

	KINDERGARTEN	GRADES 1-2	GRADES 3-4	GRADES 5-6	GRADES 7-8	GRADE 9
QUESTIONING AND PREDICTING	<ul style="list-style-type: none"> <li>Demonstrate curiosity and a sense of wonder about the world</li> <li>Observe objects and events in familiar contexts</li> <li>Ask simple questions about familiar objects and events</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate curiosity and a sense of wonder about the world</li> <li>Observe objects and events in familiar contexts</li> <li>Ask questions about familiar objects and events</li> <li>Make simple predictions about familiar objects and events</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate curiosity about the natural world</li> <li>Observe objects and events in familiar contexts</li> <li>Identify questions about familiar objects and events that can be investigated scientifically</li> <li>Make predictions based on prior knowledge</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate a sustained curiosity about a scientific topic or problem of personal interest</li> <li>Make observations in familiar or unfamiliar contexts</li> <li>Identify questions to answer or problems to solve through scientific inquiry</li> <li>Make predictions about the findings of their inquiry</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest</li> <li>Make observations aimed at identifying their own questions about the natural world</li> <li>Identify a question to answer or a problem to solve through scientific inquiry</li> <li>Formulate alternative "If...then..." hypotheses based on their questions</li> <li>Make predictions about the findings of their inquiry</li> </ul>	<ul style="list-style-type: none"> <li>Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest</li> <li>Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world</li> <li>Formulate multiple hypotheses and predict multiple outcomes</li> </ul>
PLANNING AND CONDUCTING	<ul style="list-style-type: none"> <li>Make exploratory observations using their senses</li> <li>Safely manipulate materials</li> <li>Make simple measurements using non-standard units</li> </ul>	<ul style="list-style-type: none"> <li>Make and record observations</li> <li>Safely manipulate materials to test ideas and predictions</li> <li>Make and record simple measurements using informal or non-standard methods</li> </ul>	<ul style="list-style-type: none"> <li>Suggest ways to plan and conduct an inquiry to find answers to their questions</li> <li>Consider ethical responsibilities when deciding how to conduct an experiment</li> <li>Safely use appropriate tools to make observations and measurements, using formal measurements and digital technology as appropriate</li> <li>Make observations about living and non-living things in the local environment</li> <li>Collect simple data</li> </ul>	<ul style="list-style-type: none"> <li>Explore and pose questions that lead to investigations</li> <li>With support, plan appropriate investigations to answer their questions or solve problems they have identified</li> <li>Decide which variable should be changed and measured for a fair test</li> <li>Choose appropriate data to collect to answer their questions</li> <li>Observe, measure, and record data, using appropriate tools, including digital technologies</li> <li>Use equipment and materials safely, identifying potential risks</li> </ul>	<ul style="list-style-type: none"> <li>Collaboratively plan a range of investigation types, including field work and experiments, to answer their questions or solve problems they have identified</li> <li>Measure and control variables through fair tests</li> <li>Observe, measure, and record data (<b>qualitative</b> and <b>quantitative</b>), using equipment, including digital technologies, with accuracy appropriate to the task</li> <li>Ensure that safety and ethical guidelines are followed in their investigations</li> </ul>	<ul style="list-style-type: none"> <li>Collaboratively and personally plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data (qualitative and quantitative)</li> <li>Assess risks and address ethical issues associated with their proposed methods</li> <li>Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data</li> </ul>
PROCESSING AND ANALYZING DATA AND INFORMATION	<ul style="list-style-type: none"> <li>Discuss observations</li> <li>Represent observations and ideas by drawing</li> <li>Experience and interpret the local environment</li> </ul>	<ul style="list-style-type: none"> <li>Experience and interpret the local environment</li> <li>Sort and classify data and information using drawings or provided tables</li> <li>Compare observations with predictions through discussion</li> <li>Identify simple patterns and connections</li> </ul>	<ul style="list-style-type: none"> <li>Experience and interpret the local environment</li> <li>Sort and classify data and information using drawings or provided tables</li> <li>Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends</li> <li>Compare results with predictions, suggesting possible reasons for findings</li> </ul>	<ul style="list-style-type: none"> <li>Experience and interpret the local environment</li> <li>Construct and use a variety of methods, including tables, graphs, and digital technologies, as appropriate, to represent patterns or relationships in data</li> <li>Identify patterns and connections in data</li> <li>Compare data with predictions and develop explanations for results</li> <li>Demonstrate an openness to new ideas and consideration of alternatives</li> </ul>	<ul style="list-style-type: none"> <li>Experience and interpret the local environment</li> <li>Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, key, scale models, and digital technologies as appropriate</li> <li>Seek patterns and connections in data from their own investigations and secondary sources</li> <li>Use scientific understandings to identify relationships and draw conclusions</li> </ul>	<ul style="list-style-type: none"> <li>Experience and interpret the local environment</li> <li>Seek and analyze patterns, trends, and connections in data, including describing relationships between variables and identifying inconsistencies</li> <li>Use knowledge of scientific concepts to draw conclusions that are consistent with evidence</li> <li>Analyze cause-and-effect relationships</li> </ul>
EVALUATING		<ul style="list-style-type: none"> <li>Compare observations with those of others</li> <li>Consider some environmental consequences of their actions</li> </ul>	<ul style="list-style-type: none"> <li>Make simple inferences based on their results and prior knowledge</li> <li>Reflect on whether an investigation was a fair test</li> <li>Demonstrate an understanding and appreciation of evidence</li> <li>Identify some simple environmental implications of their and others' actions</li> </ul>	<ul style="list-style-type: none"> <li>Evaluate whether their investigations were fair tests</li> <li>Identify possible sources of error</li> <li>Suggest improvements to their investigation methods</li> <li>Identify some of the assumptions and given information in <b>secondary sources</b></li> <li>Demonstrate an understanding and appreciation of evidence</li> <li>Identify some of the social, ethical, and environmental implications of the findings from their own and others' investigations</li> </ul>	<ul style="list-style-type: none"> <li>Reflect on their investigation methods, including the adequacy of controls on variables and the quality of the data collected</li> <li>Identify possible sources of error and suggest improvements to their investigation methods</li> <li>Demonstrate an awareness of assumptions and identify information given and bias in their own work and secondary sources</li> <li>Demonstrate an understanding and appreciation of evidence (qualitative and quantitative)</li> <li>Exercise a healthy, informed skepticism and use scientific knowledge and findings for their own investigations to evaluate claims in secondary sources</li> <li>Consider social, ethical, and environmental implications of the findings from their own and others' investigations</li> </ul>	<ul style="list-style-type: none"> <li>Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions</li> <li>Describe specific ways to improve their investigation methods and the quality of the data</li> <li>Evaluate the validity of and limitations of a model or analogy in relation to the phenomenon modelled</li> <li>Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and secondary sources</li> <li>Consider the changes in knowledge over time as tools and technologies have developed</li> <li>Exercise a healthy, informed skepticism and use scientific knowledge and findings to form their own investigations to evaluate claims in secondary sources</li> <li>Consider social, ethical, and environmental implications of the findings from their own and others' investigations</li> <li>Critically analyze the validity of information in secondary sources and evaluate the approaches used to solve problems</li> <li>Assess risks in the context of personal safety and social responsibility</li> </ul>
APPLYING AND INNOVATING	<ul style="list-style-type: none"> <li>Take part in caring for self, family, classroom and school through personal approaches</li> <li>Transfer and apply learning to new situations</li> <li>Generate and introduce new or refined ideas when problem solving</li> </ul>	<ul style="list-style-type: none"> <li>Take part in caring for self, family, classroom and school through personal approaches</li> <li>Transfer and apply learning to new situations</li> <li>Generate and introduce new or refined ideas when problem solving</li> </ul>	<ul style="list-style-type: none"> <li>Contribute to care for self, others, school, and neighbourhood through personal or collaborative approaches</li> <li>Co-operatively design projects</li> <li>Transfer and apply learning to new situations</li> <li>Generate and introduce new or refined ideas when problem solving</li> </ul>	<ul style="list-style-type: none"> <li>Contribute to care for self, others, and community through personal or collaborative approaches</li> <li>Co-operatively design projects</li> <li>Transfer and apply learning to new situations</li> <li>Generate and introduce new or refined ideas when problem solving</li> </ul>	<ul style="list-style-type: none"> <li>Contribute to care for self, others, community, and world through personal or collaborative approaches</li> <li>Co-operatively design projects</li> <li>Transfer and apply learning to new situations</li> <li>Generate and introduce new or refined ideas when problem solving</li> </ul>	<ul style="list-style-type: none"> <li>Contribute to care for self, others, community, and world through personal or collaborative approaches</li> <li>Co-operatively design projects with local and/or global connections and applications</li> <li>Transfer and apply learning to new situations</li> <li>Generate and introduce new or refined ideas when problem solving</li> <li>Contribute to finding solutions to problems at a local and/or global level through inquiry</li> </ul>
COMMUNICATING	<ul style="list-style-type: none"> <li>Share observations and ideas orally</li> <li>Express and reflect on personal experiences of <b>place</b></li> </ul>	<ul style="list-style-type: none"> <li>Communicate observations and ideas using oral or written language, drawing, or role-play</li> <li>Express and reflect on personal experiences of <b>place</b></li> </ul>	<ul style="list-style-type: none"> <li>Represent and communicate ideas and findings in a variety of ways, such as diagrams and simple reports, using digital technologies as appropriate</li> <li>Express and reflect on personal or shared experiences of <b>place</b></li> </ul>	<ul style="list-style-type: none"> <li>Communicate ideas, explanations, and processes in a variety of ways</li> <li>Express and reflect on personal, shared, or others' experiences of <b>place</b></li> </ul>	<ul style="list-style-type: none"> <li>Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate</li> <li>Express and reflect on a variety of experiences and perspectives of <b>place</b></li> </ul>	<ul style="list-style-type: none"> <li>Formulate physical or mental theoretical models to describe a phenomenon</li> <li>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</li> <li>Express and reflect on a variety of experiences, perspectives, and worldviews of <b>place</b></li> </ul>