

The Beacon Science KS3 and KS4 Curriculum Offer Overview

During admission to The Beacon most KS3 and KS4 students complete a baseline assessment. They will then follow a choice of units from 1-12 depending on outcomes identified by their school, their baseline assessment and/or the young person.

Practical's listed are not compulsory or an exhaustive list, options are available on Focus e-learning/ online.

<p>Unit 1 Biology Cell biology</p> <p>Possible topics that may be covered in this unit include:</p> <ul style="list-style-type: none"> Cell structure and specialisation Microscopy Cell transport and exchanging substances Cell organisation Respiration <p>Practical: Microscopy</p>	<p>Unit 2 Biology Plants</p> <p>Possible topics that may be covered in this unit include:</p> <ul style="list-style-type: none"> Plant cell organisation Transpiration and translocation Transpiration and leaf structure Photosynthesis <p>Practical: Rate of photosynthesis</p>	<p>Unit 3 Chemistry Atomic structure and periodic table</p> <p>Possible topics that may be covered in this unit include:</p> <ul style="list-style-type: none"> Elements, compounds and mixtures Separation techniques Structure of atoms Periodic table Groups 1,7,0 Types of bonds Structure of matter Properties of matter <p>Practical: Properties of matter</p>	<p>Unit 4 Chemistry Chemical changes</p> <p>Possible topics that may be covered in this unit include:</p> <ul style="list-style-type: none"> Chemical changes Reactions of acids Exothermic and endothermic reactions Rates of reactions Formula mass Conservation of mass Balancing equations <p>Practical: Investigating factors which affect rate of reaction</p>	<p>Unit 5 Physics Energy</p> <p>Possible topics that may be covered in this unit include:</p> <ul style="list-style-type: none"> Energy stores and systems Energy calculations Specific heat capacity Energy transfers and efficiency Energy resources Internal energy and specific latent heat <p>Practical: Specific heat capacity, bouncing balls experiment</p>	<p>Unit 6 Physics Electricity</p> <p>Possible topics that may be covered in this unit include:</p> <ul style="list-style-type: none"> Circuits Charge, current and resistance Electrical equations Circuit devices and IV characteristics Electricity in the home The National Grid <p>Practical: Resistance of a wire</p>
<p>Unit 7 Biology Body systems</p> <p>Possible topics that may be covered in this unit include:</p> <ul style="list-style-type: none"> Enzymes and digestion Food tests The lungs Circulatory system Nervous system Endocrine system Immune system and fighting disease <p>Practical: Reaction times, food tests</p>	<p>Unit 8 Biology Ecology</p> <p>Possible topics that may be covered in this unit include:</p> <ul style="list-style-type: none"> Food chains and webs Competition Adaptations Fossils Classification Evolution Sampling methods The water cycle The carbon cycle <p>Practical: Quadrats and transects</p>	<p>Unit 9 Chemistry Chemical analysis and using resources</p> <p>Possible topics that may be covered in this unit include:</p> <ul style="list-style-type: none"> Chromatography Tests for gases Potable water Life cycle assessments Reuse and recycling <p>Practical: Chromatography</p>	<p>Unit 10 Chemistry Organic chemistry and the atmosphere</p> <p>Possible topics that may be covered in this unit include:</p> <ul style="list-style-type: none"> Finite and renewable resources Hydrocarbons and crude oil Evolution of the Earth's atmosphere Climate change Air pollution <p>Practical: Fractional distillation, cracking</p>	<p>Unit 11 Physics Forces</p> <p>Possible topics that may be covered in this unit include:</p> <ul style="list-style-type: none"> Contact and non-contact forces Weight, mass and gravity Resultant force Elasticity and springs Scalars and Vectors Acceleration Motion and motion graphs Newton's Laws <p>Practical: Investigating springs, $F=ma$</p>	<p>Unit 12 Physics Waves</p> <p>Possible topics that may be covered in this unit include:</p> <ul style="list-style-type: none"> Transverse and longitudinal waves Wave features Wave equation Refraction EM Spectrum Uses and risks of EM waves Investigating infra red absorption and radiation <p>Practical: Investigating IR, Ripple tank</p>