Grade 9 Science

Curricular Competencies

		Questioning & Predicting			Planning & Conduting			Processing & Analyzing Data & Info				Evaluating								Applying & Innovating					Communicating		
Big Ideas	*Cells are derived from cells. *The electron arrangement of atoms impacts their chemical nature. *Electricity is the flow of electrons. *The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them.	Demonstrate a sustained curiosity about a scientific topic or problem of personal interest	Make observations aimed at identifying their own questions about the natural world	Formulate multiple hypotheses and predict multiple outcomes	Collaboratively and personally plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data (qualitative and quantitative)	Assess risks and address ethical issues associated with their proposed methods	Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data	Experience and interpret the local environment	Seek and analyze patterns, trends, and connections in data, including describing relationships between variables and identifying inconsistencies	Use knowledge of scientific concepts to draw conclusions that are consistent with evidence	Analyze cause-and-effect relationships	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 of 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 secondary sources	Consider the changes in knowledge over time as tools and technologies have developed	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	Co-operatively design projects with local and/or global connections and applications	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	Formulate physical or mental theoretical models to describe a phenomenon	Communicate scientific ideas, 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 representations	Express and reflect on a variety of experiences, perspectives, and worldviews of place
Content	asexual reproduction (mitosis and different forms)																										
	sexual reproduction (meiosis and human sexual reproduction)																										
	element properties as organized in the periodic table																										
	an element's properties are related to the arrangement and energy of its electrons and to its atomic size																										
	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 and First Peoples' principles ofinterconnectedness																										