



King's College

The British School of Murcia

Science Curriculum Overview

Year 7

Introduction and Aims

Science

At Key Stage 3, science offers opportunities for pupils to:

- Build on their scientific knowledge from key stage 2 and make connections between different areas of science;
- Use scientific ideas and models to explain phenomena and events.
- Carry out investigations of different types, in groups, and making use of reference sources and ICT to analyse and evaluate their results.
- Develop an appreciation of how science is relevant in their lives.

What will pupils study?

Below you will find a term by term description of the topics/skills normally taught each term. The exact timings may of course vary and the order in which the topics are covered may change. Science is taught through a mixture of theory and practical lessons in our superbly resourced science laboratories.

Term 1

- **Living things:**
Organs,
Microscopes
and Cells.
- **Solids, liquids
and gases:**
states of matter,
heating &
cooling.
- **Energy
Transformatio
ns:** Energy
transfers,
efficiency
- **Acids & Bases:**
pH, indicators,
neutralisation

Term 2

- **Forces and
their effects:**
friction, gravity
and density.
- **Habitats and
Environment:**
food chains,
adaptations and
population
growth.
- **Material
properties:**
metals and non-
metals.

Term 3

- **Micro-
Organisms:**
microbes, decay,
disease and the
fight against
disease.
- **Earth &
Beyond:** Solar
system, sun,
planets and the
moon.
- **End of term
revision &
exams.**

Assessment Information

Pupils will complete an assessment at the end of every topic. Each assessment will be given a grade. Assessments may vary from traditional tests, to tasks, projects and practical investigations. It is also normal that as pupils study different areas of Science which require an array of skills, their grades may fluctuate. The grades recorded on reports will be the average of the pupil's achievement over that term.

Other Information

Pupils in year 7 will be given one long piece of written homework a week, accompanied by a shorter task. It is imperative that pupils learn the scientific terminology so that they can interpret questions and then use the correct terms in their own explanations. All pupils will have a textbook and a workbook to take home and aid in independent study.

Year 8

Introduction and Aims

Science

At Key Stage 3, science offers opportunities for pupils to:

- Build on their scientific knowledge from key stage 2 and make connections between different areas of science;
- Use scientific ideas and models to explain phenomena and events.
- Carry out investigations of different types, in groups, and making use of reference sources and ICT to analyse and evaluate their results.
- Develop an appreciation of how science is relevant in their lives.

What will pupils study?

Below you will find a term by term description of the topics/skills normally taught each term. The exact timings may of course vary and the order in which the topics are covered may change. Science is taught through a mixture of theory and practical lessons in our superbly resourced science laboratories.

Term 1	Term 2	Term 3
<ul style="list-style-type: none"> • Obtaining Food: Digestion, absorption, enzymes. • Elements, mixtures and compounds: the periodic table, atoms, reactions • Light & Sound: Wave properties, reflection, refraction. The human eye & ear. 	<ul style="list-style-type: none"> • Circulation & Respiration: Heart, blood vessels, transport and release of energy from food. Photosynthesis • Metals & Non-metals: Properties and reactions, naming a salt. Preparation and collection gases. 	<ul style="list-style-type: none"> • Micro-Organisms: microbes, decay, disease and the fight against disease. • Speeding Up: Speed, velocity, forces, electromagnet and graph skills. • End of term revision & exams.

Assessment Information
<p>Pupils will complete an assessment at the end of every topic. Each assessment will be given a grade. Assessments may vary from traditional tests, to tasks, projects and practical investigations. It is also normal that as pupils study different areas of Science which require an array of skills, their grades may fluctuate. The grades recorded on reports will be the average of the pupil's achievement over that term.</p>

Other Information
<p>Pupils in year 8 will be given one long piece of written homework a week, accompanied by a shorter task. It is imperative that pupils learn the scientific terminology so that they can interpret questions and then use the correct terms in their own explanations. All pupils will have a textbook and a workbook to take home and aid in independent study.</p>

Year 9

Introduction and Aims

Science

At Key Stage 3, science offers opportunities for pupils to:

- Build on their scientific knowledge from key stage 2 and make connections between different areas of science;
- Use scientific ideas and models to explain phenomena and events.
- Carry out investigations of different types, in groups, and making use of reference sources and ICT to analyse and evaluate their results.
- Develop an appreciation of how science is relevant in their lives.

What will pupils study?

Below you will find a term by term description of the topics/skills normally taught each term. The exact timings may of course vary and the order in which the topics are covered may change. Science is taught through a mixture of theory and practical lessons in our superbly resourced science laboratories.

Term 1

- **Chemical reactions:** naming the salt, writing chemical equations, balancing equations. Preparation of a salt and reactivity series
- **Variation & Classification:** types of variation, adaptation, DNA, mutation, evolution.

Term 2

- **Energy:** How is electricity produced? Renewable, non-renewable.
- **Electricity:** Drawing circuits, series and parallel circuits. Current, voltage and resistance.
- **Homeostasis:** Human skeleton, nervous system, control of body temperature and glucose levels.

Term 3

- **Dam it! :** Pressure and Moment calculations.
- **An introduction to practical assessments:** the scientific method, preparation of an experimental report.
- **Revision & Exam Practice.**

Assessment Information

Pupils will complete an assessment at the end of every topic. Each assessment will be given a grade. The grade that appears in the report is an average of these assessments. The Year 9 curriculum is designed to allow a smooth transition from KS3 to GCSE. This is ensuring pupils are prepared for the increase in difficulty and higher standard of work required to be successful at GCSE.

Other Information

Pupils in year 9 will be given one long piece of written homework a week, accompanied by a shorter task.

Year 9 pupils will not have a textbook, and should use their class notes and hand outs to revise and complete their homework. All pupils are required to have exercise books that are well presented, organised and thus can be used for independent study.

Year 10 & Year 11

Introduction and Aims

GCSE in Science and Additional Science

These GCSE's in Science encourage students to be inspired, motivated and challenged by following a broad, coherent, practical, satisfying and worthwhile course of study. It provides insight into and experience of how science works, stimulating students' curiosity and encouraging them to engage with science in their everyday lives and to make informed choices about further study and career choices.

What will pupils study?

Below you will find a term by term description of the topics/skills normally taught each term. The exact timings may of course vary and the order in which the topics are covered may change. Term 1,2 and 3 will be completed in year 10 and terms 4,5, and 6 in Year 11.

Term 1	Term 2	Term 3
<p>B1: Classification, Variation and Inheritance.</p> <p>C2: Atomic Structure, Ionic Compounds.</p> <p>P1: Visible light and the Solar System, The Electromagnetic Spectrum.</p>	<p>C1: Fuels, Organic Chemistry</p> <p>C1: The Changing Atmosphere</p> <p>B1: Homeostasis</p> <p>P1: Waves and the Universe, Waves and the Earth.</p>	<p>B1: Problems and solutions of a changing environment.</p> <p>C1: The Changing Atmosphere, and Acids</p> <p>P1: Generation and transmission of Electricity, Energy and the Future</p>

Assessment Information
<p>B1 & B2 :1 hour exam 25% for each unit.</p> <p>C1 & C2: 1 hour exam 25% for each unit.</p> <p>P1 & P2: 1 hour exam 25% for each unit.</p> <p>SCA- 2 Practical controlled assessments marked internally by teacher and marks submitted to Edexcel. 25% for each assessment.</p> <p>1 GCSE -> 3 theory units (75%) and 1 SCA (25%) = 100%</p> <p>All exams will be sat in May 2014 at the end of Year 11.</p>

Other Information
<p>Pupils in year 10 and 11 will study a GCSE in Science and Additional Science in parallel. They will complete 2 units of Biology, 2 of Chemistry and 2 of Physics over 2 years.</p> <p>This year each week pupils will have subject specific lessons, i.e. 2 lessons of Biology, 2 Chemistry and 2 Physics a week and one piece of homework from each subject a week.</p>

Term 4	Term 5	Term 6
<p>P2: Static and Current Electricity Controlling and using Electric Current</p> <p>C1: Materials from the Earth, Obtaining and using metals</p> <p>B2: Cells, Osmosis, Diffusion, Active transport. Common Systems: Circulation, Digestive.</p>	<p>P2: Motion and Forces, Momentum and Energy.</p> <p>C2: Groups of the Periodic Table, Covalent Compounds.</p> <p>B2: Enzyme action. Aerobic and anaerobic respiration. Photosynthesis</p>	<p>P2: Nuclear Fission and Fusion, Benefits and Drawbacks of using Radioactive Materials.</p> <p>C2: Quantitative Chemistry, Rates of Reactions.</p> <p>B2: DNA, Mitosis, Meiosis, Genetic Engineering, Stem cells.</p>

Additional information

While textbooks will be provided by the school, pupils will be required to purchase a revision guide for a price of less than 10 Euros, in order to aid with exam preparation.

Pupils should keep class notes and topics completed neatly in a large ring binder. Small A4 ring binders will be provided by school for class work, when topics are finished they should be stored in the large binder and kept safely until needed for revision.

Pupils will receive one piece of written homework from Biology, Chemistry and Physics each week. It is a requirement in addition to written homework, that all pupils learn their class notes from that week's lesson prior to completion of their homework task.

Further Additional Science (Triple)

Introduction and Aims

GCSE in Science and Further Additional Science

These GCSE's in Science encourage students to be inspired, motivated and challenged by following a broad, coherent, practical, satisfying and worthwhile course of study. It provides insight into and experience of how science works, stimulating students' curiosity and encouraging them to engage with science in their everyday lives and to make informed choices about further study and career choices.

What will pupils study?

Below you will find a term by term description of the topics/skills normally taught each term. The exact timings may of course vary and the order in which the topics are covered may change. Term 1,2 and 3 will be completed in year 10 and terms 4,5, and 6 in Year 11.

Term 1

B3: Topic 1: Control Systems
C3 Topic 1: Qualitative Analysis

Term 2

B3 Topic 2: Behaviour
C3 Topic 2: Quantitative Analysis

Term 3

B3 Topic 2: Human evolution
C3 Topic 3: Organic Chemistry

Assessment Information

B3: 1 hour exam 25% for each unit.
C3: 1 hour exam 25% for each unit.
P3: 1 hour exam 25% for each unit.

SCA- 1 Practical controlled assessment marked internally by teacher and marks submitted to Edexcel worth 25%.
1 GCSE -> 3 theory units (75%) and 1 SCA (25%) = 100%
All exams will be sat at the end of Year 11.

Other Information

Pupils in year 10 and 11 will study a GCSE Further Additional Science for 3 lessons a week. Two of the three lessons will be taught by a Biology and Chemistry specialist and one lesson a week will be taught by a Physics specialist. They will complete 1 additional unit of Biology, Chemistry and Physics over the two year course.

Term 4	Term 5	Term 6
<p>B3: Biotechnology: Uses of Microbes for food.</p> <p>C3: Electrolytic Processes</p>	<p>B3: Enzymes and Food production</p> <p>C3: Gases, Equilibria and Haber Process</p>	<p>Revision and Consolidation,</p> <p>Controlled assessment in lessons.</p>

Additional information

While textbooks will be provided by the school, pupils will be required to purchase a revision guides for a price of approximately 10 Euros, in order to aid with exam preparation.

Pupils should keep class notes and topics completed neatly in a large ring binder. Small A4 ring binders will be provided by school for class work, when topics are finished they should be stored in the large binder and kept safely until needed for revision.

Pupils will receive one piece of written homework from Biology, Chemistry and Physics each week. It is a requirement in addition to written homework, that all pupils learn their class notes from that week's lesson prior to completion of their homework task.