



Sacred Heart High School

APPLIED SCIENCE

Physics Transition Task

P1 REVISION - CHAPTER 5a - Waves

What do we use waves for?

With a transverse wave the oscillation (vibration) of the particle is _____ to the direction in which the wave travels.

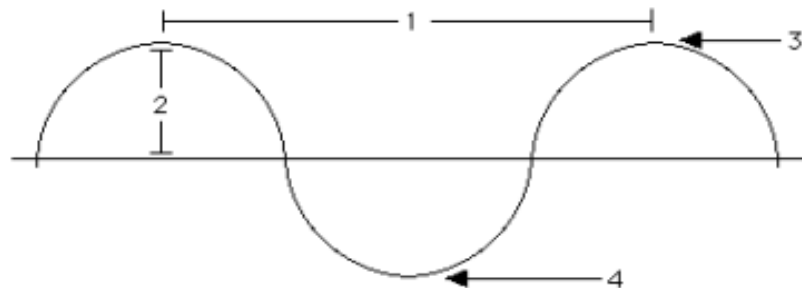
Mechanical Waves

Give an example.

Are they transverse, longitudinal or both?

What type of wave can be produced on a stretched string?

Measuring Waves



Label the above diagram with Amplitude, wavelength, peak and trough.

Then give an explanation on the following three terms including the units:

Amplitude:

Wavelength:

Frequency:

$$\text{Speed} = v = f \times \lambda$$

What is the speed of waves with a frequency of 5Hz and a wavelength of 2m?

Longitudinal Wave

The oscillation of the particles is _____ to the direction of the travel of the wave.

A longitudinal wave is made up of c_____ and r_____.

Give an example of a longitudinal wave.

Electromagnetic waves

Give two examples:

Are they transverse or longitudinal?

Can they travel through a vacuum?

KEY WORDS:

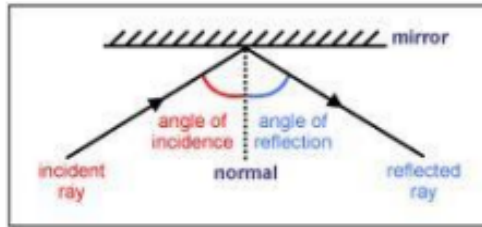
Amplitude
Frequency
Wavelength
Oscillation
Transverse
Longitudinal

ASSESSMENT:



P1 REVISION - CHAPTER 5b - Wave Properties

Reflection



What is the normal?

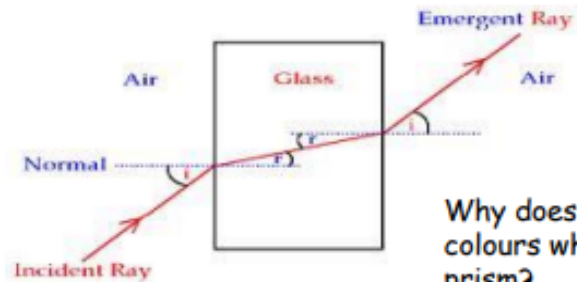
Where are angles always measured between?

What does the law of reflection state?

What is a real image?

What is a virtual image?

Refraction



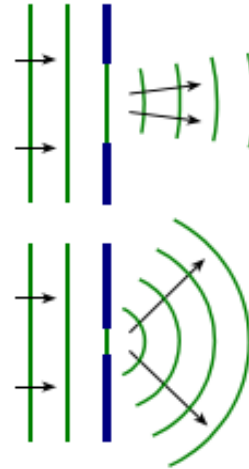
Refraction of light is the change of direction of a light ray when it crosses a boundary between two transparent substances.

Why does light split up into different colours when it passes through a triangular prism?

If the speed is reduced refraction is towards the normal. Give an example:

If the speed is increased refraction is away from the normal. Give an example:

Diffraction



Diffraction is the spreading out of waves when they pass through a gap or round the edge of an obstacle.

Write down the difference when the wave goes through a narrow gap or a wide gap.

Why might people living in hilly areas have poor radio reception?

KEY WORDS:

Incidence
Reflection
Real image
Virtual image
Normal
Refraction

ASSESSMENT:



P1 REVISION - CHAPTER 5b - Sound

Sound

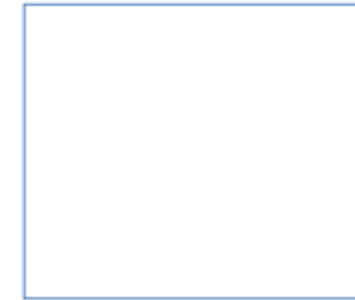
What is the frequency range for the normal human ear?

Sound waves are what type of wave?

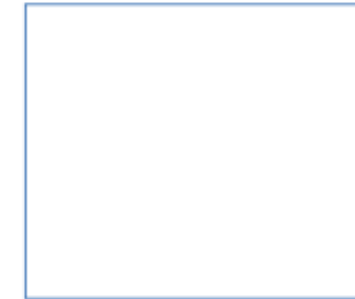
What are reflections of sound called?



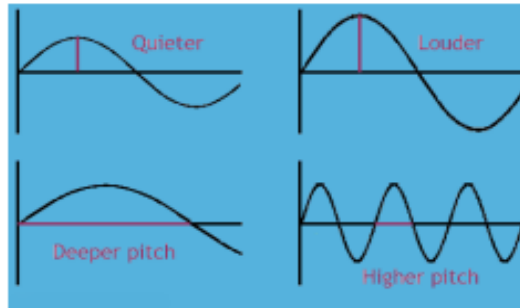
Explain why you will not be able to hear this electric bell.



Practice sketching waveforms, eg. Sketch a wave with twice the frequency and half the amplitude of your original wave.



Musical Sounds



What does the pitch of a note depend on?

What does the loudness of a note depend on?

KEY WORDS:

Sound
Echo
Pitch
Frequency
Amplitude

ASSESSMENT:



P1 REVISION - CHAPTER 6 - Electromagnetic Waves

Visible Light

What is white light?

What are the colours of white light?

What waves are all used for communication?

Communications

How are radio waves produced?

What is an optical fibre?

Electromagnetic Spectrum

Gamma

Shortest wavelength
Highest frequency
High Energy



You will need to know the order of the electromagnetic spectrum as it can be asked for in either decreasing or increasing wavelength, frequency or energy.

Microwaves

Longest wavelength
Lowest frequency
Low energy

Radio waves

Complete the electromagnetic spectrum

Remember

Electromagnetic waves transfer e_____ not matter.

$V = f \times \lambda$ can be used to calculate the f_____ or wavelength of electromagnetic waves.

Research is needed to evaluate whether or not m_____ p_____ are safe to use.

R_____ w_____ of different frequencies are used for different purposes.

All electromagnetic waves can travel through space at the same s_____ but they have different wavelengths and frequencies.

KEY WORDS:
Optical fibre
Electromagnetic
Gamma
Radiation
Spectrum

ASSESSMENT:



P1 REVISION - CHAPTER 4 - Generating Electricity

Nuclear

What fuel is used in a Nuclear power station?

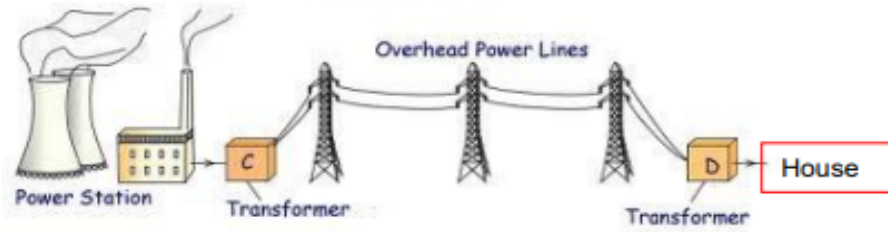
What process releases the energy?

Does it produce green house gases?

Draw a flow diagram to show how a power station produces electricity.

	BENEFITS	DRAWBACKS
Fossil fuels		
Biofuel		
Water		
Sun		
Wind		

National Grid



What do the transformers C and D do and why?

KEY WORDS:

Turbine
Generator
Nuclear Fission
Non-renewable
renewable
transformers

ASSESSMENT:

