

	Term 1	Term 2	Term 3
MYP 1 (Year 7)	Unit Title(s): Becoming a scientist Atoms and Elements Cells Electrical circuits	Unit Title(s) Compounds and mixtures Forces and their effect Food and environment	Unit Title(s) Energy resources Reproduction
	Global Context: Scientific and technical innovation	Global Context: Scientific and technical innovation	Global Context: Personal and cultural expressions
	Key concept: Change Systems	Key concept: Form	Key concept: Systems Change
	Topics covered: (1) Becoming a scientist: What does it mean to be a scientist? Differences between a normal classroom and a lab? Lab safety Identifying lab equipment Scientific questions Independent and dependent variables Using a Bunsen burner Recording and analysing data (2) Atoms and Elements: What are elements? What are compounds? What is a mixture? Atomic models	Topics covered: Compounds and mixtures: How do compounds differ from the elements that make them? What happens when we combine elements? Do compounds react chemically? Melting and boiling points of substances What is air made up of? What happens to the mass of a substance during burning. What are alloys. Forces and their effects: What are coordinates? How do we determine distance and	Topics covered: Energy resources: Why are fuels useful? What are fossil fuels? What are renewable energy sources? How do living things use energy? Reproduction: How does a new life start? When can human fertilisation take place? How is the human foetus supported as it develops? How do humans change as they grow? How is technology used in human reproduction?

	<p>States of matter Structure of an atom</p> <p>(3) Cells</p> <p>What are living organisms made of? What are organs made of? How can we use microscopes? What are cells like? How are new cells made? How are new plants produced?</p> <p>(4) Electrical circuits</p> <p>What is electricity? Does electricity flow? How do we represent electrical circuits? Health hazards involved with electricity Circuit components Resistance Parallel and series circuits What supplies energy in an electrical circuit? What is the difference between energy and electric current? How do we use model to represent circuits? How do parallel and series circuits behave? What is the difference between a conductor and an insulator?</p>	<p>location? Where do we come across forces? Why do things float? How do different materials stretch? What does friction do? What affects car stopping?</p> <p>Food and environment</p> <p>How does environment influence the living things that live there? How do environments vary? Where does our food come from? What do food webs tell us? What factors affect plant growth?</p>	
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MYP 2 (Year 8)	Unit Title(s) Light Simple chemical reactions Food and digestion	Unit Title(s) Respiration Acids and alkalis Magnets and electromagnets	Unit Title(s) Microbes and disease Sound and hearing
	Key concept: Systems	Key concept: Change	Key concept: Relationships Communication
	Global Context: Identities and relationships	Global Context: Scientific and technical innovation	Global Context: Identities and relationships

	<p>Topics covered: Shadows, refraction, reflection, dispersion. How the eye works. Luminous and non-luminous objects. Drawing ray diagrams.</p> <p>Physical vs chemical reactions, testing for gases, reactions between metals and acids, reactions between metals and water, reactions between metal carbonates and water, combustion, acid rain.</p>	<p>Topics covered: Chemical equation for respiration. Pathway of food from the digestive system to cell. Pathway of oxygen to cell. Circulatory system, breathing, structure of the lungs, comparing respiration between animals and plants.</p> <p>pH scale, pH of household materials, indicators, making an indicator, neutralisation reactions, antacids.</p>	<p>Topics covered: Types of microorganisms. Health, respiration in microorganisms, pathogens, transmission of pathogens, immunisation, antibiotics.</p>
MYP 3 (Year 9)	<p>Unit Title(s) (1) Plants and Photosynthesis (2) Energy, Electricity and Heating and Cooling (3) Patterns of Reactivity</p>	<p>Unit Title(s) (4) DNA and Inheritance (5) Gravity, space, the solar system (6) Reactions of metals</p>	<p>Unit Title(s) (7) Speeding up, pressure, moments (8) Ecology and Environment</p>
	<p>Key concept: (1) Relationships (2) Change</p>	<p>Key concept: (4) Relationships (5) Time, place and space (6) Change</p>	<p>Key concept: (7) Relationships (8) Global interactions</p>

	<p>Global Context:</p> <p>(1) Globalisation and sustainability.</p> <p>(2) The relationship between energy and electricity and how it affects the development of different societies around the world.</p> <p>(3) Scientific and technical innovation</p>	<p>Global Context:</p> <p>(4) Scientists understand the relationships between genes and inherited characteristics, we can use genetic patterns as evidence for identification and decision making.</p> <p>(5) Time, Place, and Space</p> <p>(6) Scientific and technical innovation</p>	<p>Global Context:</p> <p>(7) Identities and relationships</p> <p>(8) Globalization and Sustainability</p>
	<p>Topics covered:</p> <p>(1) Plants and Photosynthesis How do plants grow? What is the role of leaf in photosynthesis? What is the role of leaf in photosynthesis? How are leaves adapted for photosynthesis? How shall we measure the rate of photosynthesis? What is the role of the root in photosynthesis? What happens to the glucose produced in leaves? Why are green plants important in the environment?</p> <p>(2) Energy, Electricity and Heating and Cooling: Types of energy Efficiency Electrical transfer Circuits Paying for electricity</p>	<p>Topics covered:</p> <p>(4) DNA and Inheritance Variation Causes of variation Fertilisation Breeds Pollination Clones Scientific classification of living things Grouping organisms scientifically</p> <p>(5) Gravity, space, the solar system Human exploration of space The Solar System News on the internet - the truth of the moon landing? The movement of the sun, earth and moon Survival on different planets? What affects rocket travel? How far is the Sun from the Earth? How much do you weigh? What affects flight?</p> <p>(6) Reactions of metals What are metals?</p>	<p>Topics covered:</p> <p>(7) Speeding up, pressure, moments How fast is moving? How do forces affect speed? How can we increase speed? How do parachutes work? Terminal velocity Pressure Pneumatics Hydraulics How do levers work? How do things balance?</p> <p>(8) Ecology and Environment</p> <p>What causes acid rain? How are soils different to each other? Effects of acid rain How are animals classified? How are plants classified? What is an ecosystem? How can we measure biodiversity? How is pollution contributing to</p>

	Producing electricity Conduction, convection, radiation Conductors, insulators Particle Model (3) Patterns of Reactivity Metals Reaction of metals with water Reactions of aluminium Displacement reactions Extraction of metals Reactivity series	Why are rings not made from potassium? Why does gold stay shiny? Why can aluminium displace copper? What are ceramics? Polymers What is a composite? Why do fireworks glow? Thermal decomposition	global warming?
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Biology

MYP 4 (Year 10)	Unit Title(s) Cell Structure and transport. Cell division and reproduction	Unit Title(s) Food and digestion Exchange and transport	Unit Title(s) Homeostasis Nerves and hormones
	Key concept: Relationships	Key concept: Systems	Key concept: Systems Relationships
	Global Context: identities and relationships	Global Context: Scientific and technical innovation	Global Context: Orientation in space and time.
	The information inside the cell Define asexual and sexual reproduction The cell cycle	List the nutrients do organisms need to survive. Identify the macromolecules and their monomers. Describe the importance of vitamins and minerals in diet	- calculate SA:V ratio in cubes. - How does SA effect the movement of molecules/heat

	Mitosis in a plant cell. Stages of cell division; Prophase, metaphase, anaphase and telophase	Describe the food tests for major nutrients.	- Define thermoregulation - Describe how the body temperature is kept constant
	To understand the difference between asexual and sexual reproduction. State the advantages and disadvantages of each type of reproduction.	List the main parts of digestive system. Describe mechanical and chemical digestion. Outline the role of glands in digestion.	- Define excretion - Name the organs and products - Describe the structure of the kidney - Describe the stages of filtration in the kidney
	Examples of how different organisms reproduce; malaria parasites, fungi, plants, humans.	Outline the role of enzymes in digestion. Describe the process of digestion in mouth, stomach and small intestine. Outline the role of bile in digestion.	- Describe dialysis and explain how it works - Discuss the advantages and disadvantages of dialysis against transplants
	Explain the process of meiosis Definition of the term gamete. The difference between haploid and diploid cells.	Investigate the effect of temperature on enzyme activity. Describe how enzymes work.	- define homeostasis - explain the concept of negative feedback - Describe how the endocrine system works
	Identify the parts of the human reproductive system. Differences between egg and sperm cells.	Outline the process of absorption in small intestine and large intestine. Describe the adaptations of villi for absorption of food. State what happens to the undigested food.	- Outline the role of the pancreas in monitoring blood glucose levels - Describe how insulin controls blood glucose levels - Describe how insulin and glucagon interact to control blood glucose levels - List some causes of diabetes
			- Describe the role of hormones in human reproduction - Describe how hormones interact to control the menstrual cycle
			- List the hormones used in IVF and explain why they are used

			<ul style="list-style-type: none"> - Outline the stages of IVF - Describe how hormones can be used to treat infertility
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Chemistry

MYP 4 (Year 10)	Unit Title(s)	Unit Title(s)	Unit Title(s)	Unit Title(s)
	Atomic structure and bonding	Stoichiometry Calculations	Energetics	Rate of reactions
	Key concept: relationships	Key concept: Change	Key concept: Change	Key concept: Change
	Global Context: Identities and relationships	Global Context: Orientation in space and time	Global Context: Globalization and sustainability	Global Context: Globalization and sustainability
	Topics covered: Atomic and Ionic structure, Isotopes and the average atomic mass, Ionic and Covalent bonding, Characteristics of Ionic and simple and Giant covalent structure, Metallic bonds and Giant metallic structure	Topics covered: Chemical Equations and Balancing, Mole Chemical Calculations, Percentage yield, limiting reactant, Atom economy, empirical and molecular formula, gases, Concentration and	Topics covered: Exo and endothermic reactions, Simple calorimetry experiments and calculating Enthalpy change in a reaction using bond enthalpies.	Topics covered: Definition of rate and collision theory experiments to investigate the effects of changes in surface area of a solid, concentration of solutions, temperature and the use of a catalyst on the rate of a reaction the effects of changes in surface area of a solid,

		Titration		<p>concentration of solutions, pressure of gases, temperature and the use of a catalyst on the rate of a reaction</p> <p>The term activation energy and its representation on a reaction profile</p>
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Physics

MYP 4 (Year 10)	Unit Title(s) Movement and position Forces	Unit Title(s) Electricity Energy transfer	Unit Title(s) Work and power
	Key concept: Relationships	Key concept: Change	Key concept: Change
	Global Context: Globalization and sustainability	Global Context: Fairness and development	Global Context: Scientific and technical innovation
	Topics covered: Speed and distance time graphs, acceleration, Types of forces, force interactions, Hooke's law,	Topics covered: electrical power, series and parallel circuits, conductors, insulators, Ohm's law, types of	Topics power, work done, gravitational energy, kinetic energy,

	Newton's law, terminal velocity,	energy, energy transfers, conduction, radiation, convection, renewable and non-renewable sources, energy diagrams,	
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Biology

MYP 4 (Year 11)	Unit Title(s): Coordination	Unit Title(s)Disease and immunity	Unit Title(s)Photosynthesis	Unit title: Ecology
	Key concept: Change	Key concept: Relationships	Key concept: Systems	Key concept: Systems
	Global Context: Orientation in space and time	Global Context: Fairness and development	Global Context: Scientific and technical innovation	Global context: Fairness and development
	Topics covered: Coordination, nervous system, reflexes, synapses, response in animals, tropisms in plants	Topics covered: Pathogens, communicable diseases, culturing of microbes, immune system, vaccinations, antibiotics, new drugs	Topics covered: Photosynthesis, test for starch, factors affecting photosynthesis, how glucose is used in plants	Topics covered: Ecological communities, measuring the distribution of organisms, adaptations, food chains and food webs.

Chemistry

MYP 4 (Year 11)	Unit Title(s) Equilibrium	Unit Title(s) Redox	Unit Title(s) Organic Chemistry	Unit Title: Gases and separating techniques
	Key concept: System	Key concept: Change	Key concept: relationship	Key Concept: Change
	Global Context: Orientation in space and time	Global Context: Scientific and technical innovations	Global Context: Fairness and development	Global context: Identities and relationships
	Topics covered: reversible reactions such as the dehydration of hydrated copper(II) sulfate and the effect of heat on ammonium chloride, the concept of dynamic equilibrium and predicting the effects of changing the pressure and temperature on the equilibrium position in reversible reactions based on Le Chaterlier Principle	Topics covered: Electromagnetic spectrum in relation to the reactivity of metals , relating the pattern in the reactions of the elements and their compounds, included elsewhere in the specification, to a reactivity series, Establishing the reactivity series based on the reduction of oxides, Establishing the position within the reactivity series using displacement reactions involving metals and their compounds in aqueous solutions, understanding	Topics covered: Crude oil, fractional; distillation, Alkanes structure, naming, reactions , alkenes, alcohols, carboxylic acid and esters, structures and naming , and structural isomers	Topics covered: Separating methods for different types of mixtures, Different gases CO ₂ , O ₂ , H ₂ , NH ₃ their origin, properties and laboratory formation and collection

		<p>oxidation and reduction as the addition and removal of oxygen respectively describe the reaction of carbon with metal oxides, extraction of Iron from its ore , extraction of Al from o=its Ore, Electrolysis, Sacrificial anodes, Voltaic cell and half ionic equations</p>		
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Physics

MYP 4 (Year 11)	Unit Title(s) Astronomy	Unit Title(s) Magnetism	Unit Title(s) Atomic and Nuclear Physics
	Key concept: Systems	Key concept: Change	Key concept: Relationships
	Global Context: Orientation in space and time	Global Context: Scientific and technical innovation	Global Context: Scientific and technical innovation
	Topics covered: In the Astronomy unit you will study a. The solar system, planets, orbits, and the sun. b. The life cycle of a star, galaxies, the expanding universe, and the big bang theory. c. Gravitational forces, Newton's laws of gravity, and Kepler's laws of planet	Topics covered: What are magnets. Magnetism and electromagnets. Uses of electromagnetism. Electrical generators Transformers Electromagnetic induction. Electric motors.	Topics covered: Structure of the atom. Isotopes. Ionizing radiation. Half life Nuclear fusion and fission. Nuclear Energy Radioactivity

Biology

MYP 4 (Year 10)	Unit Title(s) Cell Structure and transport. Cell division and reproduction	Unit Title(s) Food and digestion Exchange and transport	Unit Title(s) Homeostasis Nerves and hormones
	Key concept: Relationships	Key concept: Systems	Key concept: Systems Relationships
	Global Context: identities and relationships	Global Context: Scientific and technical innovation	Global Context: Orientation in space and time.
	The information inside the cell Define asexual and sexual reproduction The cell cycle	List the nutrients do organisms need to survive. Identify the macromolecules and their monomers. Describe the importance of vitamins and minerals in diet	- calculate SA:V ratio in cubes. - How does SA effect the movement of molecules/heat
	Mitosis in a plant cell. Stages of cell division; Prophase, metaphase, anaphase and telophase	Describe the food tests for major nutrients.	- Define thermoregulation - Describe how the body temperature is kept constant
	To understand the difference between asexual and sexual reproduction. State the advantages and disadvantages of each type of reproduction.	List the main parts of digestive system. Describe mechanical and chemical digestion. Outline the role of glands in digestion.	- Define excretion - Name the organs and products - Describe the structure of the kidney - Describe the stages of filtration in the kidney
	Examples of how different organisms reproduce; malaria parasites, fungi, plants, humans.	Outline the role of enzymes in digestion. Describe the process of digestion in mouth, stomach and small intestine. Outline the role of bile in digestion.	- Describe dialysis and explain how it works - Discuss the advantages and disadvantages of dialysis against transplants

	Outline the process of meiosis Definition of the term gamete. The difference between haploid and diploid cells.	Investigate the effect of temperature on enzyme activity. Describe how enzymes work.	- define homeostasis - explain the concept of negative feedback - Describe how the endocrine system works
	Identify the parts of the human reproductive system. Differences between egg and sperm cells.	Outline the process of absorption in small intestine and large intestine. Describe the adaptations of villi for absorption of food. State what happens to the undigested food.	- Outline the role of the pancreas in monitoring blood glucose levels - Describe how insulin controls blood glucose levels - Describe how insulin and glucagon interact to control blood glucose levels - List some causes of diabetes
			- Describe the role of hormones in human reproduction - Describe how hormones interact to control the menstrual cycle
			- List the hormones used in IVF and explain why they are used - Outline the stages of IVF - Describe how hormones can be used to treat infertility

Chemistry

MYP 4 (Year 10)	Unit Title(s) (1) Atomic structure and bonding	Unit Title(s) (2) Periodic Table	Unit Title(s) (3) Fuels
	Key concept: Relationships	Key concept: Relationships	Key concept: Change
	Global Context: Identities and relationships	Global Context: Scientific and Technical Innovation	Global Context: Scientific and Technical Innovation
	Topics covered: Topics covered: Atomic and Ionic structure, Isotopes and the average atomic mass, Ionic and Covalent bonding, Characteristics of Ionic and simple and Giant covalent structure, Metallic bonds and Giant metallic structure	Topics covered: History of the development of the Periodic Table Periodic trends Group 1 metals Group 2 metals Group 7 Non-metals Group 8 Noble Gases Navigating the Periodic Table Periods	Topics covered: Types of fuels Extraction of fuels Alkanes Alkenes Alcohols Nuclear energy Radioactivity and decay Emission and environmental implications

Physics

MYP 4 (Year 10)	Unit Title(s) Movement and position Forces	Unit Title(s) Electricity Energy transfer Work and power	Unit Title(s) Waves
	Key concept: Relationships	Key concept: Change	Key concept: Systems
	Global Context: Globalization and sustainability	Global Context: Fairness and development	Global Context: Scientific and technical innovation
	Topics covered: Speed and distance time graphs, acceleration, Types of forces, force interactions, Hooke's law, Newton's law, terminal velocity,	Topics covered: electrical power, series and parallel circuits, conductors, insulators, Ohm's law, types of energy, energy transfers, conduction, radiation, convection, renewable and non-renewable sources, energy diagrams, power, work done, gravitational energy, kinetic energy,	Topics covered: Properties of waves, describing waves, wave equation, the electromagnetic spectrum, frequency, loudness, sound waves and communicating waves.

Integrated Science

Physics

MYP 4 (Year 11)	Unit Title(s)	Unit Title(s)	Unit Title(s)
	Key concept: Relationships	Key concept: Relationships	Key concept: Systems
	Global Context: Identities & relationships	Global Context: Personal & cultural expression	Global Context: Scientific & technical innovation
	Topics covered: forces (motion, Newton's laws, pressure; energy sources and conservation of energy; power and efficiency; energy transfer and transformation [including heat]):	Topics covered: waves (longitudinal and transverse waves, sound waves, wave phenomena and wave equation).	Topics covered: electromagnetism (magnetism, electric [including static] and magnetic fields; circuits, voltage, current and resistance ; generation and transmission of electricity, cells and transformers)

Biology

MYP 4 (Year 11)	Unit Title(s) (1) Photosynthesis (2) Ecology	Unit Title(s) (3) Human influences on the environment (4) DNA and Inheritance	Unit Title(s) (5) Biotechnology
	Key concept: Systems	Key concept: Systems :	Key concept: Systems
	Global Context: Scientific and technical innovation	Global Context: Organisms are more likely to survive when they are adapted to interact within their ecosystem. Humans have affected the environment and need to work towards developing a sustainable future.	Global Context: Scientific and Technical Innovation
	Topics covered: Photosynthesis, test for starch, factors affecting photosynthesis, how glucose is used in plants Topics covered: Ecological communities, measuring the distribution of organisms,	Topics covered: (3) Human influences on the environment How are material recycled in ecosystems? How do we utilize decomposition? What is biodiversity?	Topics covered: Biotechnology and health How can cloning benefit farming and agriculture How does GM technology to produce insulin?

	<p>adaptations, food chains and food webs.</p>	<p>What does deforestation do?</p> <p>Why is waste and pollution a concern?</p> <p>(4) DNA and Inheritance</p> <p>What does the structure of DNA reveal about its function?</p> <p>How does DNA code for protein?</p> <p>How are genes expressed?</p> <p>How does the genetic code produce physical characteristics?</p> <p>What makes you different from the rest of your family?</p> <p>What is genetic engineering?</p> <p>Genetic engineering in agriculture</p>	<p>Should we use GM organisms in farming food production</p> <p>How can humans manipulate genes to create new tissues</p> <p>What is bioprinting?</p>
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Integrated Science

Chemistry

MYP 4 (Year 11)	Unit Title(s) (1) Atomic structure and bonding	Unit Title(s) (2) Periodic Table	Unit Title(s) (3) Fuels
	Key concept: Relationships	Key concept: Relationships	Key concept: Change
	Global Context: Identities and relationships	Global Context: Scientific and Technical Innovation	Global Context: Scientific and Technical Innovation

	<p>Topics covered: Atomic and Ionic structure, Isotopes and the average atomic mass, Ionic and Covalent bonding, Characteristics of Ionic and simple and Giant covalent structure, Metallic bonds and Giant metallic structure</p>	<p>Topics covered: History of the development of the Periodic Table Periodic trends Group 1 metals Group 2 metals Group 7 Non-metals Group 8 Noble Gases Navigating the Periodic Table Periods</p>	<p>Topics covered: Types of fuels Extraction of fuels Alkanes Alkenes Alcohols Nuclear energy Radioactivity and decay Emission and environmental implications</p>
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