

Science Curriculum Links

CONSERVATION IN ACTION: An Educator's Guide to Species at Risk in BC for Grades 8 - 12

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Overview of Module Two: Amphibians at Risk in BC

ACTIVITY 1: Where have all the Frogs Gone?

Using case narrative methodology, students are introduced to challenging and provocative issues about species at risk that confront multiple stakeholders. Students analyze and develop possible solutions to a situation presented in a case narrative.

ACTIVITY 2: Amphibians in Your Backyard: Preparation for Field Investigation

In preparation for conducting a field investigation as "citizen scientists", students develop appropriate field investigative questions and prepare a field investigation plan by going through an inquiry and discovery (research) process to become familiar with local amphibian species at risk and field investigation skills and methods.

ACTIVITY 3: Getting Your Feet Wet! Conducting Field Investigations in Your Community

Students conduct a field investigation as "citizen scientists" of local amphibian populations and habitat with the support of a conservation biologist. Prior to going into the field, students review appropriate field protocols and methods for collecting data and prepare data forms. Following the field investigation, students analyze and share data, as well as reflect on the role of citizen science in protecting amphibian species and habitats.

ACTIVITY 4: Local Amphibians at Risk: Creating a Case Narrative

Students analyze and synthesize the information gained during the previous activities, including the field investigation, by creating an outline for a case narrative regarding local amphibian species at risk. The final discussion explores possible actions that the students can take to protect species at risk in their community.

KEY:

✓ = general link

✓ = direct link

* = see Elaborations on BC Ed new curriculum websites

Subject: Environmental Science 11

Big Ideas	Learning Standard: Content	Activity				Learning Standard: Curricular Competencies	Activity			
		1	2	3	4		1	2	3	4
Diversity in Local Ecosystems: Local environments contain diverse ecosystems with many roles and relationships.	abiotic and edaphic factors	✓	✓	✓	✓	Questioning and predicting				
	biodiversity:					Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest	✓	✓	✓	✓
	– species and their ecological roles	✓	✓	✓	✓	Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world	✓	✓	✓	✓
	– relationships and interactions in ecosystems	✓	✓	✓	✓	Formulate multiple hypotheses and predict multiple outcomes		✓	✓	✓
						Planning and conducting				
Processes and Changes in Local Ecosystems: Interconnected systems sustain healthy ecosystems.	energy flow	✓	✓	✓	✓	Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data (qualitative and quantitative)		✓	✓	✓
	matter cycles	✓	✓	✓	✓	Assess risks and address ethical, cultural, and/or environmental issues associated with their proposed methods		✓	✓	✓
						Use appropriate SI units and appropriate equipment, including digital technologies, to systematically and accurately collect and record data		✓	✓	
Processes and Changes in Local Ecosystems: Ecosystem stability is an important result of sustainability.	population dynamics and landscape structure	✓	✓	✓	✓	Apply the concepts of accuracy and precision to experimental procedures and data: significant figures, uncertainty, scientific notation		✓	✓	
	change and stability in ecosystems	✓	✓	✓	✓	Processing and analyzing data and information				
Sustainability in Local Ecosystems: Human practices affect the sustainability of ecosystems.	benefits of healthy ecosystems	✓	✓	✓	✓	Experience and interpret the local environment		✓	✓	✓
	humans as agents of change:					Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information	✓	✓	✓	✓
	– First Peoples and other traditional ecological knowledge		✓	✓	✓	Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies			✓	✓
	– unsustainable and sustainable ecosystem practices	✓	✓	✓	✓	Construct, analyze, and interpret graphs, models, and/or diagrams			✓	✓
						Use knowledge of scientific concepts to draw conclusions that are consistent with evidence	✓		✓	✓
						Analyze cause-and-effect relationships	✓	✓	✓	✓



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Conservation and Restoration of Ecosystems: Humans can play a role in conservation and restoration of ecosystems.	environmental stressors challenge ecosystem integrity, health, and sustainability	✓	✓	✓	✓	Evaluating Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions			✓	
	ecological restoration principles and practices	✓		✓	✓	Describe specific ways to improve their investigation methods and the quality of the data			✓	
	First Peoples concept of interconnectedness as related to conservation and restoration			✓	✓	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	✓	✓	✓	✓				
	engagement in ongoing and potential stewardship projects			✓	✓	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 primary and secondary sources and evaluate the approaches used to solve problems	✓	✓	✓	✓
						Assess risks in the context of personal safety and social responsibility			✓	
						Applying and innovating				
						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				✓
						Contribute to finding solutions to problems at a local and/or global level through inquiry		✓	✓	✓
						Implement multiple strategies to solve problems in real-life, applies, and conceptual situations			✓	✓
						Consider the role of scientists in innovation				
						Communicating				
						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 through place			✓	✓

