



Resource Ridge Program

Program Description: The Resource Ridge program is designed to connect with the grade 7 Science Program of Studies, and bring it to life. Students will have the opportunity to transport back in time and explore Heritage Park through the lens of a scientific settler. Their task is to collect data and make informed recommendations.

Using a field journal, students take on the role of early 1900s explorers sent to southern Alberta to assess the land for settlement. As they explore Heritage Park, they collect data on local ecology, natural resources, building design and environmental conditions—experiencing life as a scientist in 1910. Based on their findings, students reflect on how future communities might grow and what practices could help support them.

This program places students at the centre of history as they make decisions based on their collections. The Program can be used by teachers to assess their students' understanding of the data they have collected in a scientific manner and the recommendations based on that data. Or, teachers may use this as an opportunity to discover their students' level of understanding of scientific inquiry, as they gather data and demonstrate their initial understanding of the world as it existed in 1910 through that scientific lens.

Grade(s): Grade 7

Program of Studies Connections:

Grade	Subject	Unit	Focusing Questions	Outcomes and Knowledge	Skill Outcomes
7	Science	Interactions and Ecosystems	<p>How do human activities affect ecosystems?</p> <p>What methods can we use to observe and monitor changes in ecosystems, and assess the impacts of our actions?</p>	<p>Investigate and describe relationships between humans and their environments, and identify related issues and scientific questions.</p> <p>*describe examples of interaction and interdependency within an ecosystem</p> <p>*identify examples of human impacts on ecosystems, and investigate and analyze the link between these impacts and the human wants and needs that give rise to them</p> <p>*analyze personal and public decisions that involve consideration of environmental impacts, and</p>	<p>Ask questions about the relationships between and among observable variables, and plan investigations to address those questions.</p> <p>*identify science-related issues</p> <p>*identify questions to investigate arising from practical problems and issues</p> <p>*state a prediction and a hypothesis based on background information or an observed pattern of events</p> <p>*select appropriate methods and tools</p>

				<p>identify needs for scientific knowledge that can inform those decisions</p> <p>Trace and interpret the flow of energy and materials within an ecosystem. *analyze an ecosystem to identify biotic and abiotic components, and describe interactions among these components *analyze ecosystems to identify producers, consumers and decomposers; and describe how energy is supplied to and flows through a food web *identify mechanisms by which pollutants enter and move through the environment, and can become concentrated in some organisms</p> <p>Monitor a local environment, and assess the impacts of environmental factors on the growth, health and reproduction of organisms in that environment. *investigate and interpret evidence of interaction and change *identify signs of ecological succession in local ecosystems</p> <p>Describe the relationships among knowledge, decisions and actions in maintaining life-supporting environments.</p>	<p>for collecting data and information</p> <p>Conduct investigations into the relationships between and among observations, and gather and record qualitative and quantitative data. *research information relevant to a given problem or issue *use tools and apparatus effectively and accurately for collecting data *estimate measurements</p> <p>Analyze qualitative and quantitative data, and develop and assess possible explanations. *identify strengths and weaknesses of different methods of collecting and displaying data *classify organisms found in a study plot</p> <p>Work collaboratively on problems; and use appropriate language and formats to communicate ideas, procedures and results. *evaluate individual and group processes used in planning, problem solving, decision making and completing a task *defend a given position on an</p>
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				<ul style="list-style-type: none"> *identify intended and unintended consequences of human activities within local and global environments *describe and interpret examples of scientific investigations that serve to inform environmental decision making *illustrate, through examples, the limits of scientific and technological knowledge in making decisions about life-supporting environments 	issue, based on their findings
7	Science	Plants for Food and Fibre	<p>How do we produce useful plant products?</p> <p>What techniques do we use, what knowledge are these techniques based on, and how do we apply these techniques in a sustainable way?</p>	<p>Investigate plant uses; and identify links among needs, technologies, products and impacts.</p> <ul style="list-style-type: none"> *illustrate and explain the essential role of plants within the environment *describe human uses of plants as sources of food and raw materials, and give examples of other uses *investigate trends in land use from natural environments to managed and describe changes *investigate practical problems and issues in maintaining productive plants within sustainable environments, and identify questions for further study 	<p>Ask questions about the relationships between and among observable variables, and plan investigations to address those questions.</p> <ul style="list-style-type: none"> *define practical problems *identify questions to investigate arising from practical problems and issues *state a prediction and a hypothesis based on background information or an observed pattern of events *formulate operational definitions

				<p>Investigate life processes and structures of plants, and interpret related characteristics and needs of plants in a local environment.</p> <ul style="list-style-type: none"> *investigate and interpret variations in plant structure, and relate these to different ways that plants are adapted to their environment *investigate and interpret variations in needs of different plants and their tolerance for different growing conditions <p>Analyze plant environments, and identify impacts of specific factors and controls.</p> <p>Identify and interpret relationships among human needs, technologies, environments, and the culture and use of living things as sources of food and fibre.</p> <ul style="list-style-type: none"> *investigate and identify intended and unintended consequences of environmental management practices 	<p>Conduct investigations into the relationships between and among observations, and gather and record qualitative and quantitative data.</p> <ul style="list-style-type: none"> *research information relevant to a given problem *observe and record data, and create simple line drawings *estimate measurements <p>Analyze qualitative and quantitative data, and develop and assess possible explanations.</p> <ul style="list-style-type: none"> *use and/or construct a classification key *identify new questions and problems that arise from what was learned <p>Work collaboratively on problems; and use appropriate language and formats to communicate ideas, procedures and results.</p> <ul style="list-style-type: none"> *evaluate individual and group processes used in planning, problem solving, decision making and completing a task
7	Science	Heat and Temperature	<p>What heat-related technologies do we use to meet human needs?</p> <p>Upon what scientific principles are these technologies based?</p>	<p>Illustrate and explain how human needs have led to technologies for obtaining and controlling thermal energy and to</p>	<p>Ask questions about the relationships between and among observable variables, and plan</p>

			<p>What implications do these technologies have for sustainable use of resources?</p>	<p>increased use of energy resources. *investigate and interpret examples of heat-related technologies and energy use in the past *trace linkages between human purposes and the development of heat-related materials and technologies *identify and explain uses of devices and systems to generate, transfer, control or remove thermal energy *identify examples of personal and societal choices in using energy resources and technology</p> <p>Describe the nature of thermal energy and its effects on different forms of matter, using informal observations, experimental evidence and models. *compare heat transmission in different materials *distinguish between heat and temperature; and explain temperature, using the concept of kinetic energy and the particle model of matter *investigate and describe the effects of heating and cooling on the volume of different materials, and identify applications of these effects</p>	<p>investigations to address those questions. *identify science-related issues *identify questions to investigate arising from a problem or issue *phrase questions in a testable form, and clearly define practical problems</p> <p>Conduct investigations into the relationships between and among observations, and gather and record qualitative and quantitative data. *identify data and information that are relevant to a given problem or issue *use instruments effectively and accurately for collecting data and information *carry out procedures, controlling the major variables</p> <p>Analyze qualitative and quantitative data, and develop and assess possible explanations. *identify and evaluate potential applications of findings *test the design of a constructed device or system</p>
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				<p>technologies for heat production and use, and identify related questions and issues</p> <ul style="list-style-type: none"> *identify positive and negative consequences of energy use, and describe examples of energy conservation in their home or community 	
7	Science	Structures and Forces	<p>How do structures stand up under load?</p> <p>What forces act on structures, and what materials and design characteristics contribute to structural strength and stability?</p>	<p>Describe and interpret different types of structures encountered in everyday objects, buildings, plants and animals; and identify materials from which they are made.</p> <ul style="list-style-type: none"> *recognize and classify structural forms and materials used in construction *interpret examples of variation in the design of structures that share a common function, and evaluate the effectiveness of the designs *describe and compare example structures developed by different cultures and at different times; and interpret differences in functions, materials and aesthetics *identify points of failure and modes of failure in natural and built structures <p>Investigate and analyze forces within structures, and forces applied to them.</p> <ul style="list-style-type: none"> *recognize and use units of force and mass, and identify and measure forces and loads 	<p>Ask questions about the relationships between and among observable variables, and plan investigations to address those questions.</p> <ul style="list-style-type: none"> *identify practical problems *propose alternative solutions to a practical problem, select one, and develop a plan *select appropriate methods and tools for collecting data to solve problems *formulate operational definitions of major variables and other aspects of their investigations <p>Conduct investigations into the relationships between and among observations, and gather and record qualitative and quantitative data.</p> <ul style="list-style-type: none"> *research information relevant to a given problem *organize data, using a format that is appropriate to the task or experiment

				<p>*identify tension, compression, shearing and bending forces within a structure; and describe how these forces can cause the structure to fail</p> <p>*analyze a design, and identify properties of materials that are important to individual parts of the structure</p> <p>*infer how the stability of a model structure will be affected by changes in the distribution of mass within the structure and by changes in the design of its foundation</p> <p>Investigate and analyze the properties of materials used in structures.</p> <p>*devise and use methods of testing the strength and flexibility of materials used in a structure</p> <p>*identify points in a structure where flexible or fixed joints are required, and evaluate the appropriateness of different types of joints for the particular application</p> <p>*compare structural properties of different materials, including natural materials and synthetics</p> <p>Demonstrate and describe processes used in developing, evaluating and improving structures that will meet human needs with a margin of safety.</p>	<p>*carry out procedures, controlling the major variables</p> <p>*use tools and apparatus safely</p> <p>Analyze qualitative and quantitative data, and develop and assess possible explanations.</p> <p>*compile and display data, by hand or computer, in a variety of formats, including diagrams, flow charts, tables, bar graphs, line graphs and scatterplots</p> <p>*identify and evaluate potential applications of findings</p> <p>*test the design of a constructed device or system</p> <p>Work collaboratively on problems; and use appropriate language and formats to communicate ideas, procedures and results.</p> <p>*work cooperatively with team members to develop and carry out a plan, and troubleshoot problems as they arise</p>
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7	Science	Planet Earth	<p>What do we know about Earth—about its surface and what lies below?</p> <p>What evidence do we have, and how do we use this evidence in developing an understanding of Earth and its changes?</p>	<p>Describe and demonstrate methods used in the scientific study of Earth and in observing and interpreting its component materials.</p> <ul style="list-style-type: none"> *investigate and interpret evidence that Earth’s surface undergoes both gradual and sudden change *explain the need for common terminology and conventions in describing rocks and minerals, and apply suitable terms and conventions in describing sample materials <p>Identify evidence for the rock cycle, and use the rock cycle concept to interpret and explain the characteristics of particular rocks.</p> <ul style="list-style-type: none"> *distinguish between rocks and minerals *describe characteristics of the three main classes of 	<p>Ask questions about the relationships between and among observable variables, and plan investigations to address those questions.</p> <ul style="list-style-type: none"> *identify questions to investigate *define and delimit questions to facilitate investigation *state a prediction and a hypothesis based on background information or an observed pattern of events *formulate operational definitions of major variables and other aspects of their investigations <p>Conduct investigations into the relationships between and among</p>

				<p>rocks—igneous, sedimentary and metamorphic—and describe evidence of their formation *describe local rocks and sediments, and interpret ways they may have formed *investigate and interpret examples of weathering, erosion and sedimentation</p> <p>Investigate and interpret evidence of major changes in landforms and the rock layers that underlie them. *investigate and interpret patterns in the structure and distribution of mountain formations *identify and interpret examples of gradual/incremental change, and predict the results of those changes over extended periods of time</p> <p>Describe, interpret and evaluate evidence from the fossil record. *describe the nature of different kinds of fossils, and identify hypotheses about their formation *explain and apply methods used to interpret fossils *identify uncertainties in interpreting individual items of fossil evidence; and explain the role of accumulated evidence in developing accepted scientific ideas, theories and explanations</p>	<p>observations, and gather and record qualitative and quantitative data. *estimate measurements *research information relevant to a given question *organize data, using a format that is appropriate to the task or experiment</p> <p>Analyze qualitative and quantitative data, and develop and assess possible explanations. *interpret patterns and trends in data, and infer and explain relationships among the variables *predict the value of a variable, by interpolating or extrapolating from data *identify new questions and problems that arise from what was learned</p> <p>Work collaboratively on problems; and use appropriate language and formats to communicate ideas, procedures and results. *evaluate individual and group processes used in planning, problem solving, decision making and completing a task</p>
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Grade	Subject	General Outcome	Values and Attitudes	Knowledge and Understanding
7	Social Studies	<p>Following Confederation: Canadian Expansions</p> <p>Students will demonstrate an understanding and appreciation of how the political, demographic, economic and social changes that have occurred since Confederation have presented challenges and opportunities for individuals and communities.</p>	<p>Students will recognize the positive and negative consequences of political decisions.</p> <p>Students will appreciate the challenges that individuals and communities face when confronted with rapid change.</p>	<p>Students will evaluate the impact of Confederation and of subsequent immigration on Canada from 1867 to the First World War by exploring and reflecting upon the following questions and issues:</p> <ul style="list-style-type: none"> • How did the National Policy determine the economic and demographic aspects of Canadian expansion? <p>Students will assess, critically, the impact of urbanization and of technology on individual and collective identities in Canada by exploring and reflecting upon the following questions and issues:</p> <ul style="list-style-type: none"> • In what ways did technological advances contribute to the development of Canada