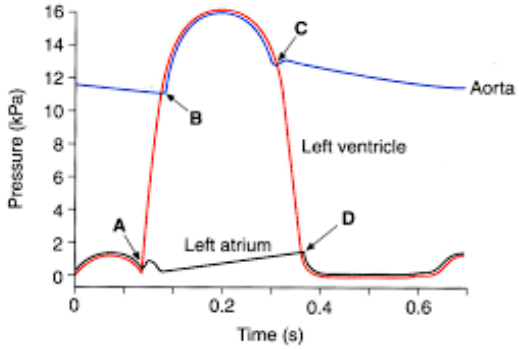
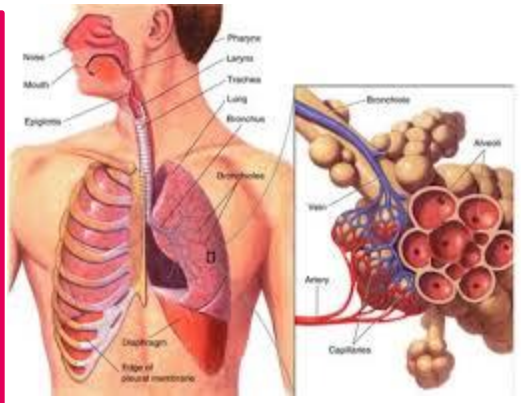
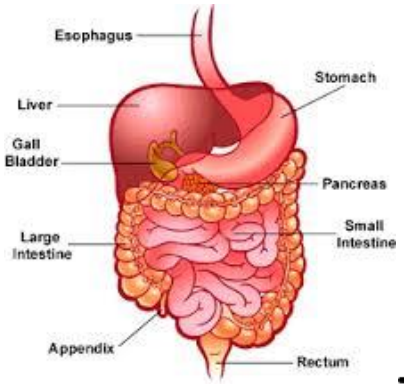
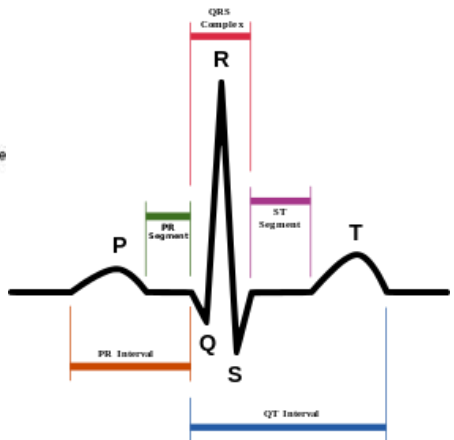
Applied science - apply **scientific** knowledge to develop more practical applications. For example: technology or inventions.

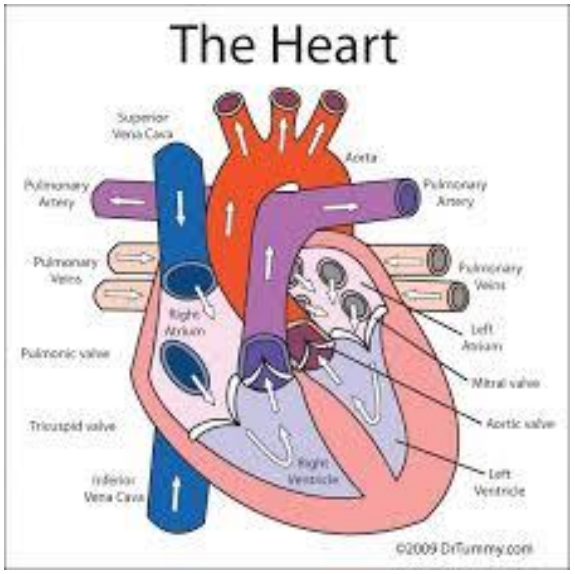


Level 3 National Extended Certificate in Applied Science









Why study Applied Science?

- Experienced and supportive teachers
- Lots of discussion and development of analytical, research and experimental skills to extend learning and prepare students for further study
- It deals with the maintenance of health, prevention and treatment of disease, chemical analysis and understanding waves in communication

The study of Applied Science is a gateway to many university courses and careers related to science such as forensics, healthcare, sport science, nursing and medical science.

You will develop an excellent understanding of human health and disease, the properties of chemicals and waves used in communication.

This will develop analytical skills, work ethic, problem solving skills, leading and working in a team as well as the ability to apply knowledge to new information.

All of these skills are transferable and will be highly desirable in the world of work or further education

Most importantly do you enjoy understanding how we can apply scientific concepts and ideas to everyday life?

Pearson BTEC Level 3 National Extended Certificate in Applied Science

- Unit 1 - Principles and Applications of Science 1
- Unit 2 - Practical Scientific Procedures and Techniques
- Unit 3 - Science Investigation Skills
- Unit 10: Biological Molecules and Metabolic Pathways

Year 12 Unit 1 – EXAM 90 marks 25%

A Periodicity and properties of elements (Chemistry)

A1 Structure and bonding in applications in science

- Electronic structure of atoms
- Ionic, covalent and metallic bonding
- Intermolecular forces
- Balancing equations, relative atomic mass, atomic number and relative molecular mass, moles, molar masses and molarities.

A2 Production and uses of substances in relation to properties

- Interpreting the periodic table
- Physical and chemical properties of elements

B Structure and functions of cells and tissues (Biology)

B1 Cell structure and function

- Prokaryote cells and eukaryotic cells
- Calculate magnification

B2 Cell specialisation

- Cell specialisation, structure and function

B3 Tissue structure and function

- The structure and function of epithelial tissue, endothelial tissue, muscular tissue, and nervous tissue
- Nerve impulses (action potential), synaptic structure and the role of neurotransmitters

C Waves in communication (Physics)

C1 Working with waves

- Features of a wave
- Displacement, coherence, path difference, phase difference, superposition as applied to diffraction gratings.
- Use the wave equation: $v = f \lambda$

C2 Waves in communication

- The applications of fibre optics in medicine to include endoscopes.
- The applications of fibre optics in communication

C3 Use of electromagnetic waves in communication

- The applications of electromagnetic waves in communications are related to frequency

Year 12 Unit 2 – Coursework 25%

A Undertake titration and colorimetry to determine the concentration of solutions

- A1 Laboratory equipment and its calibration
- A2 Preparation and standardisation of solutions using titration
- A3 Colorimetry

B Undertake calorimetry to study cooling curves

- B1 Thermometers
- B2 Cooling curves

C Undertake chromatographic techniques to identify components in mixtures

- C1 Chromatographic techniques
- C2 Application of chromatography
- C3 Interpretation of a chromatogram

D Review personal development of scientific skills for laboratory work.

- Summarise key personal competencies developed in relation to scientific skills undertaken. Analyse skills developed and suggest improvements to own practice.

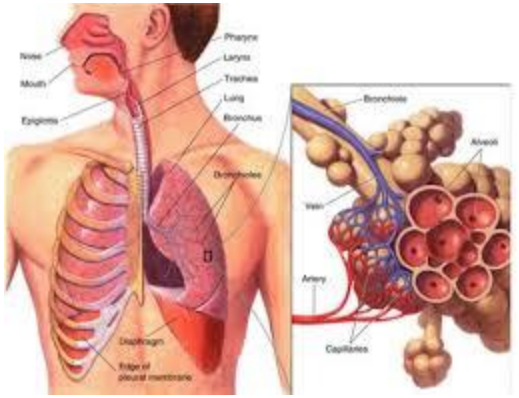
Y13 Unit 3 – EXAM 60 marks 33%

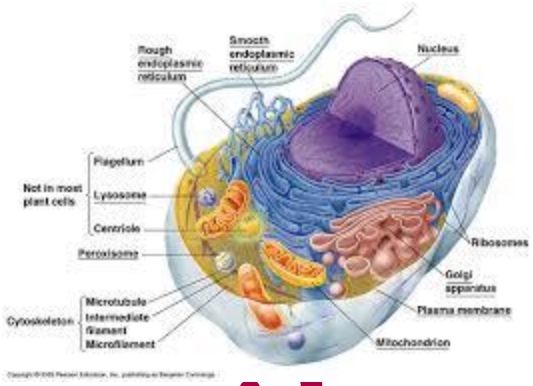
- **Section 1 – 40 marks – Based on experimental methods and data**
- Results table
- State observations
- Graph
- Describe relationship in graph
- Calculate: mean, standard deviation, percentage error etc.
- How did you make the experiment/results – valid, accurate, reliable etc.
- Evaluate a conclusion OR Extend investigation to make it better
- **Section 2 – 20 marks – Planning and Analysing a different experiment**
- Planning an Investigation
- Evaluate someone else's investigation

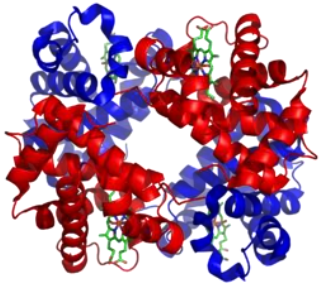
Year 13 Unit 10 – Coursework 17%

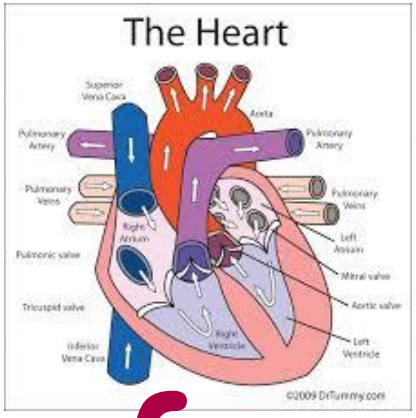
Unit 10: Biological Molecules and Metabolic Pathways

- A Understand the structure and function of biological molecules and their importance in maintaining biochemical processes
- B Explore the effect of activity on respiration in humans and factors that can affect respiratory pathways
- C Explore the factors that can affect the pathways and the rate of photosynthesis in plants









Enjoy the rest of your evening!