

The Hurlingham Academy - Science learning journey



Year 7						
Particles	Fundamentals of physics	Cells and Microscopes	Chemical Reactions	Organ Systems	Sound and Light	Materials
What are different materials made of? What are changes of state? How are mixtures separated?	How is energy stored and transferred? What happens when forces are unbalanced? How can we investigate the friction of different surfaces?	What are cells? How can we see them? How are cells organised?	What happens during reactions? How do we show this? How do acids and alkalis react?	How do we digest food? How do muscles move bones to allow movement? How does the heart pump blood around the body?	What is the law of reflection? How do we investigate that? What are echoes? How do they form?	What are ceramics and why are they useful? How do we investigate the strength of composite materials?
Solids, liquids and gases and dissolving from KS2.	Light and sound; forces and friction from KS2	Organ systems and life processes from KS2.	Irreversible changes from KS2. Particle model from Particles module.	Organ systems and life processes from KS2.	Light rays, sounds waves, reflection from KS2 and energy transfer from Fundamentals Physics.	Properties and changes of materials in KS2.

Year 8										
Space 1	Nutrition and Digestion	Acids and Alkalis	Forces and Work	Interactions and Interdependence	Electricity 1	Plants and their Processes	Forces and Motion	The Earth and the Atmosphere	8CP Heating and Cooling	Life Cycles
How do we see? Why do we have day/night and seasons?	What makes a healthy diet? What are the consequences of unhealthy eating? How do enzymes work?	What are acids and alkalis? What are the examples of application of these?	How much energy is transferred when objects are moved by a force? How do we calculate that?	How can we show feeding relationships? How have species changed over time? How are they classified?	How does current flow in a circuit? How do we measure potential difference and calculate resistance?	Why is photosynthesis important? How are plants adapted for this?	How can we accelerate and object? How can we use forces to cause a turning movement?	What types of rock are there? What is the carbon cycle?	What is conduction and convection? Why do some materials heat up more easily than others?	What is fertilisation? What happens during pregnancy and birth? How do we investigate the strength of composite materials?
The solar system and gravity from KS2. Light waves from Sound and Light module in year 7.	Cells and Microscopes module and Organ Systems module from year 7.	Irreversible changes from KS2. Chemical reactions module from year 7.	Types of forces, balanced forces and energy transfers from Fundamental of physics.	Classification and habitats from KS2.	Circuit symbols, voltage and magnetic poles from KS2. Energy transfers from 7PE.	Plant parts and nutrition from KS2. Plant reproduction from 7BR.	Types of forces, balanced forces and energy transfers from Fundamental of physics.	Rock and fossil formation from KS2.	Energy transfers from Fundamentals of Physics. Particle model from Particles module.	Life cycles & parts of a plant from KS2. Cells and organ systems from year 7 biology modules.

Year 9										
Ecosystems	Waves	Periodic Table & Reactivity	Electricity 2	Cellular Respiration	Floating and Sinking	Reactivity & Rates	Magnetic Fields & Electromagnets	Health & Disease	Space 2	Trends & Energetics
How do organisms interact with the physical environment? What can be done to conserve genes and species?	What are the differences between longitudinal and transverse waves? How do they behave similarly or differently?	What is the structure of the atom? How is the periodic table organised? What are the reactive elements and how to they react?	What is power? How is it calculated? How is electricity supplied to our homes?	How do cells release energy? How does the body activity affect the rate of respiration?	How can we investigate density? What happens to substances when they are heated?	How can we investigate rates of reaction? Why do some reactions cause a temperature change?	What is a magnetic field? How do we form a temporary magnetic field using a current? How do we increase the strength of the magnetic field?	What are the common diseases? Are they communicable or not? What are the risk factors for diseases?	What are the celestial objects in our solar system? What do we mean by 'the universe' and how is it changing?	What are exothermic and endothermic reactions? How do we investigate and identify the type of reaction?
Interactions and Interdependence module from year 8.	Sound and Light modules from year 7. Energy transfer from Fundamentals of Physics module from year 7.	Chemical Reactions module from year 7.	Circuit symbols, voltage, current and resistance from Electricity 1 from year 8.	Cells and Organ Systems from year 7. Chemical Reactions module from year 7.	Particle model and changes of state from 7CP.	Particle model from year 7. Chemical reactions from Periodic Table and Reactivity module.	Circuit symbols, voltage, current and resistance from Electricity 1 from year 8.	Organ Systems module from year 7. Nutrition and Digestion module from year 8.	Space 1 module from year 8. Light and Sound module from year 7.	Irreversible changes from KS2. Chemical reactions module from year 7. Heating and Cooling module from year 8.

Year 10												
B7 Ecology	P4 Atomic Structure	P3 Matter	C4 & C5 Reactions and energy change	C3 Quantitative Chemistry	P2 Electricity	B4 Bioenergetics	B3 Infection & Response	P1 Energy	C2 Bonding	B2 Organisation	C1 Atoms & the Periodic Table	B1 Cells
How do organisms depend on each other? How can we investigate species distribution? How do humans impact the environment?	How has the model of the atom been developed? How do atoms emit radiation?	How can we investigate changes in temperature? How can these be explained?	How can we investigate energy change in reactions?	How can we predict the mass of the products of a chemical reaction? How can we calculate the concentration of a solution?	How can we investigate resistance in circuits? How can we calculate power?	How can we investigate photosynthesis? How does exercise affect us? What is metabolism?	How do pathogens spread disease? How do we defend against disease? How are drugs trialled?	How is energy stored and transferred? How is electricity generated?	Why do substances have different properties?	What special features do the digestive, circulatory and respiratory system have? What are non-communicable diseases? How are plants adapted for photosynthesis?	What are isotopes? What patterns can be found in the Periodic Table?	What special features do cells have? How do cells divide? How do substances enter cells?
Feeding relationships from 8BE.	Atomic structure from C1.	Energy transfers from P1.	Reactions from 9CE/CR, energy transfers from P1	Element symbols from C1	Energy transfers from P1, circuit components from 8PE	Plant tissues from B2, cell structure from B1, plants from 9BP.	Bacteria from B1, communicable diseases from B2.	Energy transfers from 7PE	Electron arrangements from C1, reactions from 9CR	Specialised cells from B1	Atomic structure and knowledge of the periodic table from 8CP.	Cell structure and diffusion from 7BC.

Year 11									
B5 Homeostasis	P5 Forces	C6 Rates of Reaction	B6 Inheritance & Selection	C7 Organic Chemistry	C8 Chemical Analysis	P6 Waves	P7 Magnetism	C9 Atmosphere	C10 Resources
How are conditions in our body controlled? How can we use our knowledge of this for medical treatments?	How do forces affect motion? How can we investigate elasticity?	How can we measure the rate of a reaction? How can we use reversible reactions?	How are characteristics inherited? How have species changed over time? How can we manipulate selective processes?	What is crude oil? How can we use its products?	What are pure and impure substances? How can we analyse them?	How do waves transfer energy? What can electromagnetic waves be used for?	How can magnetic fields be investigated? What can electro magnets be used for?	How has the atmosphere changed? How do humans impact the atmosphere?	How can we recycle different materials? How can we evaluate our material choices?
Stem cells and specialised cells from B1	Energy transfers and mathematical techniques from P1	Reactions from C4, endo/exo from C5, rates from 9CE	Specialised cells from B1, selection from 8BE	Properties and bonding from C2	Separating techniques from C1	Energy transfers from P1, effects of radiation from P4	Circuits from P2, magnetic fields from 8PE	Human impacts from B7.	Human impacts from B7 & C9