

## 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: Science 10

Big Ideas	Learning Standard: Content	Activity				Learning Standard: Curricular Competencies	Activity			
		1	2	3	4		1	2	3	4
<b>Genes are the foundation for the diversity of living things.</b>	Mechanisms for the diversity of life: natural and artificial selection	✓	✓	✓	✓	<b>Questioning and predicting</b>				
	Applications of genetics and ethical considerations	✓	✓	✓	✓	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	✓	✓	✓	✓
Energy is conserved and its transformation can affect living things and the environment.	Local and global impacts of energy transformations from technologies	✓	✓	✓	✓	Formulate multiple hypotheses and predict multiple outcomes		✓	✓	✓
						<b>Planning and conducting</b>				
						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		✓	✓	
						Ensure that safety and ethical guidelines are followed in their investigations		✓	✓	
						<b>Processing and analyzing data and information</b>				
						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			✓	✓
						Use knowledge of scientific concepts to draw conclusions that are consistent with evidence	✓		✓	✓
						Analyze cause-and-effect relationships	✓	✓	✓	✓



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Big Ideas	Learning Standard: Content	Activity				Learning Standard: Curricular Competencies	Activity			
		1	2	3	4		1	2	3	4
						<b>Evaluating</b>				
						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				
						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	✓	✓	✓	✓
						<b>Applying and innovating</b>				
						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				
						<b>Communicating</b>				
						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			✓	✓

