River School Curricular Connections

River Champions (Grades 6-12)

The Fraser River Basin is 240,000 square kilometers in size, where close to three million inhabitants call its 13 sub-watersheds "home." Indigenous peoples have lived within the Fraser River Basin since time immemorial, holding traditional knowledge about the basin's many ecologically diverse regions. Non-Indigenous settlers began to arrive in the late 18th century and sought to utilize the vast resources that the Fraser River watershed provides. Today, the conditions affecting the Fraser River are rapidly changing because of a changing climate; in recent years, residents of British Columbia have seen unprecedented floods, wildfires, and droughts. This program will show students how to predict and prepare for extreme events using a stream table, a tool that can simulate river processes. Students will also have a chance to conduct their own research about how their communities susceptible to climate change and to propose potential solutions, which they will be able to present using ArcGIS Story Maps, an interactive feature from ArcGIS. Students will be able to share those ideas with guest scientists through a follow-up online workshop later in the school year.

Grade	Subject	Curricular Area	Features
6	Science	Big Ideas	• Everyday materials are modern mixtures
		Curricular Competencies	• Demonstrate a sustained curiosity about a scientific topic or problem of personal interest • With support, plan appropriate investigations to answer their questions or solve problems they have identified • Identify First Peoples perspectives and knowledge as sources of information • Contribute to care for self, others, and community through personal or collaborative approaches
		Content	• Mixtures: separated using a difference in component properties
	Social Studies	Big Ideas	• Economic self-interest can be a significant cause of conflict among peoples and governments
		Curricular Competencies	• Develop a plan of action to address a selected problem or issue • Differentiate between short- and long-term causes, and intended and unintended

			consequences, of events, decisions, or developments (cause and consequence)
		Content	• The urbanization and migration of people • Economic policies and resource management, including effects on Indigenous people
7	Science	Big Ideas	• Earth and its climate have changed over geological time
		Curricular Competencies	• 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 • Experience and interpret the local environment • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate • Consider social, ethical, and environmental implications of the findings from their own and others' investigations
		Content	• First Peoples knowledge of changes in biodiversity over time • Evidence of climate change over geological time and the recent impacts of humans
	Social Studies	Big Ideas	• Geographic conditions shaped the emergence of civilizations
		Curricular Competences	• Make ethical judgements about past events, decisions, or actions, and assess the limitations of drawing direct lessons from the past • Use Social Studies inquiry processes and skills to- ask questions; gather, interpret, and analyze ideas; and communicate findings and decisions

		Content	• Human responses to particular geographic challenges and opportunities, including climates, landforms, and natural resources
8	Science	Big Ideas	• The theory of plate tectonics is the unifying theory that explains Earth's geological processes
		Curricular Competences	• Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest • Experience and interpret the local environment • Consider social, ethical, and environmental implications of the findings from their own and others' investigations • Communicate ideas, findings, and solutions or problems, using scientific language, representations, and digital technologies as appropriate
		Content	• First Peoples knowledge of: Local geological formations, significant local geological events
	Social Studies	Big Ideas	• Human and environmental factors shape changes in population and living standards
		Curricular Competencies	• Use Social Studies inquiry processes and skills to ask questions; gather, interpret, and analyze ideas; and communicate findings and decisions. • Explain different perspectives on past or present people, places, issues, or events, and compare the values, worldviews, and beliefs of human cultures and societies in different times and places • Make ethical judgements about past events, decisions, or actions, and assess the limitations of drawing direct lessons from the past
		Content	• Changes in populations and living standards
9	Science	Big Ideas	• The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows around them
		Curricular Competencies	• Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest

			• Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods and those of others • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence • Consider social, ethical, and environmental implications of the findings from their own and other's investigations
		Content	• Sustainability of systems • First Peoples knowledge of interconnectedness and sustainability
	Social Studies	Big Ideas	• The physical environment influences the nature of political, social, and economic change
		Curricular Competences	• Make reasoned ethical judgements about actions in the past and present, and determine appropriate ways to remember and respond • Assess how prevailing conditions and the actions of individuals or groups affect events, decisions, or developments.
		Content	• Physiographic features of Canada and geological processes • Local, regional, and global conflicts
10	Science	Big Ideas	• Energy is conserved, and its transformation can affect living things and the environment
		Curricular Competencies	• Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest • Experience and interpret the local environment • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information
		Content	• Practical applications and implications of chemical
	Social Studies	Big Ideas	• Worldviews lead to different perspectives and ideas about development in Canadian society
		Curricular Competencies	• Use Social Studies inquiry processes and skills to ask questions; gather, interpret, and analyze ideas; and communicate findings and decisions.

			• Assess how underlying conditions and the actions of individuals or groups influence events, decisions, or developments, and analyze multiple consequences.
		Content	• Environmental, political, and economic policies
11	Environmental Science	Big Ideas	• Changing ecosystems are maintained by natural processes
		Curricular Competences	• Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest • Experience and interpret the local environment • Consider the changes in knowledge over time as tools and technologies have developed • Contribute to care for self, others, community, and world through individual or collaborative approaches
		Content	• First Peoples ways of knowing and doing • Human actions and their impact on the ecosystem • Resource stewardship • Restoration practices
	Science for Citizens	Big Ideas	• Scientific understanding enables humans to respond and adapt to changes locally and globally
		Curricular Competences	• Use local knowledge to experience and interpret the local environment • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Consider social, ethical, and environmental implications of the findings from their own and others' investigations • Contribute to care for self, others, community, and world through individual or collaborative approaches
		Content	• Natural hazards and responses • Human impact of Earth's systems
12	Environmental Science	Big Ideas	• Human actions affect the quality of water and its ability to sustain life

			• Human activities cause changes in the global climate system
		Curricular Competencies	• Experience and interpret the local environment • Construct, analyze, and interpret graphs, models, and diagrams • Use knowledge of scientific concepts to draw conclusions that are consistent with evidence • Contribute to finding solutions to problems at a local and/or global level through inquiry
		Content	• Land management • Land use and degradation • Availability and water use impacts • Changes to climate system
	Geology	Big Ideas	• Weathering and erosion processes continually reshape landscapes through the interaction of the geosphere with the hydrosphere and atmosphere
		Curricular Competencies	• Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest • Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information • Consider social, ethical, and environmental implications of the findings from their own and others' investigations • Contribute to care for self, others, community, and world through individual or collaborative approaches • Communicate scientific ideas and 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 •
		Content	• Weathering and erosion processes • First Peoples knowledge of landforms over time