

## 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 8

| Big Ideas   | Learning Standard:<br>Content                          | Activity |   |   |   | Learning Standard:<br>Curricular Competencies  | Activity |   |   |   |
|---|--|----------|---|---|---|--|----------|---|---|---|
|   |  | 1        | 2 | 3 | 4 |  | 1        | 2 | 3 | 4 |
| <b>Life processes are performed at the cellular level</b> | <b>Characteristics of life</b>                         | ✓        | ✓ | ✓ | ✓ | <b>Questioning and predicting</b>  |          |   |   |   |
|   | The relationship of micro-organisms with living things |          |   |   |   | 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   | ✓        | ✓ | ✓ | ✓ |
|   |  |          |   |   |   | Identify a question to answer or a problem to solve through scientific inquiry   | ✓        | ✓ | ✓ | ✓ |
|   |  |          |   |   |   | Formulate alternative “If...then...” hypotheses based on their questions   |          | ✓ |   |   |
|   |  |          |   |   |   | Make predictions about the findings of their inquiry   |          | ✓ |   |   |
|   |  |          |   |   |   | <b>Planning and conducting</b>   |          |   |   |   |
|   |  |          |   |   |   | Collaboratively plan a range of investigation types, including field work and experiments, to answer their questions or solve problems they have identified          | ✓        | ✓ | ✓ |   |
|   |  |          |   |   |   | Measure and control variables (dependent and independent) through fair tests   |          | ✓ | ✓ |   |
|   |  |          |   |   |   | Observe, measure, and record data (qualitative and quantitative), using equipment, including digital technologies, with accuracy and precision                       |          | ✓ | ✓ |   |
|   |  |          |   |   |   | Use appropriate SI units and perform simple unit conversions   |          | ✓ | ✓ |   |
|   |  |          |   |   |   | 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   |          |   |   | ✓ |
|   |  |          |   |   |   | Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate |          |   | ✓ | ✓ |
|   |  |          |   |   |   | Seek patterns and connections in data from their own investigations and secondary sources  |          |   | ✓ | ✓ |
|   |  |          |   |   |   | Use scientific understandings to identify relationships and draw conclusions   |          |   | ✓ | ✓ |



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|-----------|-------------------------------|----------|---|---|---|---|----------|---|---|---|
|           |                               | 1        | 2 | 3 | 4 |   | 1        | 2 | 3 | 4 |
|           |                               |          |   |   |   |   |          |   |   |   |
|           |                               |          |   |   |   | <b>Evaluating</b>   |          |   |   |   |
|           |                               |          |   |   |   | Reflect on their investigation methods, including the adequacy of controls on variables (dependent and independent) and the quality of the data collected |          | ✓ | ✓ |   |
|           |                               |          |   |   |   | Identify possible sources of error and suggest improvements to their investigation methods  |          |   | ✓ | ✓ |
|           |                               |          |   |   |   | Demonstrate an awareness of assumptions and bias in their own work and secondary sources  | ✓        |   | ✓ | ✓ |
|           |                               |          |   |   |   | Demonstrate an understanding and appreciation of evidence (qualitative and quantitative)  | ✓        | ✓ | ✓ | ✓ |
|           |                               |          |   |   |   | Exercise a healthy, informed skepticism and use scientific knowledge and findings from their own investigations to evaluate claims in secondary sources   | ✓        |   | ✓ | ✓ |
|           |                               |          |   |   |   | Consider social, ethical, and environmental implications of the findings from their own and others' investigations  | ✓        | ✓ | ✓ | ✓ |
|           |                               |          |   |   |   | <b>Applying and innovating</b>  |          |   |   |   |
|           |                               |          |   |   |   | Contribute to care for self, others, community, and world through personal or collaborative approaches  |          |   | ✓ | ✓ |
|           |                               |          |   |   |   | Co-operatively design projects  |          | ✓ | ✓ | ✓ |
|           |                               |          |   |   |   | Transfer and apply learning to new situations   |          | ✓ | ✓ | ✓ |
|           |                               |          |   |   |   | Generate and introduce new or refined ideas when problem solving  |          |   | ✓ | ✓ |
|           |                               |          |   |   |   | <b>Communicating</b>  |          |   |   |   |
|           |                               |          |   |   |   | Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate               | ✓        |   | ✓ | ✓ |
|           |                               |          |   |   |   | Express and reflect on a variety of experiences and perspectives of place   |          |   | ✓ | ✓ |

