

Threshold Concept	Context	7			8			9		
		Cycle 1	Cycle 2	Cycle 3	Cycle 1	Cycle 2	Cycle 3	Cycle 1	Cycle 2	Cycle 3
Structure and function of organisms	Organisms are organised on a cellular basis and require organised systems in order to function efficiently		Skeletal & muscular systems	Skeletal & muscular systems	Nutrition & Digestion Health & Disease	Reproduction	Reproduction			B1: Cell Biology
Materials, interactions and energy	Organisms require a supply of energy and materials for which they often depend on, or compete with other organisms	Ecosystems			Nutrition & Digestion					B1: Cell Biology
Diversity of organisms	The diversity of organisms, living and extinct is a result of evolution; where genetic information is passed down from one generation of organisms to another					Reproduction	Reproduction	Inheritance, Chromosomes, DNA and Genes		
Particles & Bonding	All matter in the Universe is made of very small particles and the interactions between them.	Particles and Pure & Impure Substances	Particles and Pure & Impure Substances		Atoms and the Periodic Table	Chemical Reactions 1: Acids & alkalis			C1: Atomic Structure & the Periodic Table	
Chemical reactions	Reactions involve the rearrangement and/or re-organisation of atoms and/or the transfer of electrons					Chemical Reactions 1: Acids & alkalis	Materials & Metals	Chemical reactions 2		
Materials & Systems	The Earth is a complex of interacting rock, water, air and life, containing and generating resources to make materials		Earth, atmosphere and rocks							
Chemical Calculations	Chemical matter can be quantified using calculations or measurements or using equations				Atoms and the Periodic Table			Chemical reactions 2	C1: Atomic Structure & the Periodic Table	
Forces	Forces can be a quantitative description of an interaction that causes a change in an object's motion or shape. Forces can directly affect objects or affect them from a distance		Contact and non-contact forces	Space physics		Magnetism (8I)			Forces & Motion	Pressure and Fluids
Energy	A system possesses energy if it has the ability to do work. Energy is a scalar quantity, abstract and cannot always be perceived and given meaning through calculation. The total amount of energy in the Universe is always the same but can be transferred from one energy store to another during an event	Energy for domestic use		Energy changes and transfers		Current & Static Electricity	Light	Light Sound		
Matter	All matter is composed of tiny indivisible particles too small to see. These particles do not share the properties of the material they make up. There is nothing in the space between the particles that make up matter. The particles which make up matter are in constant motion in all physical states.	The particle model and matter will be covered in the Chemistry unit 'Particles and Pure & Impure Substances'. It will also be interleaved into the unit on conduction and convection where particle model can be re-visited.								Pressure and Fluids

Threshold Concept	Context	10			11		
		Cycle 1	Cycle 2	Cycle 3	Cycle 1	Cycle 2	Cycle 3
Structure and function of organisms	Organisms are organised on a cellular basis and require organised systems in order to function efficiently	B2:Organisation	B3: Infection and response B4: Bioenergetics	B4: Bioenergetics B5: Homeostasis and response	B3: Infection and response B5: Homeostasis and response		
Materials, interactions and energy	Organisms require a supply of energy and materials for which they often depend on, or compete with other organisms	B2:Organisation	B3: Infection and response B4: Bioenergetics	B4: Bioenergetics	B3: Infection and response	B6: Inheritance, variation and evolution B7: Ecology	
Diversity of organisms	The diversity of organisms, living and extinct is a result of evolution; where genetic information is passed down from one generation of organisms to another			B5: Homeostasis and response	B5: Homeostasis and response	B6: Inheritance, variation and evolution	
Particles & Bonding	All matter in the Universe is made of very small particles and the interactions between them.	C2: Structure and Bonding	C2: Structure and Bonding	C5: Energy changes	C5: Energy changes	C7: Organic chemistry	
Chemical reactions	Reactions involve the rearrangement and/or re-organisation of atoms and/or the transfer of electrons		C3: Quantitative chemistry C4: Chemical changes	C4: Chemical changes	C3: Quantitative chemistry C6: Rates of reaction	C6: Rates of reaction C8: Chemical analysis	
Materials & Systems	The Earth is a complex of interacting rock, water, air and life, containing and generating resources to make materials		C4: Chemical changes	C4: Chemical changes			
Chemical Calculations	Chemical matter can be quantified using calculations or measurements or using equations		C3: Quantitative chemistry	C5: Energy changes	C3: Quantitative chemistry C5: Energy changes C6: Rates of reaction	C6: Rates of reaction C8: Chemical analysis	
Forces	Forces can be a quantitative description of an interaction that causes a change in an object's motion or shape. Forces can directly affect objects or affect them from a distance				P5: Forces	P5: Forces P7: Magnetism and electromagnetism P8: Space Physics (TS Only)	P8: Space Physics (TS Only)
Energy	A system possesses energy if it has the ability to do work. Energy is a scalar quantity, abstract and cannot always be perceived and given meaning through calculation. The total amount of energy in the Universe is always the same but can be transferred from one energy store to another during an event	P1: Energy	P2: Electricity			P6: Waves	
Matter	All matter is composed of tiny indivisible particles too small to see. These particles do not share the properties of the material they make up. There is nothing in the space between the particles that make up matter. The particles which make up matter are in constant motion in all physical states.			P3: Particle Model P4: Atomic Structure	P4: Atomic Structure		

Threshold Concept	Context	12			13		
		Cycle 1	Cycle 2	Cycle 3	Cycle 1	Cycle 2	Cycle 3
Structure and function of organisms	Organisms are organised on a cellular basis and require organised systems in order to function efficiently	Cell Structure	Exchange with the environment Cell Recognition and the immune system	Mass Transport		Organisms respond to chages in their environment	Organisms respond to chages in their environment
Materials, interactions and energy	Organisms require a supply of energy and materials for which they often depend on, or compete with other organisms	Biological Molecules Transport across membranes	DNA, Genes and protein synthesis, genetic diversity and biodiversity	DNA, Genes and protein synthesis, genetic diversity and biodiversity	Energy transfer between organisms		Gene expression and recombinant DNA technology
Diversity of organisms	The diversity of organisms, living and extinct is a result of evolution; where genetic information is passed down from one generation of organisms to another		DNA, Genes and protein synthesis, genetic diversity and biodiversity		Population and evolution Inherited Change	Gene Expression Populations in ecosystems	Gene expression and recombinant DNA technology
Particles & Bonding	All matter in the Universe is made of very small particles and the interactions between them.	Atomic structure and mass spectrometry	Bonding & Introduction to organic chemistry	Inorganic Chemistry & Organic analysis	Organic Chemistry	Inorganic chemistry	Organic analysis
Chemical reactions	Reactions involve the rearrangement and/or re-organisation of atoms and/or the transfer of electrons	Amount of substance	Energetics & Kinetics		Reactions of organic substances Rate equations	Acids and bases	Reactions of ions in aqueous solutions
Materials & Systems	The Earth is a complex of interacting rock, water, air and life, containing and generating resources to make materials			Oxidation, reduction & redox equations			
Chemical Calculations	Chemical matter can be quantified using calculations or measurements or using equations	Atomic structure and mass spectrometry Amount of substance	Energetics & Kinetics	Inorganic Chemistry & Organic analysis Oxidation, reduction & redox equations	Rate equations	Acids and bases	Organic analysis
Forces	Forces can be a quantitative description of an interaction that causes a change in an object's motion or shape. Forces can directly affect objects or affect them from a distance		1 - Mechanics and materials 2 - Particles and radiation	1 - Mechanics and materials 2 - Particles and radiation	1- Circular motion 2- SHM 3- Fields (gravitational)	1 - Fields (electric & magnetic) 2 - Nuclear Physics	1- Astrophysics
Energy	A system possesses energy if it has the ability to do work. Energy is a scalar quantity, abstract and cannot always be perceived and given meaning through calculation. The total amount of energy in the Universe is always the same but can be transferred from one energy store to another during an event	1- Waves & optics 2- Electricity	1 - Mechanics and materials 2 - Particles and radiation	1 - Mechanics and materials 2 - Particles and radiation	1- Thermal physics 2- Fields (gravitational)	1- Fields (electric & magnetic) 2- Capacitors 3- EM Induction 4 - Nuclear Physics	1- Astrophysics
Matter	All matter is composed of tiny indivisible particles too small to see. These particles do not share the properties of the material they make up. There is nothing in the space between the particles that make up matter. The particles which make up matter are in constant motion in all physical states.	1- Waves & optics 2- Electricity	1- Particles and radiation	1- Particles and radiation	1- Thermal physics 2- Gas laws	1- Nuclear Physics	