Grade 9 Science

Big Ideas

*Cells are derived from cells.

*The electron arrangement of atoms impacts their chemical nature.

*Electric current is the flow of electric charge.

*The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them.

Curricular Competencies

Content		Questioning & Predicting			Planning & Conduting				Processing & Analyzing Data & Info					
		Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest	Make observations aimed at identifying their own questions, including increasingly complex ones, about the natural world	Formulate multiple hypotheses and predict multiple outcomes	Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data (qualitative and	Assess risks and address ethical, cultural and/or environmental issues associated with their proposed methods and those of	Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and	Ensure that safety and ethical guidelines are followed in their investigations	Experience and interpret the local environment	Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information	Seek and analyze patterns, trends, and connections in data, including describing relationships between variables (dependent and independent) and identifying inconsistencies	Construct, analyze and interpret graphs (including interpolation and extrapolation), models and/or diagrams	Use knowledge of scientific concepts to draw conclusions that are consistent with evidence	Analyze cause-and-effect relationships
asexual reproductio	mitosis													
asexual reproductio	different forms													
sexual reproductio	meiosis													
sexual reproductio	human sexual reproduction													
	element properties as organized in the periodic table													
	The arrangement of electrons determines the compoundsformed by													
	circuits — must be complete for electrons to flow													
	voltage, current, and resistance													
	effects of solar radiationon the cycling of matter and energy													
	matter cycles within biotic and abiotic components of ecosystems													
	sustainability of systems													
	First Peoples knowledge of interconnectedness and sustainabilit													

Content		Evaluating									Applying & Innovating					Communicating		
		Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions	Describe specific ways to improve their investigation methods and the quality of the data	Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled	Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and	Consider the changes in knowledge over time as tools and technologies have developed	Connect scientific explorations to careers in science	Exercise a healthy, informed skepticism and use scientific knowledge and findings to form their own investigations to evaluate claims in secondary sources	Consider social, ethical, and environmental implications of the findings from their own and others' investigations	Critically analyze the validity of information in secondary sources and evaluate the approaches used to solve problems	Contribute to care for self, others, community, and world through personal or collaborative approaches	Transfer and apply learning to new situations	Generate and introduce new or refined ideas when problem solving	Contribute to finding solutions to problems at a local and/or global level through inquiry	Consider the role of scientists in innovation	Formulate physical or mental theoretical models to describe a phenomenon	Communicate scientific ideas, claims, information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and	Express and reflect on a variety of experiences, perspectives, and worldviews through place
asexual reproductio	mitosis																	
asexual reproductio	different forms																	
sexual reproductio	meiosis																	
sexual reproductio	human sexual reproduction																	
	element properties as organized in the periodic table																	
	The arrangement of electrons determines the compoundsformed by																	
	circuits — must be complete for electrons to flow																	
	voltage, current, and resistance																	
	effects of solar radiationon the cycling of matter and energy																	
	matter cycles within biotic and abiotic components of ecosystems																	
	sustainability of systems																	
	First Peoples knowledge of interconnectedness and sustainabilit																	