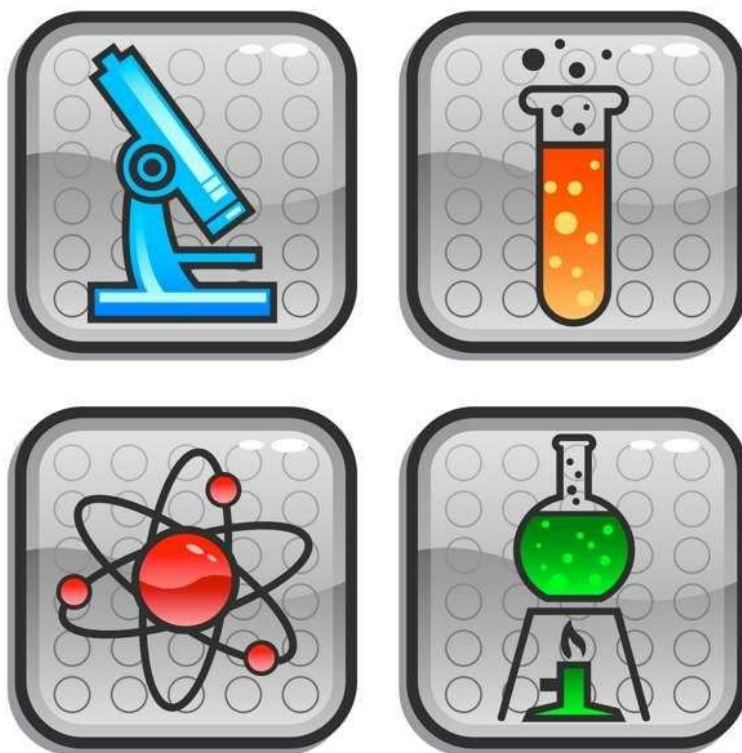


Arthur Mellows Village College

AAQ Level 3 Applied Science Induction Course and Summer Task



Name:

Applied Science Teachers:

Induction Session : Colorimetry of Ribena

Colorimeter absorbance of Mrs Campbell's Ribena: _____ Abs

Attempt 1: Volumes used:

Colorimeter absorbance: _____ Abs

Attempt 2: Volumes used:

Colorimeter absorbance: _____ Abs

Attempt 3: Volumes used:

Colorimeter absorbance: _____ Abs

3. Draw a typical prokaryotic (bacterial) cell and label the following parts on it: cell membrane, cell wall, cytoplasm, circular loop of DNA, plasmid of DNA, flagellum

4. Write down the main function of each cell organelle you have labelled on the diagrams above

Organelle	Function
Nucleus	
Cell membrane	
Cytoplasm	
Mitochondria	
Ribosome	
Vacuole	
Cell wall	
Chloroplast	
Circular loop of DNA	
Plasmid of DNA	
Flagellum	

Summer Task – Chemistry

Exam content (unit 2) preparation

<https://www.bbc.co.uk/bitesize/guides/z44xsbk/revision/1>

1. Draw a diagram of an atom, labelling the protons, neutrons and electrons.

2. Complete this table about the sub-atomic particles that make up an atom

Sub-atomic particle	Relative Mass	Relative Charge	Location in the atom
Proton			
Neutron			
Electron			

3. Draw the GCSE electron configuration of the following atoms:

(To find out the number of electrons they have, look them up in the periodic table, the lower of the two numbers in their box is the number of electrons.)

(a) Helium

(b) Carbon

(c) Sodium

(d) Calcium

4. Draw a diagram to show how an atom of sodium and an atom of chlorine react together by ionic bonding to produce sodium chloride.

5. Draw a diagram to show how one atom of carbon and four atoms of hydrogen react by covalent bonding to form a molecule of methane (CH_4)

Summer Task – Physics

Exam content (unit 3) preparation

<https://www.bbc.co.uk/bitesize/topics/z2j22nb>

1. Draw a transverse wave and add the following labels to it: Peak, trough, amplitude, wavelength.
2. Draw a longitudinal wave and add the following labels to it: Compression, rarefaction, amplitude, wavelength.
3. State how you could measure the frequency of a wave and state the units that frequency is measured in.
4. Name two examples of transverse waves and two examples of longitudinal waves.

5. Complete the table with the names, uses and dangers of the 7 parts of the Electromagnetic Spectrum of waves

Name	Gamma rays			Visible light			Radio waves
One use							
One danger							

6. Write down the equation that links wave speed, frequency and wavelength

7. Use the equation to calculate the following:

(a) What is the frequency of a radio wave with a wavelength of 3 metres travelling at a speed of 3 000 000 000 (or 3×10^8) m/s?

(b) What is the wavelength of an infra red wave with a frequency of 300 000 000 000 (or 3×10^{11}) Hz?