-style-type: none"> 1. An example of a longitudinal wave is sound waves 2. The oscillations in a longitudinal wave are parallel to the direction of the energy transfer.

Pause Point 1 – Complete the sentence in your book:

Light waves are an example of _____ waves. In a transverse wave the _____ are perpendicular to the _____

New information - Waves

	<ul style="list-style-type: none"> • The wavelength of a wave is Distance between two corresponding points on a wave. Measured in metres. • The amplitude of a wave is the maximum vibration, measured from the middle position of the wave • The frequency of a wave is the number of waves produced per second, in Hertz
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Pause Point 2 – Complete the sentence in your book:

The wavelength of a wave is the.....

Key Knowledge

Complete 2x LCWC in your book – don't forget to green pen this

Define a "wave"	Transfer of energy without transferring matter
Give 2 examples of transverse waves.	Water waves and light waves.
Describe the oscillations in a transverse wave.	The oscillations in a transverse wave are perpendicular to the direction of the energy transfer.
Give an example of a transverse wave.	Sound waves
Describe the oscillations in a longitudinal wave.	The oscillations in a longitudinal wave are parallel to the direction of the energy transfer.
Define "wavelength"	Distance between two corresponding points on a wave. Measured in metres.
Define "amplitude"	The maximum vibration, measured from the middle position of the wave
Define "frequency"	Number of waves produced per second, in Hertz

Recall Quiz:

1. Give an example of a longitudinal wave.
2. In longitudinal waves, the oscillations are _____ to the direction of energy..
3. Give 2 examples of transverse waves.
4. In transverse waves, the oscillations are _____ to the direction of energy..
5. Define frequency.
6. Define wavelength.

Self assess when finished using key knowledge

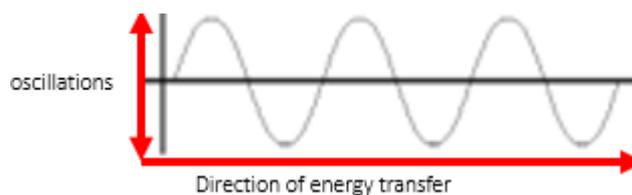
I do, we do, you do

Model Example - 'I do':

Explain the type of wave shown on the right

Model answer:

This wave is a **transverse** wave. I know this because the **oscillations** are **perpendicular** to the direction of energy transfer.



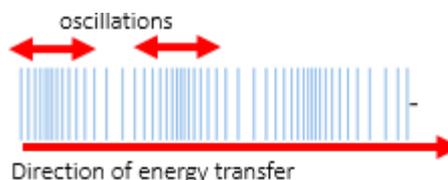
Practice Example - 'We do':

Explain the type of wave shown on the right

Copy and complete the sentences into your book:

This wave is a _____ wave.

I know this because the _____ are _____ to the direction of energy transfer.

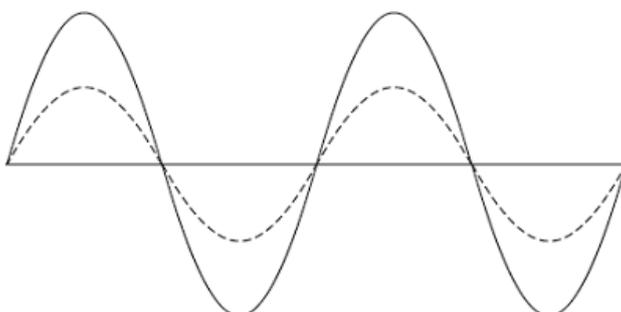


Application task – 'You do'

Complete the exam questions on the sheets then self assess using the mark scheme

1. (a) **Diagram 1** shows two waves.

Diagram 1



- (i) Name **one** wave quantity that is the same for the two waves.

(1)

(ii) Name **one** wave quantity that is different for the two waves.

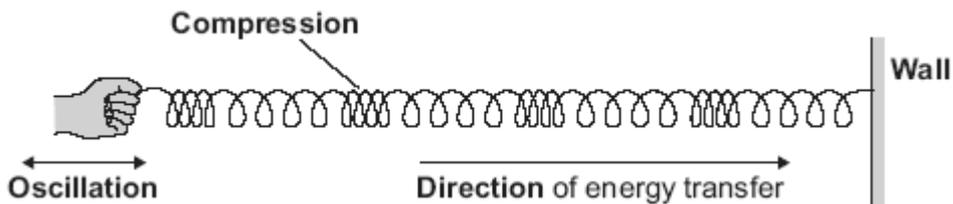
(1)

Waves may be longitudinal or transverse.

(b) Describe the differences between longitudinal waves and transverse waves.

(3)

2. (a) The diagram shows a longitudinal wave being produced in a stretched spring.



(i) Use the bold words from the diagram to complete the following sentence. Put only **one** word in each space.

A longitudinal wave is one in which the causing
the wave is parallel to the of energy transfer.

(2)

(ii) Give an example of a transverse wave

(1)

(iii) Give an example of a wave

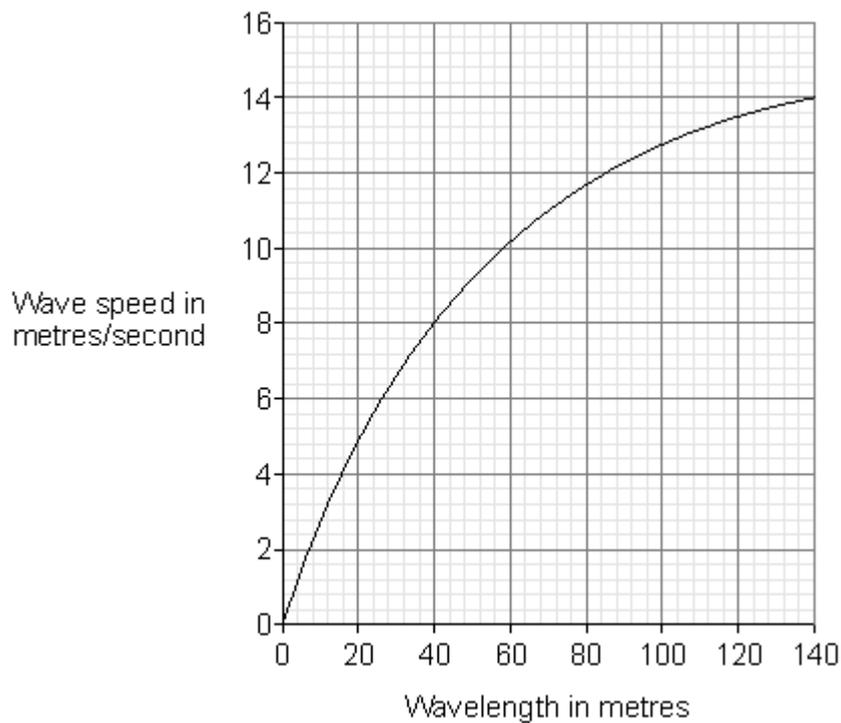
Direction of wave

example of a longitudinal wave (1)

3. a. The diagram shows water waves made by a wave machine in a swimming pool.



- (i) Water waves are an example of _____ waves.
- (ii) The graph shows how the speed of deep ocean waves depends on the wavelength of the waves.



What can you conclude from the graph?

(2)

Challenge/Plenary

True or false (correct the false statements)

1. A water wave is a transverse wave
2. A sound wave is a transverse wave
3. The frequency tells us the distance between two corresponding waves
4. The oscillations in a transverse wave are perpendicular to the direction of energy transfer
5. Perpendicular means at a right angle to.

Mark schemes

Q1 (a) (i) wavelength
accept frequency
accept speed 1

(ii) amplitude
accept energy
height is insufficient 1

(b) the oscillation / vibration (causing the wave)
a movement causes the wave is insufficient 1

for a transverse wave is perpendicular to the direction of energy transfer
accept direction of wave travel 1

and for a longitudinal wave is parallel to the direction of energy transfer
accept direction of wave travel
if no marks awarded allow 1 mark for correctly linking
perpendicular with transverse and parallel with longitudinal
the marks may be scored by the drawing of two correctly labelled
diagrams 1

2 (a) (i) oscillation 1

direction 1

(ii) light or water waves 1

(iii) sound waves 1

3 (a) (i) transverse

(ii) as the wavelength increases so does the wave speed 1

extra information eg wave speed increases faster between
0-40 m than between 100-140 m

or

not in proportion 1