

# SCIENCE Learning Journey



"Together towards our best, through learning, love and faith"

BTEC

A LEVEL

**Year 13**

**Unit 5** – exam unit: Properties and uses of substances  
**Unit 14** – coursework unit: Applications of Organic Chemistry  
**Unit 6** - coursework unit- Investigative project

**Unit 5** – exam unit: Thermal Physics, materials and Fluids  
**Unit 6** -coursework unit- Investigative project

**Unit 5** – exam unit: Thermal Physics, materials and Fluids  
**Unit 6** - coursework unit- Investigative project

Physical Chemistry: Rates of Reaction, Reaction Energetics, Acids and Bases, Equilibrium Organic Chemistry: different homologous groups, analysis and synthesis PAGs

Newtonian world & Astrophysics: Thermal Physics, Ideal gases, Circular motion, Oscillations, gravitational fields, Stars, Cosmology, Particle & Medical Physics: Capacitance, Electric fields, Magnetic fields, Particle Physics, radioactivity, Nuclear physics, Medical Imaging

Neurons & Hormones  
 Plant responses  
 Respiration and photosynthesis  
 Genetics, inheritance & variation  
 Cloning and biotechnology  
 Ecosystems & sustainability & PAGs

**Year 12**

**Unit 2** – coursework unit: Practical scientific Procedures and Techniques  
**Unit 3** – Exam unit  
**Unit 1** – exam unit: Structure and bonding in Applications in Science, Quantities used in chemical reactions, Production and uses of substances in relation to properties. Planning a scientific investigation, Energy content of fuels

**Unit 1** - exam unit: Waves in communication 1 and 2, use of electromagnetic waves in communication  
**Unit 3** – Exam unit: Planning a scientific investigation, Electrical circuits  
**Unit 16** – coursework unit: Astronomy and Space Science

**Unit 1** – exam unit : Cell Structure, Cell specialisation, Tissue structure and Function  
**Unit 3** – Exam unit: Planning a scientific investigation, Enzymes in Action, Plants and their environment

Physical Chemistry: Quantitative Chemistry, Periodic Trends, Structure and Bonding, Rates of Reaction, Equilibrium, Qualitative Chemistry  
 Organic Chemistry: naming molecules, different homologous groups, polymers, basic analysis PAGs

Foundations of Physics, Forces and motion: Motion, Forces in action Work, energy & power, Materials, Laws of motion & momentum, Electrons, waves & Photons: Charge & current, Energy, power & resistance, Electrical circuits, Waves, Quantum Physics

Biological Molecules  
 Enzymes  
 Cell Structures  
 Plasma Membranes  
 Cell Division  
 Exchange surfaces  
 Transport in plants and animals  
 Biodiversity  
 Communicable Diseases  
 PAGs and their environment

**Year 11**

(Space SS Science Only)  
 Forces  
 Electromagnets & Magnetism

Rates of Reaction, Organic Chemistry, Chemical Analysis, Chemical Resources

Ecology  
 Inheritance, Variation and Evolution  
 Homeostasis & Response

**Year 10**

Electricity  
 Waves  
 Energy

Quantitative Chemistry  
 Changes in Chemical Reaction, Energy Changes  
 Structure and Bonding

Infection & Response  
 Organisation

Atomic Structure  
 The Particle Model

Atomic Theory & the Periodic Table  
 Chemistry of the atmosphere

Cell Biology  
 Biogenetics

**Year 9**

Heating & Cooling  
 Energy Transfers & Costs  
 Sound  
 Light  
 Waves and their effects  
 Voltage Resistances & Currents  
 Electromagnets

Metals & Non-Metals  
 Chemical Reactions  
 Acid & Alkalis  
 Chemical Energy Transfer

Evolution  
 Inheritance  
 Interdependence  
 Variation  
 Photosynthesis

**Year 8**

Pressure  
 Speed  
 Gravity  
 Work  
 Contact – Non Contact  
 Forces  
 The Universe

Earth Structure  
 Elements  
 The Periodic Table  
 Separating Mixtures  
 The Particle Model

Human Reproduction  
 Plant Reproduction  
 Digestion  
 Respiration  
 Breathing  
 Cells

**Year 7**

PHYSICS

CHEMISTRY

BIOLOGY