PRIORY WITHAM ACADEMY

SCIENCE LEARNING JOURNEY

WITHAM
A PRIORY ACADEMY

YEAR 13

Optional Unit for Coursework
Physiology of Human Body Systems.
Human Regulation and Reproduction.
Biological Molecules and Metabolic Pathways
Genetics and Genetic Engineering.
Disease and Infection
Applications of Inorganic Chemistry.
Applications of Organic Chemistry
Electrical Circuits and their Applications
Astronomy and Space Science

Assignment B

Assignment A

Unit 1 Principles and Applications in Science
May/June Exam season- external examination. 3x 40 minute papers.

Unit 3 Science Investigation Skills
Jan Exam season. Practical Part A and written Part B.

Assignment C

Unit 2 Practical Scientific Procedures and Techniques

YEAR 12

START OF LEVEL 3 BTEC

GCSE External Assessment
2 x Biology Exams
2 x Chemistry Exams
2 x Physics Exams

Unit 1 Principles and Applications in Science

A1 Particle structure and bonding.

A2 Production and uses of substances in relation to properties.

C1 Working with waves

C3 Uses of waves in communication.

Drawing Conclusions and Evaluating

Energy Content of Fuels

Electrical Circuits

B1 Cell Structure and... Function

B2 Cell Specialisation.

B3 Tissue Structure and Function

C2 Waves in communication

Unit 3 Science Investigation Skills

Enzymes in action

Diffusion of molecules

Plants and their Environment

Exchange and Transport in Animals
Understand how nutrients are transported around the body and waste products excreted.

Energy- Forces doing work and their effects.
Insert Description

Fuels and Earth Science
Understand how fractional distillation is separates crude oil. Describe how the Earth's atmosphere has evolved.

Groups of the Periodic Table
Describe how elements are arranged into the periodic table and identify trends and patterns in the groups..

*** Static Electricity**
Insert Description

*** Separate Chemistry 2**
Organic and Qualitative Chemistry.

YEAR 11

*** Separate Chemistry 1**
Metals, Percentage yield, the Haber process and fertilisers.

Magnetism, the Motor Effect and Electromagnetic Induction.
Insert Description

Electricity and Circuits
Insert Description

Coordination, Control and Homeostasis
Understand the importance of maintaining optimum internal conditions.

Ecosystems and Material Cycles
Understand how ecosystems are interdependent.

Chemical Change
Reactions of acids and alkalis to make salts and electrolysis.

Extracting Metals and Equilibria
Extracting metals and displacement reactions.

Health, Disease and the Development of Medicines
Understand how the body responds to infection and some of the effects of non-communicable disease.

Radioactivity
Understand the dangers of radiation and the differences between alpha, beta and gamma radiation.

Plant Structures and their Functions
Understand how the structure of plant organs supports their function.

YEAR 10

Natural Selection and Generic Modification
Understand how variation leads to changes in a species and how advances in science are changing genomes.

Waves
Investigate speed, frequency and wavelength of waves in different mediums.

Light and the Electromagnetic Spectrum
Understand the features and uses of the different waves in the electromagnetic spectrum.

Particle Model, Forces and Matter
Insert description

Quantitative Chemistry
Calculations involving masses and empirical formula

Rates of Reaction
Investigate factors the effect the rate of chemical reactions.

*** Astronomy**
Insert description

Conservation of Energy
Energy transfers and efficiency. Renewable and non-renewable energies.

Genetics
Understand how DNA can be passed from parent to offspring leading to variation.

Cells and Control
Understand how growth occurs in both plant and animals.

Skills
Plan a scientific investigation to collect reliable and valid data.

Key Concepts in Biology
Understand how cells in different organisms differ. Explain the role of enzymes. Movement of substances.

YEAR 9

Skills
Analyse and evaluate primary and secondary data.

States of Matter and Mixtures
Understand how different practical techniques can be used to separate mixtures.

Motion and Forces
Understand how Newton's laws affect the motion of objects.

Key Concepts in Chemistry
Understand the structure of the atom, electron configuration and the bonding between atoms.

Chemical Properties Unit 5
The Earth
The formation of rocks and recycling.

YEAR 8

The Environment Unit 1
Ecosystem Processes
Understand how energy can be cycled around an ecosystem.

Forces Unit 1
Forces
An introduction to forces and their effects.

Chemical Properties Unit 2
Separation Techniques
Understand how some different mixtures can be separated.

Chemical Properties Unit 3
Acids and Alkalis
An introduction to the properties of acids and alkalis.

Chemical Properties Unit 4
Metals and Acids
Understand how different metals and acids react.

Energy Unit 4
Light Energy
Understand how light energy is transferred, reflected and refracted

Chemical Properties Unit 1
The Periodic Table
Understand how the periodic table is arranged into groups.

The Environment Unit 2
Adaptation and Inheritance
An introduction to variation, its causes and how this can lead to new adaptations.

Forces Unit 2
Forces and Motion
Understand how forces interact during motion.

Forces Unit 3
Turning Points in Physics
Important scientific discoveries by physicists that changed the world

Energy Unit 3
Electricity and Magnetism
Electrical circuits and electricity. Magnetism and electromagnets.

Energy Unit 2
Sound Energy
Understand how sound is transferred, detected and some of the uses of sound.

Energy Unit 1
Energy
An introduction into energy, resources and power.

Nature of Matter Unit 1
Particles and Behaviour
Understand that atoms make up all matter and how these particles behave.

YEAR 7

Plants and Animals Unit 4
Healthy Lifestyles
Understand the role of diet in staying healthy and how drugs affect the bodies function.

Plants and Animals Unit 3
Structure and Function of Body Systems.
Understand the role of some of the organ systems in the body.

Nature of Matter Unit 3
Reactions
What happens during a chemical reaction?

Nature of Matter Unit 2
Elements, Atoms and Compounds
Describe the differences between elements, atoms and compounds.

Plants and Animals Unit 2
Reproduction
Understand the role of the reproductive organs and cells in plants and animals.

Plants and Animals Unit 1
Cells
Cells are the building blocks of living organisms.
Transport of substances into and out of cells.