

YEAR 9		Description	Levels covered	Skills & content covered	Skills & content revisited
SCIENCE					
		Transition unit Chemistry			
		Transition unit Physics			
		Transition unit Biology			
BIOLOGY UNIT 1	Cell Biology	This unit explores how structural differences between types of cells enables them to perform specific functions within the organism. It also looks at the development of stem cell technology.	9 to 1	Eukaryotes and Prokaryotes, Animal and plant cells, Cell specialisation and differentiation, Microscopy, Cell division, Stem cells, Diffusion, Osmosis and active transport	Evaluating practical risks and benefits os use of stem cells in medical research. Use models and analogies to develop explanations of how cells divide. Use prefixes centi, mili, micro and nano.
CHEMISTRY UNIT 1	Atomic structure	The periodic table provides chemists with a strucured organsation of known chemical elements from which they can make sense of their physical and chemical properties. This unit explores the development of the table and the structure of the atom.	9 to 1	Atoms, elements and compounds, Mixtures, models of the atom, electric charge of subatomic particles, size and mass of atoms, electronic structure, the periodic table, Metals, non-metals, group 0,1,7.	Plan experiment and use a range of quipemtnt safely to separate chemical mixtures,, understand how theroies develop over time, Represent electronic strcutres of the first twenty elements of the periodic table.
PHYSICS UNIT 1	Atomic Structure	Ionising radiation is hazardous but can be most useful. Although radioactivity was discovered over a century ago, it took many nuclear physicists several decades to understand the structure of atoms, nuclear forces and stability. Early researchers suffered from their exposure to ionising radiation. Rules for radiological protection were first introduced in the 1930s and subsequently improved. Today radioactive materials are widely used in medicine, industry, agriculture and electrical power generation.			Understand how and why scientific theory develops over time. WS1.2, 1.4, 4a, WS 1.5, 1.6. Standard form
BIOLOGY UNIT 2	Organsiation	This unit explores the human digestive system and respiratory system and are linked to the circulatory system. Plant transport systems will also be reviewed.	9 to 1	Organsiational hierachy, human digestive system, heart and blood vessels, blood, coronary heart disease, health issues and lifestyle, cancer, plant tissues organs and systems.	Use models to explain enzyme action, evaluate risks related to use of blood products, evaluate cardiovascular disease treatements. Interpret data about risk factors for specified diseases.
CHEMISTRY UNIT 2	Bonding, structure, and the properties of matter	Chemists use theories of structure and bonding to explain the physical and chemcial properties of materials. Analysis of structures shows that atoms can be arranged in a variety of waves, some of which are moleculare while others are giant structures. Theories of bonding, and properties of materials are explored along with applications in a range of different technologies.	9 to 1	Chemical bonds, ionic, covalent, and metallic, how bonding and structure are related to properties of substances, state symbols, polymers, giant covalent structures, properties of metals and alloys, metals as conductors, structure o and bonding of carbon including diamond, graphite, graphene and fullerenes.	Recognise substances as small moleclues, polymers or giant structures from diagrams showing their bonding. Use a variety of models to solve problems, make predictions and to develop scientific explanations and understanding.
PHYSICS UNIT 2	Forces	Engineers analyse forces when designing a great variety of machines and instruments, from road bridges and fairground rides to atomic force microsopes. Anything mechanical can be analysed in this way. Recent developments in artificail limbs use the analysis of forces to make movement possible.	9 to 1	Scalars and vectors, contact and non-contact forces, gravity, resultant forces, work done and energy transfer, froces and elasticity, distance and displacement, speed,velocity, distance-time, acceleration, newtons laws, stopping distances, reaction time, momentum and conservation of momentum.	Evaluate risks and plan experiments. Mathematical skills such as recall and re-arranging equations including: $W=mg$ ; $W=Fs$ ; $F=ke$ ; $s=vt$ ; $a=\text{change in velocity}/\text{time}$ ; $F=ma$ ; $p=mv$ .