AAQ Applied Science Transition Work

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The material contained within the rest of the Applied Science pack is extended GCSE level to help prepare for the Applied Science course. It is recommended that you aim to complete as much as possible to help you in Yr 12.

Biology

Task 1 – Write a definition for a eukaryotic cell.

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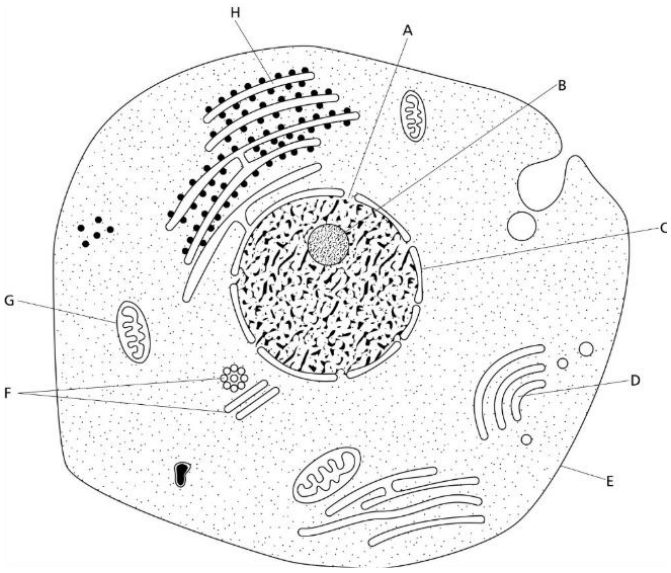
Task 2 - Identify the organelles below



A –

B –

C –

D –

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H –

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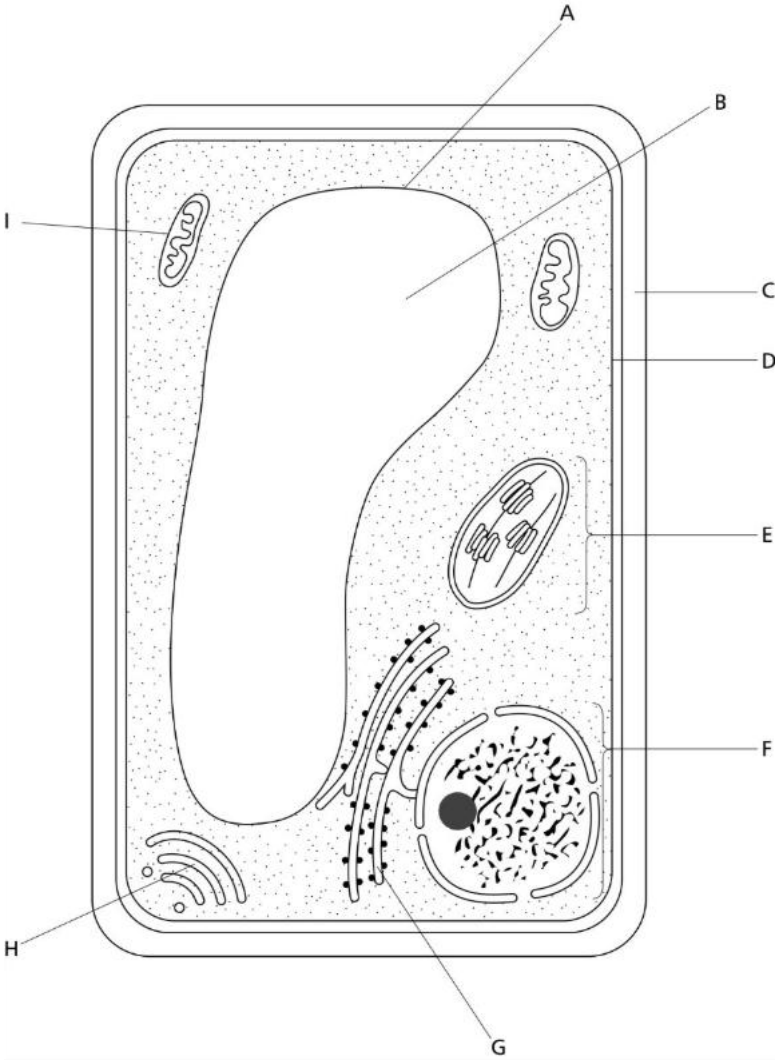
Task 3 – Identify the organelles below



A –

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Task 4 – Complete the table below

Organelle	**Function**
Nucleus	
Nucleolus	
Rough Endoplasmic Reticulum	
Smooth Endoplasmic Reticulum	
Golgi Apparatus	
Mitochondria	
Chloroplast	
Lysosomes	
Ribosomes	
Centrioles	

Chemistry -

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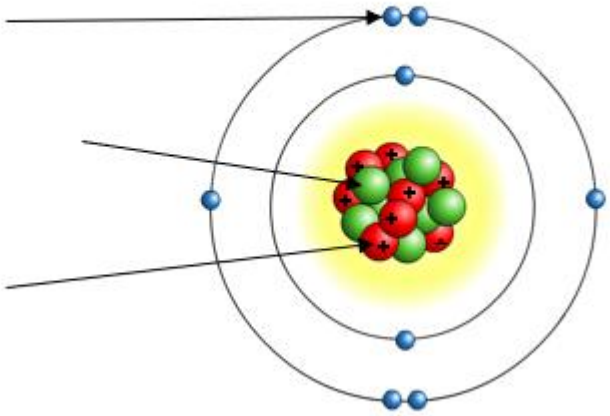
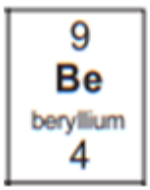
Atoms & elements

1. Label the particles.



2. Complete the table to show the properties of each particle.

Particle	Mass	Charge
Proton		
Neutron		
Electron		



3. Describe how to find the:

a. Number of protons

……

b. Number of electrons

……

c. Number of neutrons

……

……

d) Complete the table for each element. The first one has been done for you:

Element	Symbol	Atomic number	Mass number	Number of:		
				Protons	Electrons	Neutrons
Beryllium	Be	4	9	4	4	5
Lithium						
Calcium						
Fluorine						
Aluminium						
Sodium						

4. Describe the model now used for the structure of an atom.

In your answer you should:

- **Give details of the individual particles that make up an atom**
- **Include the relative masses and charges of these particles**

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Do not include a diagram in your answer

[6 marks]

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Physics

Task 1 – Complete the table below.

Term	symbol	unit	Definition
			Distance from the equilibrium position (can be +ve or –ve)
			Maximum displacement
			Distance between two points in phase on adjacent waves (e.g. peak to peak)
			Time taken for one oscillation
			Number of waves passing a point per unit time
			Distance travelled by a wave per unit time

Task 2 – Label the diagram

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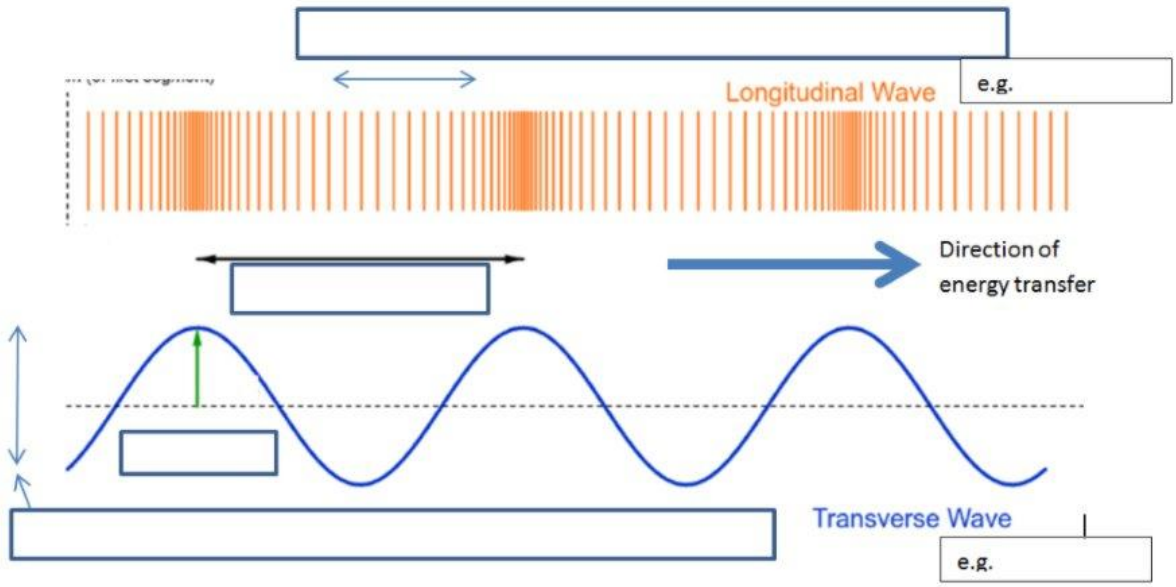

Eg. Light Eg. Sound amplitude wavelength

Vibration is in line with the direction of energy transfer

Vibration is at 90° to the direction of energy transfer

Task 3 - Complete the questions below

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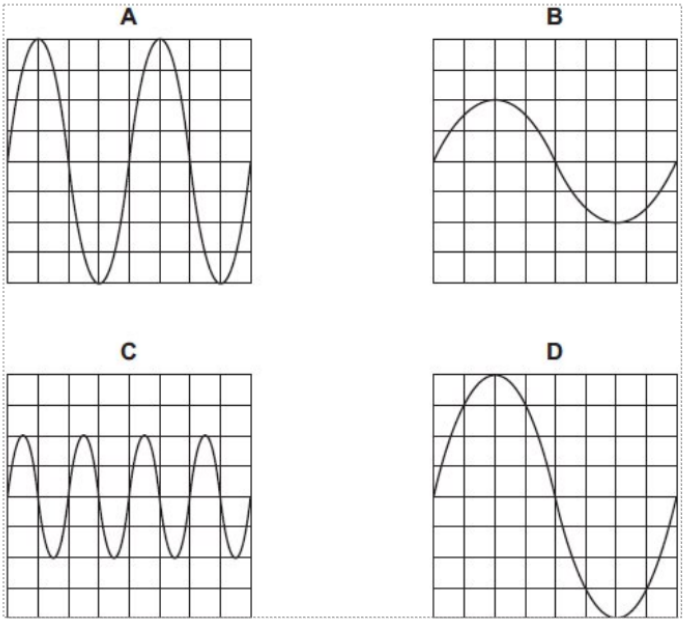
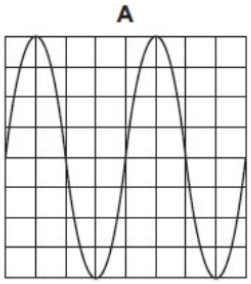


Oscilloscopes show a p.d reading with respect to time. The p.d usually comes from a microphone or from the output of a device e.g. a CD player, ipod etc. etc.

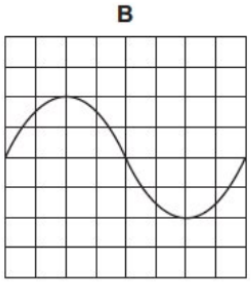
On this the timebase (horizontal) scale is 5ms per division
For each of these waves.

1. Read off the scale the time period of the wave
2. Convert this to seconds
3. Calculate the frequency of the wave.
4. Sound travels at a speed of 330ms-1

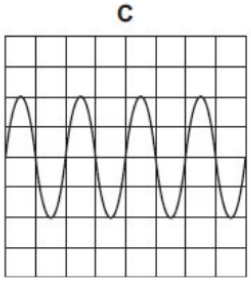
Use the wave speed formula to calculate the wavelength of the note



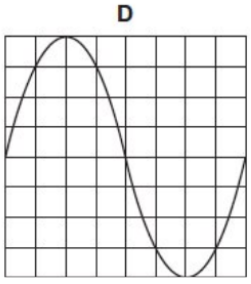
1 ms 0.1 V



1 ms 0.1 V



5 ms 0.2 V



20 ms 0.5 V

Work out the frequency and Peak P.d. for each of these waves.

The settings per division (square) are marked underneath each oscilloscope trace