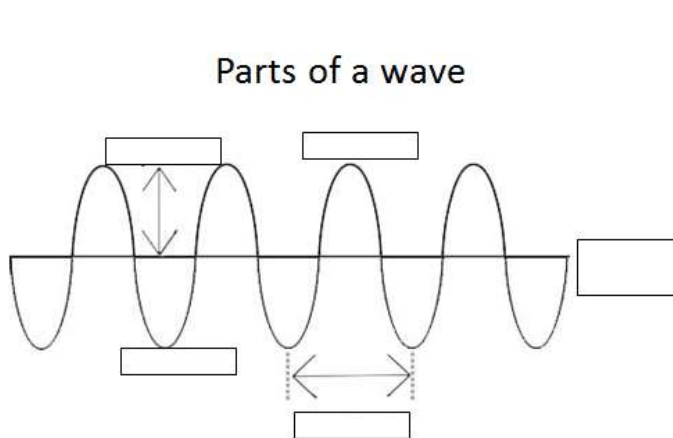


Year 10 contingency work 2 weeks Physics: Waves

Log into SENECA and complete the assignments using class code: fww3f4v654

Or use the url: <https://app.senecalearning.com/dashboard/join-class/fww3f4v654>

Then use the knowledge organiser to complete the self-quizzing questions. Finally, complete the following tasks:



Wave Questions: $v = f \times \lambda$

wave speed (m/s) = frequency (Hz) x wavelength (m)

1. A wave travelling at 6m/s has a frequency of 0.5Hz. Calculate the wavelength.
2. A wave with a frequency of 25Hz has a wavelength of 14m. Calculate the speed.
3. A wave of wavelength 0.125m travels at a speed of 80m/s. Calculate the frequency.
4. A wave has a wavelength of 7m. The speed of the wave is 3m/s. What is the frequency of this wave?
5. A sound wave has a frequency of 2,000Hz and a wavelength of 0.17m. Calculate the speed of sound.

Q1. Light changes direction as it passes from one medium to another.

- (a) Use the correct answer from the box to complete the sentence.

diffraction reflection refraction

The change of direction when light passes from one medium to another is called _____ .

(1)

- (b) Draw a ring around the correct answer to complete the sentence.

When light passes from air into a glass block, it changes

direction

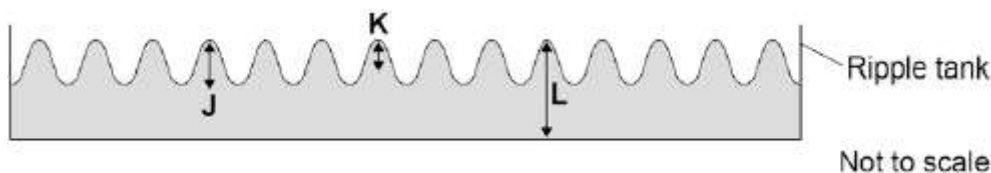
away from the normal.
towards the normal.
to always travel along the normal.

(1)

Q2.

Small water waves are created in a ripple tank by a wooden bar. The wooden bar vibrates up and down hitting the surface of the water.

The figure below shows a cross-section of the ripple tank and water.



(a) Describe how the wavelength of the water waves in a ripple tank can be measured accurately.

(2)

(b) The speed of a wave is calculated using the following equation.

$$\text{wave speed} = \text{frequency} \times \text{wavelength}$$

The water waves in a ripple tank have a wavelength of 1.2 cm and a frequency of 18.5 Hz.

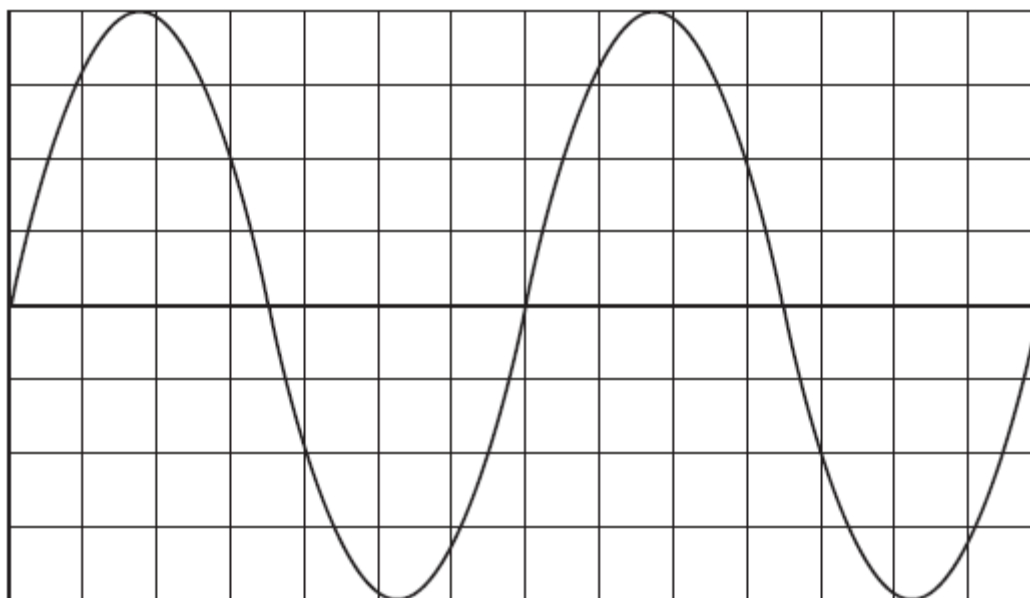
How does the speed of these water waves compare to the typical speed of a person walking?

(4)

(c) When a tuning fork is struck and then placed in front of the microphone, a trace appears on the oscilloscope screen.

Figure 4 shows part of the trace on the screen.

Figure 4



Each horizontal division in **Figure 4** represents a time of 0.0005 s.

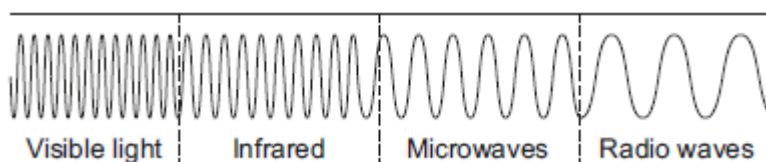
What is the frequency of the tuning fork?

(3)

Q3.

Infrared and microwaves are two types of electromagnetic radiation.

The diagram below shows the positions of the two types of radiation within part of the electromagnetic spectrum.



Name **one** type of electromagnetic radiation which has more energy than infrared.

(1)