

# Coastal Connection 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.

## Kindergarten

- Plants and animals have observable features (Science: Big ideas)
- Adaptations of local plants and animals (Science: Content)
- Basic needs of plants and animals (Science: Content)
- Make exploratory observations using their senses (Science: Curricular Competencies)
- Experience and interpret the local environment (Science: Curricular Competencies)
- Express and reflect on personal experiences of place (Science: Curricular Competencies)

## Grade 1

- Living things have features and behaviours that help them survive in their environment (Science: Big ideas)
- Experience and interpret the local environment (Science: Curricular Competencies)
- Consider some environmental consequences of their actions (Science: Curricular Competencies)
- Express and reflect on personal experiences of place (Science: Curricular Competencies)
- Structural features of living things in the local environment (Science: Content)
- Behavioural adaptations of animals in the local environment (Science: Content)
- Names of local plants and animals (Science: Content)

## Grade 2

- All living things have a life cycle (Science: Big ideas)
- Experience and interpret the local environment (Science: Curricular Competencies)
- Compare observations with those of others (Science: Curricular Competencies)
- Consider some environmental consequences of their actions (Science: Curricular Competencies)
- Express and reflect on personal experiences of place (Science: Curricular Competencies)
- Similarities and differences between offspring and parent (Science: Content)

## Grade 3

- Living things are diverse, can be grouped, and interact in their ecosystems (Science: Big ideas)
- Biodiversity in the local environment (Science: Content)

- Make observations about living and non-living things in the local environment (Science: Curricular Competencies)
- Experience and interpret the local environment (Science: Curricular Competencies)
- Make simple inferences based on their results and prior knowledge (Science: Curricular Competencies)
- Identify some simple environmental implications of their and others' actions (Science: Curricular Competencies)

#### **Grade 4**

- All living things sense and respond to their environment (Science: Big Ideas)
- The motion of Earth and the moon cause observable patterns that affect living and non-living systems (Science: Big Ideas)
- Biomes as large regions with similar environmental features (Science: Content)
- Make observations about living and non-living things in the local environment (Science: Curricular Competencies)
- Experience and interpret the local environment (Science: Curricular Competencies)
- Identify some simple environmental implications of their and others' actions (Science: Curricular Competencies)

#### **Grade 5**

- Multicellular organisms have organ systems that enable them to survive and interact within their environment (Science: Big Ideas)
- Experience and interpret the local environment (Science: Curricular Competencies)
- Express and reflect on personal, shared, or others' experiences of place (Science: Curricular Competencies)
- Basic structures and functions of body systems: digestive, excretory, respiratory, circulatory (Science: Content)
- The nature of sustainable practices around BC's living and non-living resources (Science: Content)
- First Peoples concepts of interconnectedness in the environment (Science: Content)

#### **Grade 6**

- Multicellular organisms rely on internal systems to survive, reproduce, and interact with their environment (Science: Big Ideas)
- Experience and interpret the local environment (Science: Curricular Competencies)

- Express and reflect on personal, shared, or others' experiences of place(Science: Curricular Competencies)
- The basic structures and functions of body systems: musculoskeletal, reproductive hormonal, nervous (Science: Content)
- Complex global problems require international cooperation to make difficult choices for the future (Social Studies: Big Ideas)

### **Grade 7**

- Evolution by natural selection provides an explanation for the diversity and survival of living things (Science: Big Ideas)
- Make observations aimed at identifying their own questions about the natural world Science: Curricular Competencies)
- Experience and interpret the local environment(Science: Curricular Competencies)
- Organisms have evolved over time (Science: Content)
- Survival needs of organisms, including space, food, water, and access to resources in order to survive (Science: Content)
- Natural selection happens within a population over time because of genetic variation (Science: Content)

### **Grade 8**

- Characteristics of Life, where living things respire, grow, take in nutrients, produce waste, respond to stimuli, and reproduce (Science: Content)
- Make observations aimed at identifying their own questions about the natural world(Science: Curricular Competencies)
- Experience and interpret the local environment(Science: Curricular Competencies)
- Demonstrate an understanding and appreciation of evidence (qualitative and quantitative) (Science: Curricular Competencies)

### **Grade 9**

- The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows between them (Science: big ideas)
- Asexual reproduction: mitosis, different forms(Science: Content)
- Sexual reproduction: meiosis, human sexual reproduction(Science: Content)
- Sustainability of systems (Science: Content)
- 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)

### **Grade 10**

- Impacts of genetics and the environment on the diversity of life: mutation, natural and artificial selection (Science: Content)
- 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)
- Contribute to care for self, others, community, and world through individual or collaborative approaches (Science: Curricular Competencies)
- Interconnections between demography, urbanization, environmental issues, and globalization (Social Studies: Content)

### **Grade 11**

- All organisms have characteristics that define them as living and interdependent. Life can be organized in a functional and structural hierarchy ranging from cells to the biosphere. (Biology: Big Ideas)
- Living things are interdependent. (Biology: Big Ideas)
- Living things are diverse and evolve over time. (Biology: Big Ideas)
- Features and structure of living things: respiration, reproduction, growth, nutrient intake (Biology: Content)
- How animals shape their physical environment (Biology: Content)
- Living things and their roles in ecosystems (Biology: Content)
- Use knowledge of scientific concepts to draw conclusions that are consistent with evidence (Biology: Curricular Competencies)
- Analyze the impact of human activity on ecosystems, and assess the effectiveness of selected initiatives related to environmental sustainability (Biology: Curricular Competencies)
- Experience and interpret the local environment (Biology: Curricular Competencies)
- Analyze how our thinking, choices, and behaviours affect ecosystems, now and in the future (Biology: Curricular Competencies)
- Infer the effects of natural phenomena and human activities that either contribute to or challenge an ecologically sustainable environment (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, including complexity of life, processes shaping diversity, ecosystem components and interactions (Environmental Science: Content)
- Systems and sustainable ecosystems: matter cycles and energy flows, interactions between systems (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, responsible uses of technologies and alternative resources (Environmental Science: Content)

## **Grade 12**

- Healthy systems are interconnected, resilient, and adaptive (Environmental Science: Big Ideas)
- Healthy and Sustainable global systems support life (Big Ideas)
- Everyone has the ability to develop sustainable practices that impact a system, a community, and themselves. (Environmental Science: Big Ideas)
- Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world (Environmental Science: Curricular Competencies)
- Experience and interpret the local environment (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)
- 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)
- Leadership, innovation, and action for sustainable systems and communities: personal, local or global choices and actions, sustainable practices communities, environmental and sustainable, technologies, careers (Environmental Science: Content)

## **Current Curriculum Gr.10-12**

### **Grade 10**

- Demonstrate scientific literacy (Processes of Science)
- Demonstrate ethical, responsible, cooperative behaviour (Processes of Science)
- Explain the interaction of abiotic and biotic factors within an ecosystem (Life Science)
- Assess the potential impacts of bioaccumulation (Life Science)
- Explain various ways in which natural populations are altered or kept in equilibrium (Life Science)

- Evaluate possible causes of climate change and its impact on natural systems (Earth and Space Science)

### **Grade 11**

- Apply the Kingdom system of classification to study the diversity of organisms (taxonomy)
- Describe the process of evolution (evolution)
- Analyze the functional inter-relationships of organisms within an ecosystem (ecology)
- Describe the major natural resources found in British Columbia
- Evaluate methods used in the extraction, processing, use and management of a locally used or produced resource (Natural Resources and the Environment)
- Discuss the impact of society on natural resource management and the environment (Natural Resources and the Environment)
- Analyze the impact of technologies on the environment (Natural Resources and the Environment)
- Analyze the environmental, social, and economic significance of fisheries at the local, provincial, and global levels (Fisheries: Sustainable resources)
- Outline the dynamics of ecosystems related to fisheries (Fisheries: Sustainable Resources)
- Assess current practices related to management of sustainable fishery resources in British Columbia (Fisheries: Sustainable Resources)
- Investigate current practices related to the development of fisheries products (Fisheries: Sustainable Resources)
- Illustrate various roles of technology in fishery practices (Fisheries: Sustainable Resources)
- Analyze challenges and opportunities faced by fishery industries in British Columbia (Fisheries: Sustainable Resources)

### **Grade 12**

- Assess the importance of fisheries in British Columbia and Canada (Fishery Resources and Society: Sustainable Resources)
- Analyze the impact of fishing and ocean resources on global development and international relations (Fishery Resources and Society: Sustainable Resources)
- Examine the biotic and abiotic components of a variety of aquatic ecosystems (Structure and Function of Aquatic Ecosystems: Sustainable Resources)
- Investigate interactions found within aquatic ecosystems (Structure and Function of Aquatic Ecosystems: Sustainable Resources)

- Determine environmental issues and challenges related to fisheries (Issues and Challenges Facing Sustainable Fisheries: Sustainable Resources)
- Outline economic and political issues and challenges related to fisheries (Issues and Challenges Facing Sustainable Fisheries: Sustainable Resources)
- Analyze sustainability issues and challenges related to fisheries (Issues and Challenges Facing Sustainable Fisheries: Sustainable Resources)
- Assess issues and challenges related to aquaculture (Issues and Challenges Facing Sustainable Fisheries: Sustainable Resources)