



Truganina College

Inspiring Excellence in Learning to Believe, Achieve and Succeed.

Years 7-9 Science Overview 2022

Our school community is one with high expectations. We are collaborative and inclusive of all. We deliver a 21st century guaranteed and viable curriculum that results in outstanding student achievement.

The Science Curriculum links directly to:

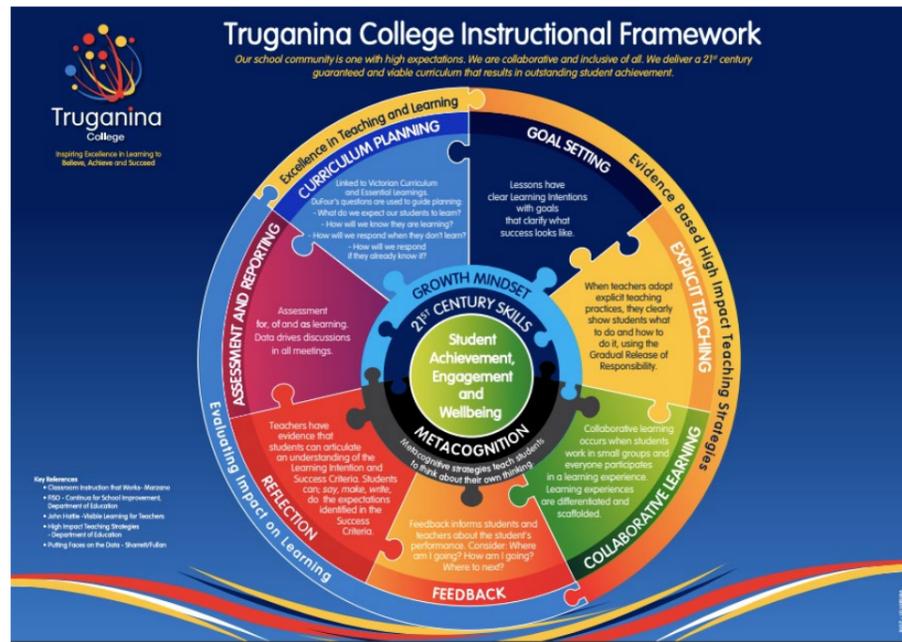
HIGH IMPACT TEACHING STRATEGIES (HITS)



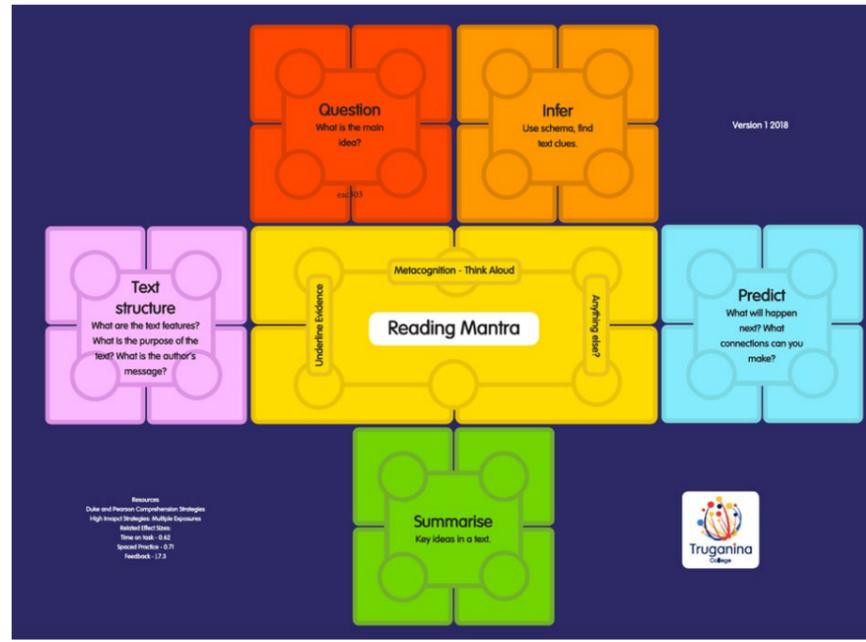
The planning, teaching and learning of the Science Curriculum link directly to the College's Strategic Plan goals:

- Goal 1: To improve student learning outcomes in literacy and numeracy.
- Goal 2: To empower students to become independent and self-regulating learners.
- Goal 3: To enhance the health and wellbeing of all students.

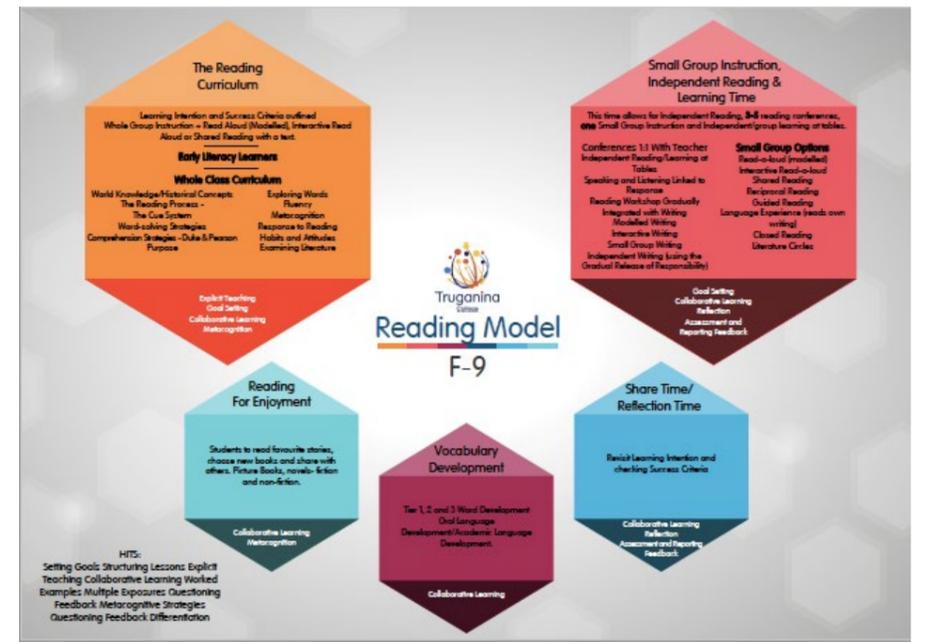
Instructional Framework



Reading Mantra



Reading Model



Curriculum Planning - Refer to DuFour's questions
 What do we need our students to learn?
 How will we know they are learning?
 What will we do if they have already learned it?
 What will we do if they have not learned?

Assessment & Reporting - Data drives discussion in all meetings

- 21st century learning**
- Ways of Thinking: Creativity & Innovation, Critical Thinking, Problem Solving & Decision Making, Learning to Learn
 - Ways of Working: Communication & Collaboration
 - Ways of Living in the World: Local & Global Citizenship, Personal & Social Responsibility, Life & Career
 - Tools for Working: Information Literacy, Information & Communication Technology (ICT) Literacy

Duke & Pearson Comprehension Strategies
 Critical & Creative Thinking

	Term 1 – Chemical Science	Term 2 – Biological Science	Term 3 – Physical Science	Term 4 – Earth and Space Science
IGNITE [Inquiry of Goals, New Ideas & Truganina's Expectations] CURRICULUM				
Year 7	<p>VCSSU096) -The properties of the different states of matter can be explained in terms of the motion and arrangement of particles</p> <ul style="list-style-type: none"> Comparing the properties of solids, liquids and gases. Utilizing particles models to infer the behaviour and properties of different states of matter <p>VCSSU095) - Mixtures, including solutions, contain a combination of pure substances that can be separated using a range of techniques</p> <ul style="list-style-type: none"> Distinguishing between pure substances and mixtures Comparing homogenous and heterogenous mixtures Evaluating separation techniques and their uses <p>Meta- Cognition Consider how problems can be segmented into discrete stages, new knowledge synthesised during problem-solving and criteria used to assess emerging ideas and proposals VCCCTM042</p> <p>Setting A Purpose Inferring</p>	<p>VCSSU091) - There are differences within and between groups of organisms; classification helps organise this diversity</p> <ul style="list-style-type: none"> Classification of organisms into the Kingdoms of life Distinguishing between vertebrates and invertebrates Comparing and distinguishing between animals, plants and fungi Australian native wildlife <p>VCSSU092) - Cells are the basic units of living things and have specialised structures and functions</p> <ul style="list-style-type: none"> Identifying single-cellular and multicellular organisms Comparing and contrasting animal, plant and fungi cells <p>Meta- Cognition Examine a range of learning strategies and how to select strategies that best meet the requirements of a task VCCCTM041</p> <p>Metacognition Text Structure</p>	<p>VCSSU103) - Change to an object's motion is caused by unbalanced forces acting on the object; Earth's gravity pulls objects towards the centre of Earth</p> <ul style="list-style-type: none"> Identifying different types of forces. Demonstrating the relationship between movement and unbalanced/balanced forces Understanding the relationship between forces, energy, effort, and work Identifying and comparing simple machines and complex machines Calculating the mechanical advantage of different machines <p>Meta- Cognition Consider how problems can be segmented into discrete stages, new knowledge synthesised during problem-solving and criteria used to assess emerging ideas and proposals VCCCTM042</p> <p>Predicting Monitoring Comprehension</p>	<p>VCSSU099) - Predictable phenomena on Earth, including seasons and eclipses, are caused by the relative positions of the Sun, Earth and the Moon</p> <ul style="list-style-type: none"> Modelling the relative scale and size of the Earth, Sun, moon and other planets Investigating the significance of the moon to First Nation Peoples Visualizing how the positions of the Sun, Earth and moon result in different lunar phases and eclipses. Identifying and explaining the factors that cause the seasons <p>Questions and Possibilities Consider how to approach and use questions that have different elements, including factual, temporal and conceptual elements VCCCTQ032</p> <p>Reasoning Examine common reasoning errors including circular arguments and cause and effect fallacies VCCCTR035</p> <p>Visualising Questioning</p>
Year 8	<p>VCSSU097) - Differences between elements, compounds and mixtures can be described by using a particle model</p> <ul style="list-style-type: none"> Modelling atoms, elements, molecules, and compounds Recognising that elements and simple compounds can be represented by symbols and formulas <p>VCSSU098) - Chemical change involves substances reacting to form new substances</p> <ul style="list-style-type: none"> Identifying the difference between chemical and physical changes in everyday examples. 	<p>VCSSU093) - Interactions between organisms can be described in terms of food chains and food webs and can be affected by human activity</p> <ul style="list-style-type: none"> Interpreting food chains and food webs Identifying interactions between organisms in an ecosystem Understanding human impacts on food chains and food webs First Nation Peoples and their perspective/relationship with Australian ecosystems <p>VCSSU094) - Multicellular organisms contain systems of organs that carry out specialised</p>	<p>VCSSU104) - Energy appears in different forms including movement (kinetic energy), heat, light, chemical energy and potential energy; devices can change energy from one form to another</p> <ul style="list-style-type: none"> Comparing kinetic and potential forms of energy Identifying different forms of energy including light, sound, chemical, thermal, kinetic, electrical, and nuclear Model the transformations of energy that take place in devices such as light bulbs and batteries <p>VCSSU105) - Light can form images using the reflective feature of curved mirrors and the</p>	<p>VCSSU100) - Some of Earth's resources are renewable, but others are non-renewable</p> <ul style="list-style-type: none"> understanding the renewable and non-renewable state of resources <p>VCSSU101) - Water is an important resource that cycles through the environment</p> <ul style="list-style-type: none"> Investigating factors that affect the water cycle <p>VCSSU102) - Sedimentary, igneous and metamorphic rocks contain minerals and are formed by processes that occur within Earth over a variety of timescales</p>

	<ul style="list-style-type: none"> Evaluating evidence of chemical reactions/change Identifying reactants and products <p>Meta-cognition</p> <p>Consider how problems can be segmented into discrete stages, new knowledge synthesised during problem-solving and criteria used to assess emerging ideas and proposals (VCCCTM042)</p> <p>Setting A Purpose Inferring</p>	<p>functions that enable them to survive and reproduce</p> <ul style="list-style-type: none"> Single-cellular and multicellular organisms Identifying the hierarchy of cells-tissue-organs-organ systems Comparing the organs systems of herbivores and carnivores. Compare and contrast the circulatory systems of plants and animals Comparing the life cycles and reproduction strategies and anatomy of plants and animals. <p>Meta- Cognition</p> <p>Examine a range of learning strategies and how to select strategies that best meet the requirements of a task (VCCTM041)</p> <p>Metacognition Text Structure</p>	<p>refractive feature of lenses, and can disperse to produce a spectrum which is part of a larger spectrum of radiation</p> <p>(VCSSU106) - The properties of sound can be explained by a wave model</p> <p>Meta-cognition</p> <p>Consider a range of strategies to represent ideas and explain and justify thinking processes to others (VCCCTM040)</p> <p>Predicting Monitoring Comprehension</p>	<ul style="list-style-type: none"> Using keys and comparison to identify rocks and rock formation. Modelling the formation of crystals and rocks Investigation the erosion and the mining industry <p>Meta- cognition</p> <p>Consider how problems can be segmented into discrete stages, new knowledge synthesised during problem-solving and criteria used to assess emerging ideas and proposals (VCCCTM042)</p> <p>Visualizing Questioning</p>
<p>Year 9</p>	<p>(VCSSU123) - The atomic structure and properties of elements are used to organise them in the periodic table</p> <ul style="list-style-type: none"> Modelling the structure of an atoms and elements in the periodic table. <p>(VCSSU124) - Chemical reactions involve rearranging atoms to form new substances; during a chemical reaction mass is not created or destroyed</p> <ul style="list-style-type: none"> Collecting and analysing evidence to support the Law of Conservation of Mass Interpreting chemical symbols and equations presenting chemical reactions <p>Meta- cognition</p> <p>Critically examine their own and others' thinking processes and discuss the factors that influence thinking, including cognitive biases (VCCCTM051)</p> <p>Setting A Purpose Inferring</p>	<p>(VCSSU121) - Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems</p> <ul style="list-style-type: none"> Identifying abiotic and abiotic factors in a ecosystem Understanding the role of decomposers in ecosystems Investigating the importance and effect of bushfires in Australian ecosystems <p>(VCSSU117) - Multicellular organisms rely on coordinated and interdependent internal systems to respond to changes to their environment</p> <ul style="list-style-type: none"> Comparing homeostasis in endotherms and ectotherms Comparing the immune response of plants and animals to disease <p>Meta- Cognition</p> <p>Suspend judgements to allow new possibilities to emerge and investigate how this can broaden ideas and solutions (VCCCTQ044)</p> <p>Metacognition Text Structure</p>	<p>(VCSSU132) - Energy flow in Earth's atmosphere can be explained by the processes of heat transfer</p> <ul style="list-style-type: none"> Understanding the Law of Conservation of Energy Modelling thermal energy transfer and transformation Identifying conductors and insulators <p>(VCSSU130) - Electric circuits can be designed for diverse purposes using different components; the operation of circuits can be explained by the concepts of voltage and current</p> <ul style="list-style-type: none"> Constructing electrical circuits Interpret electric circuits diagrams Measuring voltage and currents of energy sources Identifying conducts and insulators <p>Meta-cognition</p> <p>Investigate the kind of criteria that can be used to rationally evaluate the quality of ideas and proposals, including the qualities of viability and workability (VCCCTM053)</p> <p>Predicting Monitoring Comprehension</p>	<p>(VCSSU129) - The Universe contains features including galaxies, stars and solar systems; the Big Bang theory can be used to explain the origin of the Universe</p> <ul style="list-style-type: none"> Contrasting theories and evidence the creation of the universe Understanding the creation of stars and planets Utilizing evidence to support scientific theories <p>(VCSSU127) -The theory of plate tectonics explains global patterns of geological activity and continental movement</p> <ul style="list-style-type: none"> Modelling the layers of the Earth Understanding the theory and evidence supporting continental drift Identifying the cause and probability of earthquakes, tsunamis, and volcanoes <p>Meta – cognition</p> <p>Investigate the kind of criteria that can be used to rationally evaluate the quality of ideas and proposals, including the qualities of viability and workability (VCCCTM053)</p> <p>Visualising Questioning</p>

Last Updated: 22nd February 2022