

## Ecology Field School Learning Outcomes

These programs support the Prescribed Learning Outcomes of the B.C. Ministry of Education's new Integrated Resource Packages (IRPs) and the Aquarium's conservation mission.

### Grade 4

- Experience and interpret the local environment (*Science: Curricular Competencies*)
- Make observations and living and non-living things in the local environment (*Science: Curricular Competencies*)
- Collect simple data (*Science: Curricular Competencies*)
- Sort and classify data and information using drawings or provided tables (*Science: Curricular Competencies*)
- Identify questions about familiar objects and events that can be investigated scientifically (*Science: Curricular Competencies*)
- Identify some simple implications of their and others' actions on the environment (*Science: Curricular Competencies*)

### Grade 5

- Make observations in familiar or unfamiliar contexts (*Science: Curricular Competencies*)
- Observe, measure, and record data, using appropriate tools, including digital technologies (*Science: Curricular Competencies*)
- Experience and interpret the local environment (*Science: Curricular Competencies*)
- Identify possible sources of error (*Science: Curricular Competencies*)
- Suggest improvements to their investigation methods (*Science: Curricular Competencies*)
- Identify some of the social, ethical, and environmental implications of the findings from their own and others' investigations (*Science: Curricular Competencies*)

### Grade 6

- Make observations in familiar or unfamiliar contexts (*Science: Curricular Competencies*)
- Observe, measure, and record data, using appropriate tools, including digital technologies (*Science: Curricular Competencies*)
- Experience and interpret the local environment (*Science: Curricular Competencies*)
- Identify possible sources of error (*Science: Curricular Competencies*)
- Suggest improvements to their investigation methods (*Science: Curricular Competencies*)
- Identify some of the social, ethical, and environmental implications of the findings from their own and others' investigations (*Science: Curricular Competencies*)

### Grade 7

- Survival needs and interactions between organisms and the environment (*Science:Content*)
- Observe, measure, and record data, using equipment, including digital technologies, with accuracy appropriate to the task (*Science: Curricular Competencies*)
- Experience and interpret the local environment (*Science: Curricular Competencies*)
- Reflect on their investigation methods, including the adequacy of controls on variables and the quality of the data collected (*Science: Curricular Competencies*)
- Identify possible sources of error and suggest improvements to their investigation methods (*Science: Curricular Competencies*)
- Consider social, ethical, and environmental implications of the findings from their own and others' investigations (*Science: Curricular Competencies*)

### **Grade 8**

- Observe, measure, and record data, using equipment, including digital technologies, with accuracy appropriate to the task (*Science: Curricular Competencies*)
- Experience and interpret the local environment (*Science: Curricular Competencies*)
- Use scientific understandings to identify relationships and draw conclusions (*Science:Curricular Competencies*)
- Identify possible sources of error and suggest improvements to their investigation methods (*Science: Curricular Competencies*)
- Demonstrate an awareness of assumptions and identify given information and bias in their own work ... (*Science: Curricular Competencies*)
- Consider social, ethical, and environmental implications of the findings from their own and others' investigations (*Science: Curricular Competencies*)

### **Grade 9**

- The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them (*Science: Big Ideas*)
- Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world (*Science: Curricular Competencies*)
- Experience and interpret the local environment (*Science: Curricular Competencies*)
- Evaluate their methods and experimental conditions, including identifying sources of error (*Science: Curricular Competencies*)
- Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and secondary sources (*Science: Curricular Competencies*)
- Consider social, ethical, and environmental implications of the findings from their own and others' investigations (*Science: Curricular Competencies*)

## Grade 10

- Make observations aimed at identifying their own questions... about the natural world (*Science: Curricular Competencies*)
- Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data (*Science: Curricular Competencies*)
- Experience and interpret the local environment (*Science: Curricular Competencies*)
- Describe specific ways to improve their investigation methods and the quality of the data (*Science: Curricular Competencies*)
- Consider social, ethical, and environmental implications of the findings from their own and others' investigations (*Science: Curricular Competencies*)

## Grade 11

- ...use appropriate investigation methods, including field work... to collect reliable data (qualitative and quantitative) (*Biology: Curricular Competencies*)
- Select and use appropriate equipment...to systematically and accurately collect and record data (*Biology: Curricular Competencies*)
- Experience and interpret the local environment (*Biology: Curricular Competencies*)
- Describe specific ways to improve their investigation methods and the quality of the data (*Biology: Curricular Competencies*)
- Express and reflect on a variety of experiences, perspectives, and worldviews through place (*Biology: Curricular competencies*)
- The survival of all living things on Earth is dependent on biodiversity (*Environmental Science: Big Ideas*)
- Healthy and sustainable ecosystems support biodiversity (*Environmental Science: Big Ideas*)
- Biodiversity: complexity of life, processes shaping diversity, ecosystem components and interactions (*Environmental Science: Content*)
- Healthy and sustainable ecosystems: ecosystem functions and services including benefits and limits of biodiversity, humans as agents of positive change on systems including conservation, restoration, and protection of ecosystems, responsible personal and community actions... (*Environmental Science: Content*)
- Analyze the impact of human activity on ecosystems, and assess the effectiveness of selected initiatives related to environmental sustainability (*Environmental Science: Curricular Competencies*)
- Analyze how our thinking, choices, and behaviour affect ecosystems, now and in the future (*Environmental Science: Curricular Competencies*)

- Consider social, ethical, and environmental implications of the findings from their own and others' investigations (*Environmental Science: Curricular Competencies*)
- Infer the effects of natural phenomena and human activities that either contribute to or challenge an ecologically sustainable environment (*Environmental Science: Curricular Competencies*)

## **Grade 12**

- Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data (*Biology: Curricular Competencies*)
- Experience and interpret the local environment (*Biology: Curricular Competencies*)
- Describe specific ways to improve their investigations methods and the quality of the data (*Biology: Curricular Competencies*)
- Healthy systems are interconnected, resilient, and adaptive (*Environmental Science: Big Ideas*)
- Healthy and sustainable global systems support life (*Environmental Science: Big Ideas*)
- Everyone has the ability to develop sustainable practices that impact a system, a community, and themselves (*Environmental Science: Big Ideas*)
- Interconnectedness of global systems: energy, water, land, climate (*Environmental Science: Content*)
- Human and other influences on natural systems: evidence of change and sustainability, issues, long-term trends and future scenarios, environmental ethics and responsibility (*Environmental science: Content*)
- Consider social, ethical, and environmental implications of the findings from their own and others' investigations (*Environmental Science: Curricular Competencies*)
- Experience and interpret the local environment (*Environmental Science: Curricular Competencies*)
- Assess the impacts of a local, regional, or global issue (*Environmental Science: Curricular Competencies*)
- Infer the effects of natural phenomena and human activities that either contribute to or challenge an ecologically sustainable environment (*Environmental Science: Curricular Competencies*)