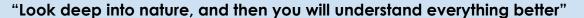






INTENT:



Albert Einstein

The intent of the science department is to convey to students that science underpins everything.

At The King's, we study:

- Physics to be able to understand the fundamental principles that govern all Energy and matter in the Universe.
 Physics gives us tools to understand nature from the scale of a sub-a-tomic particles up to the inter-galactic scale of the universe;
- Chemistry to be able to understand the nature of substances: how they are composed, their behaviours, and their physical and chemical properties. Chemistry allows us to identify unknown substances, monitor concentrations and synthesize new chemicals. Above all, chemistry is about finding solutions to the problems that concern us and our surroundings:
- Biology to be able to understand life and thereby understand ourselves. Biology allows us an understanding od the amazing complexity of many life processes and mechanisms. Biology encourages us to seek out reasons for strange, surprising and sometimes usual observations.

Science provides some incredibly challenging topics helping to gauge an awareness of topical issues and their impact on the climate, earth as well as human growth.







CONNECTED

Please click on the icons to access our online portal where you can learn more about each topic								
Half term points								
AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2			
Safety in science	Chemistry	Biology	Physics	Chemistry	Physics			
Big Idea 1: Forces Speed and Gravity	Big Idea 5: Matter Particle model & separating mixtures	Big Idea 9: Ecosystems Interdependence and plant reproduction	Big Idea 3: Energy Energy costs and energy transfer	Learning Big Idea 7: Earth Structure and the Universes	Big Idea 4: Wa <mark>ves</mark> Sound and Li <mark>ght</mark>			
Learning to include: • how forces act as interactive pairs • balanced and unbalanced forces • calculating the speed of a moving object • interpreting distance time graphs • the effect gravitational field strength	Learning to include: the particle model states of matter melting, freezing, boiling changes between each state of matter how particles move the effects of pressure on particles solutions and solubility filtering, evaporation, distillation, chromatography Bitesize Physics	Learning to include: • food chains and webs • interdependence and bioaccumulation • ecosystems and niche • competition between organisms • flowers and pollination • fertilisation and germination • methods of seed dispersal	Learning to include: energy in foods and fuels energy resources calculating energy and power of appliances conservation of energy and transferring energy energy dissipation and efficiency Biology	Learning to include: the structure of the earth sedimentary rocks igneous and metamorphic rocks the rock cycle ceramics the solar system the structure of the earth the phases of the moon	Learning to include: sound waves and speed loudness and amplitude frequency and pitch the ear and hearing light waves and speed reflection refraction the eye and vision colour			
Big Idea 8: Organisms Cells and organisms	Big Idea 2: Electromagnets Current and resistance	Big Idea 6: Reactions Metals & Non metals Acids and Alkali	Big Idea 10: Genes Variation and human reproduction		Project Independent research proje based on Jurassic Park — Lir Evolution, Genetic information			
Learning to include: levels of organisation in organisms the structure of the skeleton movement of joints movement of muscles how to observe cells structure of animal and plant cells how specialised cells are adapted how substances move into and out of cells uni-cellular organisms	Learning to include: defining and explaining how potential difference affects components the effect of resistance on components series and parallel circuits defining and explaining the effect of current electric charge	Learning to include: chemical reactions acids & alkalis – indicators and ph acid strength neutralization making salts chemical reactions: metals and oxygen metals and water metal displacement reaction	Learning to include: variation between organisms continuous and discontinuous variation organisms adapting to change adolescence reproductive systems fertilisation and implantation development of a foetus the menstrual cycle		and DNA			





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Half	term	points
Hall	ICIIII	Politia

Half term points								
	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2		
	Safety in science	Chemistry	Biology	Chemistry	Biology	Chemistr <mark>y</mark>		
	Big Idea 1: Forces Contract forces and pressure	Big Idea 5: Matter Elements and the periodic table	Big Idea 9: Ecosystems Respiration and Photosynthesis	Big Idea 6: Reactions Chemical energy and types of reactions	Big Idea 10: Genes Evolution and inheritance	Big Idea 7: Earth climate and Earths resources		
8	Learning to include: gas exchange the mechanism of breathing the effects of drugs, alcohol and smoking on the body nutrient required by the body testing foods unhealthy diet and its impact the structure of the digestive system the role of bacteria and enzymes in digestion	Learning to include: elements, atoms, compounds identifying chemical formulae polymers the periodic table the properties of groups in the periodic table Group 1 Group 7 Group 0	Learning to include:	Learning to include:	Learning to include: the process of natural selection the history and work of Charles Darwin preserving biodiversity inheritance the structure of DNA genetics and inherited characteristics genetic modification	Learning to include: global warming the carbon cycle climate change extracting metals recycling		
	Biology	Bitesize Physics	Bitesize Bitesize	Bitesize Physics	Bitesize Physics	Bitesize		
	Big idea 8: Organisms Breathing and digestion	Big Idea 2: Electromagnets Electromagnets: Magnetism and electromagnets		Big Idea 3: Energy Work, heating and cooling	Big Idea 4: Waves Wave effects and properties	Independent re <mark>search</mark> project based <mark>on the</mark> Martian		
	Learning to include: friction and drag the effect of squashing and stretching forces turning forces pressure in gases, liquids and solids impact of stress on solids	Learning to include: Magnets and magnetic field Electromagnets The use of electromagnets		Learning to include: work energy and machines energy and temperature energy transfer between particles energy transfer: radiation and insulation	Sound waves, water waves and energy radiation and energy modelling waves			
	Bitesize	Bitesize		Bitesize Bitesize	Bitesize			