



St George's School
SCIENCE Department
Year 7 Curriculum Map

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p>THE BIG IDEAS & KNOWLEDGE <i>Overview of topics or key questions</i></p>	<p>Cells: Learning the differences between cells and describing different levels of hierarchical organisation with regards to unicellular and multicellular organisation.</p> <p>Particles and behaviour: Learn the properties of the different states of matter. Pupils will study the conservation of material and of mass, and reversibility, in melting, freezing, evaporation, sublimation, condensation and dissolving. Covers the basis of chemical symbols and formulae for elements and compounds.</p>	<p>Light: Learn the differences between light and waves in matter. How light waves travel. How light transfers energy from a source to an absorber and explains how this leads to chemical and electrical effects. Anatomy of the human eye.</p> <p>Structure & function of body systems: Understand the gas exchange system and the mechanism of breathing. Explore the skeletal and muscular system. Learn the interaction between skeleton and muscles, including the measurement of force exerted by different muscles.</p>	<p>Elements, atoms & compounds: How to write chemical formulas. Represent elements by symbols and compounds by formulae. Explore what elements are made from, the properties and how we get all the other materials.</p> <p>Sound: Sound waves and energy transfer. The difference between loudness and pitch. Different sounds and how they are detected.</p>	<p>Reproduction: Aspects of puberty and growth. Male and female reproductive systems. Pregnancy and childbirth.</p> <p>Forces: Aspects of forces which include forces at a distance as well as balanced and unbalanced forces. How do things balance? Forces and their effects. What friction does.</p> <p>Reactions: Chemical and physical reactions. How to represent and explain chemical reactions by word equations, models or diagrams'. Chemical reactions that take place when fuels burn. Students will explore the processes of different types of reactions like thermal decomposition, exothermic and endothermic reactions.</p>	<p>Acids & alkalis: Learn about acids and alkalis. How to neutralise substances and make salts. Students will learn about acids and alkalis and where to use them. How can acids and alkalis be identified and distinguished from each other? What happens when an acid is added to an alkali? Where is neutralisation important? Bases studied in detail.</p>	<p>Space: The environment, earth and the universe – 'astronomy and space science provide insight into the nature and observed motions of the sun, moon, stars, planets and other celestial bodies'. Some aspects of the solar system are explored. Highlighting the major components of the solar system, the different planets and moons. The different seasons, days, and nights.</p> <p>Revision & review.</p>

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
SKILLS & STRATEGIES <i>Procedural knowledge, literacy and numeracy skills</i>	Core practicals, learning how to use a microscope and prepare slides of cells. Modelling of specialised cells. Modelling particles. Results tables and data plotting.	Modelling to explain imaging in mirrors, specifically focusing on the pinhole camera. Measure angles with precision and make generalisations from the data. Identify patterns in angular measurements of reflected rays of light. Dissection of chicken legs/wings to show joint movement and muscle action.	Chemical formula and writing of equations. Interpret observations and data, including identifying patterns using observations. Plotting of data from sound investigations.	Dissection skills to dissect flowers to show reproductive organs. Calculations to show the sequence of the menstrual cycle. Collecting data by using a newton metre to measure the forces on different objects. Plotting of data from forces investigations. Word equations to show chemical reactions.	Evaluate risks when testing the different substances to see whether they are acids or alkalis. Observance of difference hazard symbols and the precautions to take when using them .Planning an investigation to determine which indigestion remedy works the best.	Understand that scientific methods and theories develop as scientists modify earlier explanations to take account of new evidence and ideas.
FEEDBACK <i>Noteworthy tasks and assessments</i>	End of topic test. Assessed homework.	End of topic test. Assessed homework.	End of topic test. Assessed homework.	End of topic test. Assessed homework.	End of topic test. Assessed homework.	End of topic test. Assessed homework.
BREADTH <i>Opportunities, trips, wider reading, cultural capital</i>	Make a mode of a cell using a variety of materials. Watch the "Microscope monsters" Horrible science series.	Explore light in the home for example make shadow puppets.	Watch "Clash of the titans", BBC 4 production. Link with musical instruments that you play.	Watch Lord Robert Winstons "An everyday miracle". Germinate a seed and watch it grow.	Look at household products to identify acids and alkalis in them. Make your own indicator using red cabbage.	Follow the international space station on the news. Visit the National space centre - Leicester. Use BBC bitesize.

	Autumn	Spring	Summer
<p>KEY VOCABULARY <i>Important words and phrases</i></p>	<p>Cells Organism, Cell, Microscope, Observation, Nucleus, Cell Membrane, Cytoplasm, Mitochondria, Respiration, Cell Wall, Vacuole, Chloroplast, Specialised Cell, Nerve Cell, Red Blood Cell, Sperm Cell, Root Hair Cell, Magnification, Resolution, Diffusion, Concentration, Unicellular, Amoeba, Euglena, Flagellum</p> <p>Particles & their Behaviour Mixture, Properties, Matter, Evaporation, Condensation, Freezing, Sublimation, Material, Particle, Substance, Property, Solid, Liquid, Gas, States of Matter, Melting, Change of State, Boiling, Boiling Point, Conserve, Diffusion, Collide, Gas Pressure</p> <p>Light Transmits, Translucent, Transparent, Reflection, Refraction, Convex, Source, Emit, Reflect, Eye, Absorb, Luminous, Non-Luminous, Transmit, Opaque, Umbra, Penumbra, Vacuum, Wave, Light-time, Image, Virtual Image, Plane, Incident Ray, Reflected Ray, Normal, Angle of Incidence, Angle of Reflection, Law of Reflection, Specular Reflection, Diffuse Scattering, Refraction, Medium, Lens, Converging, Focus, Focal Point, Retina, Iris, Pupil, Cornea, Inverted, Photoreceptor, Optic Nerve, Brain, Pinhole Camera, Real Image, Pixel, Charge-Coupled Device, Prism, Spectrum, Frequency, Primary Colour, Secondary Colour, Filter</p> <p>Structure & Function of Body Systems Multicellular Organism, Organ System, Gas Exchange, Lungs, Ribcages, Respiratory System, Trachea, Alveolus, Inhale, Respiration, Exhale, Condense, Contract, Diaphragm, Lung Volume, Bone, Skeleton, Support, Protect, Bone Marrow, Biomechanics, Joint, Cartilage, Ligament, Newtons, Tendon, Organ, Tissue, Antagonistic muscles</p>	<p>Elements, Atoms & Compounds Molecule, Formula, Element, Atoms, Compound, Chemical Symbol, Chemical Formula, Periodic Table</p> <p>Sound Amplitude, Frequency, Wavelength, Transverse, Longitudinal, Peak, Trough, Rarefaction, Compression, Wave Speed, Echo, Sonar, Oscillation, Vibration, Energy, Undulation, Sound, Crest, Incident Wave, Reflected Wave, Superpose, Vibration, Medium, Vacuum, Speed of Sound, Speed of Light, Pitch, Loudness, Microphone, Oscilloscope, Hertz, Kilohertz, Audible Range, Infrasound, Ultrasound, Ear, Pinna, Auditory Canal, Eardrum, Outer Ear, Ossicles, Middle Ear, Amplify, Oval Window, Cochlea, Auditory Nerve, Inner Ear, Decibels, Diaphragm, Amplifier, Reverberation, Transmitter, Receiver</p> <p>Reproduction Puberty, Hormones, Gametes, Fertilisation, Menstrual cycle, Contraception, Adolescence, Sex Hormones, Sperm cell, Testes, Scrotum, Semen, Sperm Duct, Urethra, Penis, Sexual Intercourse, Egg Cell, Ovary, Oviduct, Uterus, Cervix, Vagina, Gamete, Cilia, Ejaculation, Embryo, Implantation, Gestation, Fetus, Placenta, Umbilical Cord, Fluid Sac, Period, Ovulation, Condom, Contraceptive Pill, Petal, Sepal, Stamen, Anther, Pollen, Filament, Carpel, Stigma, Ovary, Ovule, Pollination, Fruit, Seed, Seed Dispersal, Germination</p> <p>Forces Gravity Friction Resistance Newton Push Pull Newtonmeter Drag Forces Air resistance Water resistance Non-Contact Interaction Pair</p>	<p>Acids & Alkalis Corrosive, Concentrated, Dilute, pH scale, indicator, Neutral, Base, Alkali, Alkaline Solution, Acidic Solution, Litmus, Universal Indicator, Salt</p> <p>Space Satellite, Meteorite, Solar system, Terrestrial, Gravity, Constellations, Star, Artificial Satellite, Orbit, Earth, Moon, Natural Satellite, Planet, Sun, Solar System, Comet, Meteor, Galaxy, Milky Way, Universe, Astronomer, Ellipse, Asteroid, Mercury, Venus, Mars, Terrestrial, Gas Giant, Dwarf Planet, Exoplanet, Axis, Day, Night, Year, Season, Constellation, Phases of the Moon, Umbra, Total Solar Eclipse, Penumbra, Partial Solar Eclipse, Lunar Eclipse</p>

Weight
Deform
Compress
Stretch
Reaction
Extension
Tension
Elastic Limit
Hooke's Law
Linear
Lubrication
Streamlined
Magnetic
Electrostatic
Field
Mass
Kilograms
Gravitational Field Strength
Balanced
Equilibrium
Unbalanced
Driving Force
Resistive Force

Reactions
Equilibrium
Reversible
Reactants
Products
Oxidation
Combustion
Decomposition
Exothermic
Endothermic
Chemical Reaction
Physical Change
Catalyst
Word Equation
Hazard
Risk
Fuel
Fossil Fuel
Non-Renewable

		Thermal Decomposition Discrete Conservation of Mass Balanced Symbol Equation	
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