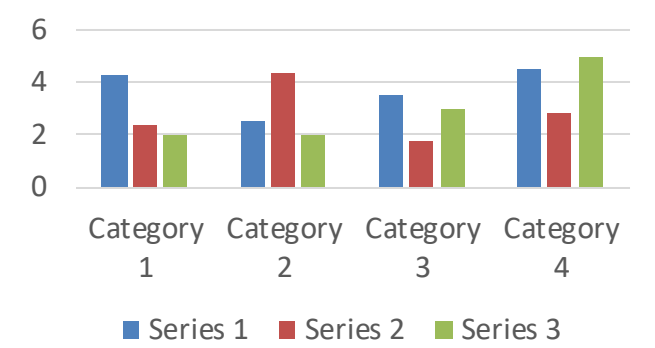


# Kirkwall Grammar School - Biology

Graphs



Plan, Carry out and Evaluate an interdisciplinary project, finding opportunities to develop skills and evaluating the development of these skills

Science Baccalaureate

## Cells and Proteins

Lab techniques, Proteins, Membranes, Communication and Signalling, Control of cell division

## Organisms and Evolution

Field techniques, Evolution, Variation, Sexual reproduction, Behaviour, Parasitism

## Investigative Biology

Experimenting skills and Data handling skills leading into Project

## Higher Human Biology

### Human Cells

Division, Differentiation, DNA replication, Gene expression, Mutations, Genomics, Metabolic pathways, Respiration, Energy in Muscle cells

### Physiology and Health

Gametes, Fertilisation, Hormones in reproduction, Fertility, Screening, Blood vessels, Heart, Cardiovascular disease, Blood glucose and Obesity

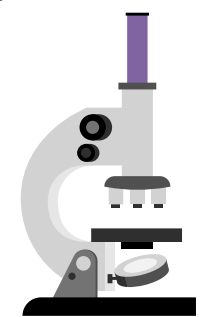
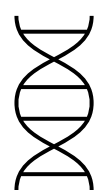
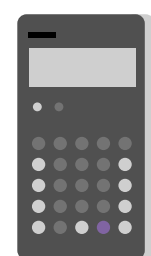
### Neurobiology and Immunology

Nervous system, Cerebral cortex, Memory, Neurotransmitters, Body defences, Immunisation, Clinical trials

### Assignment

Plan, carry out and write-up an experiment

Advanced Higher



## Higher Biology

### DNA and Genome

DNA, Gene expression, Cell differentiation, Mutations, Evolution

### Metabolism and Survival

Metabolic pathways, Respiration, Control of metabolism

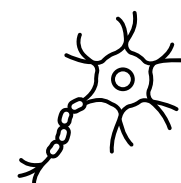
### Sustainability and Interdependence

Productivity, Breeding, Crop protection, Animal welfare, Symbiosis, Social behaviour, Biodiversity

### Assignment

Plan, carry out and write-up an experiment

Higher



## Cell Biology

Cell structure, Transport, DNA, Proteins, Genetic engineering, Respiration

## Multicellular Organisms

New cells, Communication, Reproduction, Inheritance, Transport in plants and animals

## Life on Earth

Ecosystems, Distribution, Photosynthesis, Energy, Food production, Evolution

## Assignment

Plan, carry out and write-up an experiment

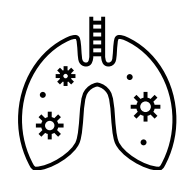
Click to add text

National 4

National 5

## National 4 Science

Covering Biology, Chemistry and Physics as well as an Assignment, this course is an excellent place to build skills to be successful at N5 level in a separate Science



## Cell Biology

Cells, DNA, Enzymes, Microbes, Photosynthesis, Respiration, Controversial procedures

## Multicellular Organisms

Reproduction, Propagation, Plants, Inheritance, Growth, Maintenance

## Life on Earth

Interdependence, Populations, Nitrogen cycle and Fertilisers, Adaptation, Behaviour

## Assignment skills

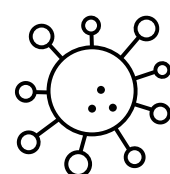
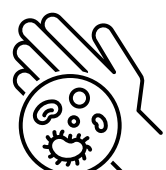
Plan, carry out and write-up an experiment

S3

**Health and Disease** - Technology to monitor Health, Microbes, Disease, Vaccination

**State of the World** - Atmosphere, Acid Rain, Fossil fuels, Carbon cycle, Greenhouse effect

**Space** - Solar system, Night and Day, Seasons, Gravity, Lunar Lander



S2

**Feeding Our World** - Sampling, Keys, Photosynthesis, Organic farming, Food webs

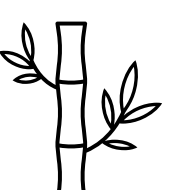
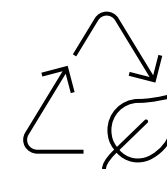
**New Substances** - Signs of a Reaction, Rate, Reactivity of metals, Acids and Alkalis

**Light and Beyond** - Shadows, Reflection, Refraction, Eye and Sight, Colour, EM spectrum

**New Life** - Plant and Animal Reproduction, DNA

**Heat** - States of matter, Conduction, Convection, Radiation

**Our Planet** - Rock cycle, Soil, Minerals, Metals, Fossil fuels, Renewables



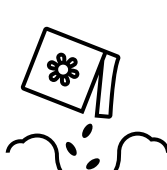
**Being a Scientist** - Science skills and lab safety

**Cells** - Plant and Animal Cells, Specialised Cells, Body systems

**Electricity** - Series and Parallel Circuits, Current and Voltage

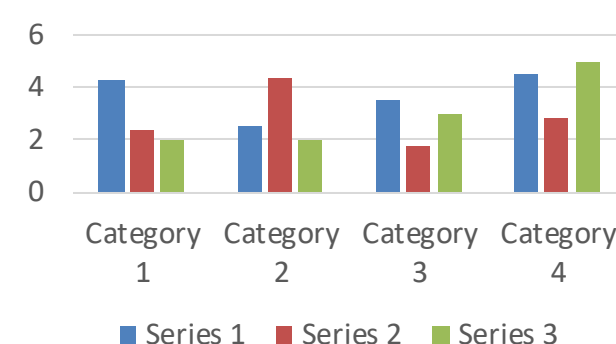
**Properties** - Periodic Table, Elements, Compounds, Mixtures

S1



# Kirkwall Grammar School - Chemistry

Graphs



Plan, Carry out and Evaluate an interdisciplinary project, finding opportunities to develop skills and evaluating the development of these skills

Science  
Baccalaureate

**Inorganic Chemistry**  
EM Spectrum, Orbitals, Ionisation, Shapes of molecules, Transition metals, Complexes

**Physical Chemistry**  
Equilibrium, Acids+Bases, Indicators+Buffers, Feasibility, Enthalpy, Kinetics

**Organic Chemistry**  
Orbitals and hybridisation, Electrophiles + Nucleophiles, Stereochemistry, Spectroscopy, Pharmaceuticals

**Project**  
Plan and Carry out an investigation and write it up

Advanced  
Higher

**Chemical Changes and Structure**

Structure and Bonding, Trends in the Periodic table, Oxidising and Reducing agents

**Nature's Chemistry**

Hydrocarbons, Alcohols, Carboxylic acids, Esters, Fats, Oils, Soaps, Proteins, Fragrances, Oxidation of food

**Chemistry in Society**

Chemical Calculations, Percentage yield, Rate, Equilibria, Chemical energy, Titrations

**Assignment**

Plan, carry out and write-up an experiment

Higher

**Chemical Changes and Structure**

Rates, Atomic structure, Bonding, Formulae, Acids

**Nature's Chemistry**

Alkanes, Alkenes, Alcohols, Carboxylic acids, Energy from fuels

**Chemistry in Society**

Metals, Plastics, Fertilisers, Nuclear

**Assignment**

Plan, carry out and write-up an experiment

National  
4

National  
5

**Chemical Changes and Structure**

Reaction rates, Periodic table, Elements and Compounds, Acids and Bases

**Chemistry in Society**

Metals and Alloys, Fertilisers, Nuclear chemistry, Plastics

**Nature's Chemistry**

Fuels, Hydrocarbons, Alcohols, Carboxylic acids, Products from Plants

**Assignment skills**

Plan, carry out and write-up an experiment

**National 4 Science**

Covering Biology, Chemistry and Physics as well as an Assignment, this course is an excellent place to build skills to be successful at N5 level in a separate Science

S3

**Health and Disease** - Technology to monitor Health, Microbes, Disease, Vaccination

**State of the World** - Atmosphere, Acid Rain, Fossil fuels, Carbon cycle, Greenhouse effect

**Space** - Solar system, Night and Day, Seasons, Gravity, Lunar Lander

S2

**Feeding Our World** - Sampling, Keys, Photosynthesis, Organic farming, Food webs

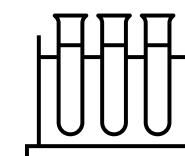
**New Substances** - Signs of a Reaction, Rate, Reactivity of metals, Acids and Alkalis

**Light and Beyond** - Shadows, Reflection, Refraction, Eye and Sight, Colour, EM spectrum

**New Life** - Plant and Animal Reproduction, DNA

**Heat** - States of matter, Conduction, Convection, Radiation

**Our Planet** - Rock cycle, Soil, Minerals, Metals, Fossil fuels, Renewables



**Being a Scientist** - Science skills and lab safety

**Cells** - Plant and Animal Cells, Specialised Cells, Body systems

**Electricity** - Series and Parallel Circuits, Current and Voltage

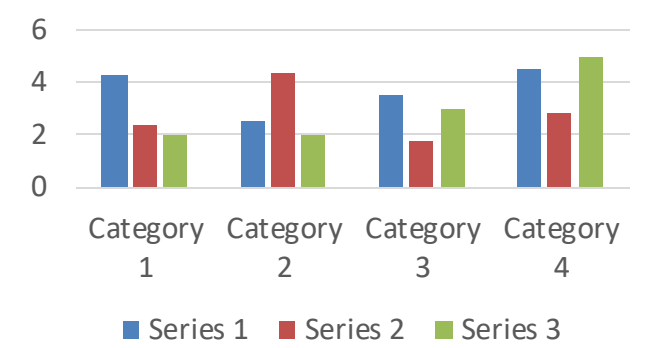
**Properties** - Periodic Table, Elements, Compounds, Mixtures

S1



# Kirkwall Grammar School - Physics

Graphs



Plan, Carry out and Evaluate an interdisciplinary project, finding opportunities to develop skills and evaluating the development of these skills

Science Baccalaureate

**Rotational motion and Astrophysics**

Kinematic relationships, Angular motion, Rotational dynamics, Gravitation, General relativity, Stellar physics

**Quanta and Waves**

Quantum theory, Particles from space, Simple harmonic motion, Waves, Interference, Polarisation of light

**Electromagnetism**

Fields, Circuits, Electromagnetism

**Project**

Plan and Carry out an investigation and write it up

Advanced Higher

**Our Dynamic Universe**

Motion, Energy, Power, Collisions, Momentum, Projectiles, Satellites, Special relativity, Expanding Universe, Big Band Theory

**Particles and Waves**

Electric fields, Standard model, Nuclear reactions, Wave properties, Refraction, Spectra

**Electricity**

Electrons and Energy, Electrons at work

**Assignment**

Plan, carry out and write-up an experiment

Higher

**Electricity and Properties of Matter**

Electrical circuits, Energy and Power, Components, Heat, Gas laws

**Waves and Radiation**

Waves, Nuclear radiation, Using the nucleus

**Dynamics and Space**

Kinematics, Forces, Newton's third law and Energy, Space exploration, Cosmology

**Assignment**

Plan, carry out and write-up an experiment

National 4

National 5

**Electricity and Energy**

Circuits, Resistance, Digital processes, Electrical power, Electromagnetism, Electricity generation and distribution

**Waves and Radiation**

Wave characteristics, Sound, EM spectrum, Nuclear radiation

**Dynamics and Space**

Speed, Acceleration, Forces, Motion, Energy, Satellites, Cosmology

**Assignment skills**

Plan, carry out and write-up an experiment

**National 4 Science**

Covering Biology, Chemistry and Physics as well as an Assignment, this course is an excellent place to build skills to be successful at N5 level in a separate Science

S3

**Health and Disease** - Technology to monitor Health, Microbes, Disease, Vaccination

**State of the World** - Atmosphere, Acid Rain, Fossil fuels, Carbon cycle, Greenhouse effect

**Space** - Solar system, Night and Day, Seasons, Gravity, Lunar Lander

S2

**Feeding Our World** - Sampling, Keys, Photosynthesis, Organic farming, Food webs

**New Substances** - Signs of a Reaction, Rate, Reactivity of metals, Acids and Alkalis

**Light and Beyond** - Shadows, Reflection, Refraction, Eye and Sight, Colour, EM spectrum

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S1

