



**St George's School**  
**SCIENCE Department**  
**Year 7 Curriculum Map**

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<p><b>THE BIG IDEAS &amp; KNOWLEDGE</b>  <i>Overview of topics or key questions</i></p>	<p><b>Cells:</b> Learning the differences between cells and describing different levels of hierarchical organisation with regards to unicellular and multicellular organisation.</p> <p><b>Particles and behaviour:</b> 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><b>Light:</b> 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><b>Structure &amp; function of body systems:</b> 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><b>Elements, atoms compounds &amp; Reactions :</b> 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>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><b>Sound:</b> Sound waves and energy transfer. The difference between loudness and pitch. Different sounds and how they are detected.</p>	<p><b>Reproduction:</b> Aspects of puberty and growth. Male and female reproductive systems. Pregnancy and childbirth.</p> <p><b>Forces:</b> 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><b>Acids &amp; alkalis:</b> 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><b>Space:</b> 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><b>Revision &amp; review.</b></p>

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
<b>SKILLS &amp; STRATEGIES</b> <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.  Word equations to show chemical reactions.	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.	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.
<b>FEEDBACK</b> <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. End of year assessment.
<b>BREADTH</b> <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><b>KEY VOCABULARY</b> <i>Important words and phrases</i></p>	<p><b>Cells</b> 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><b>Particles &amp; their Behaviour</b> 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><b>Light</b> 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><b>Structure &amp; Function of Body Systems</b> 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><b>Elements, Atoms, Compounds &amp; Reactions</b> Molecule, Formula, Element, Atoms, Compound, Chemical Symbol, Chemical Formula, Periodic Table, Equilibrium, Reversible, Reactants, Products, Oxidation Combustio, 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</p> <p><b>Sound</b> 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><b>Reproduction</b> 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><b>Forces</b> Gravity, Friction, Resistance, Newton, Push, Pull, Newton Meter Drag Forces, Air resistance, Water resistance, Non-Contact Interaction Pair, 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</p>	<p><b>Acids &amp; Alkalis</b> Corrosive, Concentrated, Dilute, pH scale, indicator, Neutral, Base, Alkali, Alkaline Solution, Acidic Solution, Litmus, Universal Indicator, Salt</p> <p><b>Space</b> 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>