

Science Curriculum - March 2019.

Class	Curriculum Content.
1 and 2	<p><u>Home Surroundings:</u></p> <ul style="list-style-type: none">• Stories, songs, poems• seasonal festivals• activities and nature walks embracing the child's immediate environment• stones, plants, animals, birds• night and day• hot and cold• weather and seasons
3	<p><u>Housebuilding:</u></p> <ul style="list-style-type: none">• look at modern housebuilding and other structures (e.g. bridges, tower blocks)• individual design and construction of a model building.• Farming and Gardening:<ul style="list-style-type: none">• the birth of animals, particularly lambs and chicks• agriculture; seeds sprouting• beds prepared and seeds sown• develop an understanding of farming at different times of year:<ul style="list-style-type: none">• participation in practical gardening activities/ harvesting• visit a farm
4	<p><u>Animal Studies:</u></p> <ul style="list-style-type: none">• Study of animals:<ul style="list-style-type: none">– their characteristics– relationship to habitat• Emphasis is given to what the animal kingdom teaches us about being human

<p>5</p>	<p><u>Botany:</u></p> <ul style="list-style-type: none"> • Differences between minerals and animals • the plant as a mediator in the world of nature • Roots, leaves and flowers as the basic plant gestures • The parts of the flowering plant. • Lower and higher orders of plants: • fungi, algae, ferns, seaweed, and their relationship to the flowering plants. • Coniferous and deciduous trees, in forests in settled areas. • The oak, and its many appearances in history and geography. • The disappearing forests. • The insect world and its relationship to the plant kingdom. • Ants, bees and butterflies. • Life cycle of the Oak tree; • plant reproduction – wind pollination, insect pollination.
<p>6</p>	<p><u>Physics:</u></p> <ul style="list-style-type: none"> • Acoustics: <ul style="list-style-type: none"> – -sound in everyday life – -how sound travels – -elements of music – -bottle orchestra. <p><u>Optics/ Light and Colour</u></p> <ul style="list-style-type: none"> • Light and darkness in everyday life • How light travels • Light in the atmosphere- sunsets • Splitting light – prisms • Reflection.

Hot & cold

- Nature of heat
- Effects of heat on substances
- States of matter
- Expansion and contraction.

Astronomy:

- Observation of Sun and night sky, horizon, meridian, zenith, nadir, star constellations (e.g. Plough, Orion, Cassiopia), individual stars (e.g. Polaris, Rigel, Betelgeuse, Sirius).
- Observation of planets.
- Phases of the moon.
- How to find north and south at daytime/night time.
- Constellations of the Zodiac.
- The path of the Sun at different times of the year.
- Geocentric viewpoint
- -observational.

Life Cycles:

- Insect life cycles - may fly, butterfly
- Fish reproduction - salmon life cycle
- Amphibian life cycle
- Reptiles
- Birds
- Mammals
- Human life cycle
- Reproduction
- Embryology
- Puberty

	<p><u>Geology:</u></p> <ul style="list-style-type: none"> • To experience the different qualities in a given landscape and their relation to underlying rock formations • Igneous, sedimentary, metamorphic rocks. • Volcanoes. • Cave formations. • Quartz and limestone and practical applications of these minerals in our daily life.
7	<p><u>Physics:</u></p> <ul style="list-style-type: none"> • Mechanics <ul style="list-style-type: none"> – forces working with the body – forces working within the world – balance • The lever (1st, 2nd 3rd class) • The pulley • The inclined plane • Friction • The balancing point. • Sound <ul style="list-style-type: none"> – Musical instruments – Resonance. • Light <ul style="list-style-type: none"> – Reflection. • Heat <ul style="list-style-type: none"> – melting/ boiling – graduation of thermometer • Electricity: Galvani, Volta, the voltaic cell <ul style="list-style-type: none"> – Introduction to electromagnetism – Oersted's discovery

Astronomy:

Heliocentric theory and history and biographies.

- Copernicus
- Galileo

Invention of the telescope

Chemistry:

- Combustion
 - Colours of flames and different combustion materials.
 - Oxygen and candle flame extinguishing.
 - Fire footprint: acid gas/alkali ash
- Acid/ Alkali
 - Household chemicals
 - Testing with cabbage water.
 - Indicators.
- Transformation of substance
 - the lime cycle.
- Metals e.g. iron, lead, silver

Health and Nutrition:

- Senses of smell and taste.
- Tongue and teeth.
- The digestive process.
- Names of body parts/ processes.
- The circulatory system.
- Respiratory system (air and breathing).
- Healthy eating and drinking.
- Substance use and abuse: drugs, alcohol, tobacco.

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Physics:

- Fluids – fluid mechanics
- solids, liquids, gases
- air pressure
- cartesian diver
- syphon
- collapsing can
- steam,
- fountain experiment
- steam engines.

Practical applications of electromagnetism

- -coils, fields, induction
- -morse code
- -electric motor
- -electricity in the home, D/C, A/C, volts , amps, watts

Biographies e.g. Newcomen, Watt, Stephenson, Faraday, Oersted.

Chemistry:

- photosynthesis and the production of glucose in plants, sugars and their sources
- conversion to starch
- cellulose
- fats
- oils and proteins
- experiments to identify basic food substances.
- Diet
- Obesity
- food allergies

	<ul style="list-style-type: none">• additives and organic foods <p><u>Anatomy:</u></p> <ul style="list-style-type: none">• The skeleton• muscular system• endocrine and cardiovascular systems <p>The studies tie in with the pupils' developing interest in biology, their own bodies and the possibilities that medicine may hold for the future.</p>
9-11	All pupils work towards the IGCSE Co-ordinated Science Double Award.