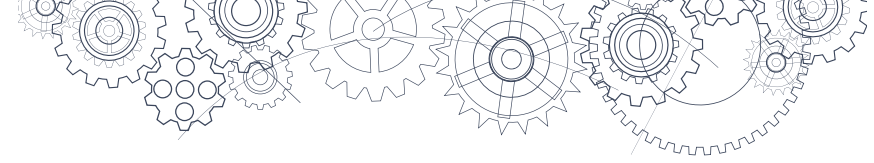


Science K-10 – Curricular Competencies

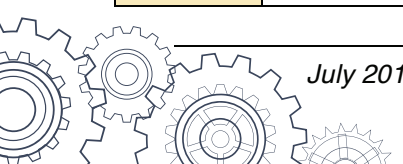
Grade	Questioning and predicting	Planning and conducting	Processing and analyzing data and information	Evaluating	Applying and innovating	Communicating
K	<ul style="list-style-type: none"> • Demonstrate curiosity and a sense of wonder about the world • Observe objects and events in familiar contexts • Ask simple questions about familiar objects and events 	<ul style="list-style-type: none"> • Make exploratory observations using their senses • Safely manipulate materials • Make simple measurements using non-standard units 	<ul style="list-style-type: none"> • Experience and interpret the local environment • Recognize First Peoples stories (including oral and written narratives), songs, and art, as ways to share knowledge • Discuss observations • Represent observations and ideas by drawing charts and simple pictographs 		<ul style="list-style-type: none"> • Take part in caring for self, family, classroom and school through personal approaches • Transfer and apply learning to new situations • Generate and introduce new or refined ideas when problem solving 	<ul style="list-style-type: none"> • Share observations and ideas orally • Express and reflect on personal experiences of place
1-2	<ul style="list-style-type: none"> • Demonstrate curiosity and a sense of wonder about the world • Observe objects and events in familiar contexts • Ask questions about familiar objects and events • Make simple predictions about familiar objects and events 	<ul style="list-style-type: none"> • Make and record observations • Safely manipulate materials to test ideas and predictions • Make and record simple measurements using informal or non-standard methods 	<ul style="list-style-type: none"> • Experience and interpret the local environment • Recognize First Peoples stories (including oral and written narratives), songs, and art, as ways to share knowledge • Sort and classify data and information using drawings, pictographs and provided tables • Compare observations with predictions through discussion • Identify simple patterns and connections 	<ul style="list-style-type: none"> • Compare observations with those of others • Consider some environmental consequences of their actions 	<ul style="list-style-type: none"> • Take part in caring for self, family, classroom and school through personal approaches • Transfer and apply learning to new situations • Generate and introduce new or refined ideas when problem solving 	<ul style="list-style-type: none"> • Communicate observations and ideas using oral or written language, drawing, or role-play • Express and reflect on personal experiences of place

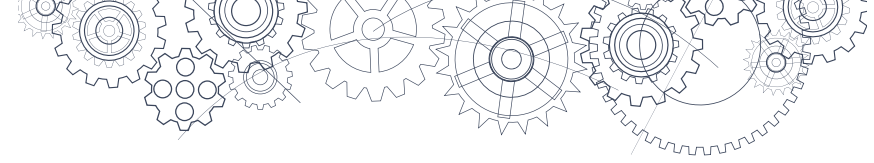




Science K-10 – Curricular Competencies – continued

Grade	Questioning and predicting	Planning and conducting	Processing and analyzing data and information	Evaluating	Applying and innovating	Communicating
3-4	<ul style="list-style-type: none"> • Demonstrate curiosity about the natural world • Observe objects and events in familiar contexts • Identify questions about familiar objects and events that can be investigated scientifically • Make predictions based on prior knowledge 	<ul style="list-style-type: none"> • Suggest ways to plan and conduct an inquiry to find answers to their questions • Consider ethical responsibilities when deciding how to conduct an experiment • Safely use appropriate tools to make observations and measurements, using formal measurements and digital technology as appropriate • Make observations about living and non-living things in the local environment • Collect simple data 	<ul style="list-style-type: none"> • Experience and interpret the local environment • Identify First Peoples perspectives and knowledge as sources of information • Sort and classify data and information using drawings or provided tables • Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends • Compare results with predictions, suggesting possible reasons for findings 	<ul style="list-style-type: none"> • Make simple inferences based on their results and prior knowledge • Reflect on whether an investigation was a fair test • Demonstrate an understanding and appreciation of evidence • Identify some simple environmental implications of their and others' actions 	<ul style="list-style-type: none"> • Contribute to care for self, others, school, and neighbourhood through personal or collaborative approaches • Co-operatively design projects • Transfer and apply learning to new situations • Generate and introduce new or refined ideas when problem solving 	<ul style="list-style-type: none"> • Represent and communicate ideas and findings in a variety of ways, such as diagrams and simple reports, using digital technologies as appropriate • Express and reflect on personal or shared experiences of place
5-6	<ul style="list-style-type: none"> • Demonstrate a sustained curiosity about a scientific topic or problem of personal interest • Make observations in familiar or unfamiliar contexts • Identify questions to answer or problems to solve through scientific inquiry 	<ul style="list-style-type: none"> • With support, plan appropriate investigations to answer their questions or solve problems they have identified • Decide which variable should be changed and measured for a fair test • Choose appropriate data to collect to answer their questions 	<ul style="list-style-type: none"> • Experience and interpret the local environment • Identify First Peoples perspectives and knowledge as sources of information • Construct and use a variety of methods, including tables, graphs, and digital technologies, as appropriate, to represent patterns or relationships in data 	<ul style="list-style-type: none"> • Evaluate whether their investigations were fair tests • Identify possible sources of error • Suggest improvements to their investigation methods • Identify some of the assumptions in secondary sources 	<ul style="list-style-type: none"> • Contribute to care for self, others, and community through personal or collaborative approaches • Co-operatively design projects • Transfer and apply learning to new situations • Generate and introduce new or refined ideas when problem solving 	<ul style="list-style-type: none"> • Communicate ideas, explanations, and processes in a variety of ways • Express and reflect on personal, shared, or others' experiences of place

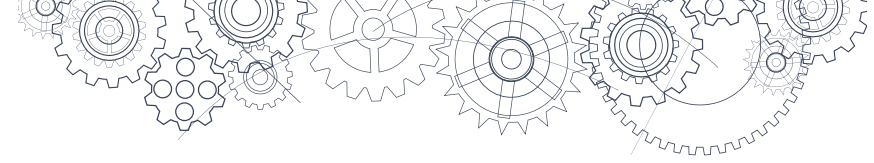




Science K-10 – Curricular Competencies – *continued*

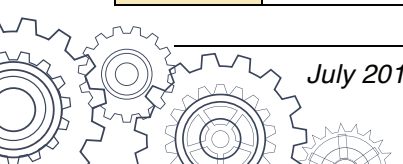
Grade	Questioning and predicting	Planning and conducting	Processing and analyzing data and information	Evaluating	Applying and innovating	Communicating
5-6	<ul style="list-style-type: none"> • Make predictions about the findings of their inquiry 	<ul style="list-style-type: none"> • Observe, measure, and record data, using appropriate tools, including digital technologies • Use equipment and materials safely, identifying potential risks 	<ul style="list-style-type: none"> • Identify patterns and connections in data • Compare data with predictions and develop explanations for results • Demonstrate an openness to new ideas and consideration of alternatives 	<ul style="list-style-type: none"> • Demonstrate an understanding and appreciation of evidence • Identify some of the social, ethical, and environmental implications of the findings from their own and others' investigations 		
7-8	<ul style="list-style-type: none"> • Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest • Make observations aimed at identifying their own questions about the natural world • Identify a question to answer or a problem to solve through scientific inquiry • Formulate alternative "If...then..." hypotheses based on their questions • Make predictions about the findings of their inquiry 	<ul style="list-style-type: none"> • Collaboratively plan a range of investigation types, including field work and experiments, to answer their questions or solve problems they have identified • Measure and control variables (dependent and independent) through fair tests • Observe, measure, and record data (qualitative and quantitative), using equipment, including digital technologies, with accuracy and precision • Use appropriate SI units and perform simple unit conversions • Ensure that safety and ethical guidelines are followed in their investigations 	<ul style="list-style-type: none"> • Experience and interpret the local environment • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate • Seek patterns and connections in data from their own investigations and secondary sources • Use scientific understandings to identify relationships and draw conclusions 	<ul style="list-style-type: none"> • Reflect on their investigation methods, including the adequacy of controls on variables (dependent and independent) and the quality of the data collected • Identify possible sources of error and suggest improvements to their investigation methods • Demonstrate an awareness of assumptions and bias in their own work and secondary sources • Demonstrate an understanding and appreciation of evidence (qualitative and quantitative) 	<ul style="list-style-type: none"> • Contribute to care for self, others, community, and world through personal or collaborative approaches • Co-operatively design projects • Transfer and apply learning to new situations • Generate and introduce new or refined ideas when problem solving 	<ul style="list-style-type: none"> • Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate • Express and reflect on a variety of experiences and perspectives of place

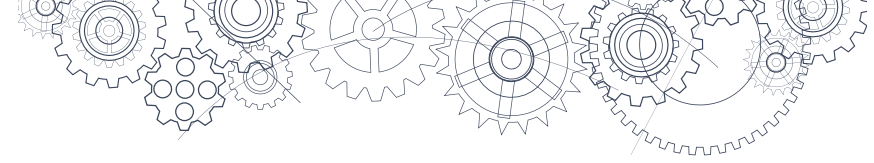




Science K-10 – Curricular Competencies – *continued*

Grade	Questioning and predicting	Planning and conducting	Processing and analyzing data and information	Evaluating	Applying and innovating	Communicating
7-8				<ul style="list-style-type: none"> Exercise a healthy, informed skepticism and use scientific knowledge and findings from their own investigations to evaluate claims in secondary sources Consider social, ethical, and environmental implications of the findings from their own and others' investigations 		
9-10	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Collaboratively and individually 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, cultural and/or environmental issues associated with their proposed methods and those of others Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> 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 	<ul style="list-style-type: none"> Contribute to care for self, others, community, and world through individual 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 	<ul style="list-style-type: none"> 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 representations Express and reflect on a variety of experiences, perspectives, and worldviews through place





Science K-10 – Curricular Competencies – *continued*

Grade	Questioning and predicting	Planning and conducting	Processing and analyzing data and information	Evaluating	Applying and innovating	Communicating
9-10		<ul style="list-style-type: none"> • Ensure that safety and ethical guidelines are followed in their investigations 	<ul style="list-style-type: none"> • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence • Analyze cause-and-effect relationships 	<ul style="list-style-type: none"> • 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 • Connect scientific explorations to careers in science • Exercise a healthy, informed skepticism, and use scientific knowledge and findings to form their own investigations and 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 		

