



Seaquaria in Schools Content Links to B.C. Science Curriculum 2020 Edition

Below is a snapshot of curriculum points Seaquaria in Schools meet. For clarification on certain curricular links, please contact us at education@seaquaria.org



Science K-10 – Content

Grade	Biology	Chemistry	Physics	Earth/Space	How is Seaquaria linked?
K	<p>basic needs of plants and animals</p> <p>adaptations of local plants and animals</p>			<p>living things make changes to accommodate daily and seasonal cycles</p>	<p>Invertebrates in the Seaquarium are intertidal species and experience daily changes to their habitat following the patterns of low and high tide</p> <p>Seaquarium animals are adapted to the daily and seasonal changes in their habitat through behaviour and physiology</p> <p>Seaquarium animals and algae are local to the Salish Sea, with a few exceptions of naturalized foreign species like wireweed and pacific oysters.</p>
1	<p>classification of living and non-living things</p> <p>names of local plants and animals</p> <p>structural features of living things in the local environment</p> <p>behavioural adaptations of animals in the local environment</p>		<p>natural and artificial sources of light and sound</p> <p>properties of light and sound depend on their source and the objects with which they interact</p>	<p>common objects in the sky</p> <p>local patterns that occur on Earth and in the sky</p>	<p>Seaquarium animals are local to the Salish Sea</p> <p>Seaquaria contains living (e.g. algae) and non-living (e.g. gravel and rocks) things that are essential to the animals' survival</p> <p>Behavioural adaptations include hiding/closing shells (e.g. hermit crab, oysters), scrunching up when stressed (e.g. sea anemone, sea cucumber)</p> <p>Seaquaria light has a timer to mimic day/night</p> <p>Seaquaria can introduce the concept of sound pollution in the Salish Sea by relating noise in the school to ship traffic.</p>

					Invertebrates in the Seaquarium are intertidal species and experience daily changes to their habitat following the patterns of low and high tide caused by the lunar cycle
2	similarities and differences between offspring and parent			water sources including local watersheds water conservation the water cycle	Many Seaquaria organisms have different life stages (e.g. egg, larval, and adult) Local watersheds (e.g. Gorge/Portage Inlet) all drain into the ocean.
3	biodiversity in the local environment energy is needed for life		sources of thermal energy transfer of thermal energy	major local landforms observable changes in the local environment caused by erosion and deposition by wind, water, and ice	The Seaquarium is stocked with a diverse range of animals that are local to the Salish Sea Through the caring of the ecosystem, students and visualize the need for energy for life (e.g. feeding) The Seaquarium set up contains a chiller unit that ensures the water stays at a constant temperature (11°C – 12°C), and waste heat can be felt exiting the side of the chiller. Connection can be drawn from the many intertidal animals in the ecosystem <ul style="list-style-type: none"> The intertidal zone is shaped by environmental factors of erosion, deposition, water etc.
4	sensing and responding (animals and plants)	phases of matter <ul style="list-style-type: none"> the effect of temperature on particle movement 		local changes caused by Earth's axis, rotation, and orbit the effects of the relative positions of the sun, moon, and Earth	Seaquarium animals have observable response and sense behaviour (e.g. hiding/closing shells, scrunching up when stressed) Connection can be drawn from the daily tidal movements (low and high tides) Seawater in the system often leaves behind salt crystals from evaporation –

					can be great example of changing phases
5	<p>basic structures and functions of body systems:</p> <ul style="list-style-type: none"> • digestive • muscular-skeletal • respiratory • circulatory 			the nature of sustainable practices around BC's resources	<p>Seaquarium animals have observable and diverse body structures that can inform the functions of body systems</p> <p>Connection can be drawn from the effects of human interactions with animals like the ones in the Seaquaria. Both urchins and oysters have active fisheries in BC.</p>
6	<p>the basic structures and functions of body systems:</p> <ul style="list-style-type: none"> • excretory • reproductive • hormonal • nervous 				Seaquarium animals have observable and diverse body structures that can inform the functions of body systems
7	<p>organisms have evolved over time</p> <p>survival needs natural selection</p>	crystalline structure of solids		the fossil record provides evidence for changes in biodiversity over geological time	<p>Organisms from different phyla has evolved in different ways. Compare a sponge (one of the oldest living animals on Earth) to a fish or a sea cucumber.</p> <p>There are fossil records of chitons and other invertebrates dating back to the time of the dinosaurs.</p> <p>Seawater in the system often leaves behind salt crystals from evaporation – can be great example of changing phase</p>
8	<p>characteristics of life</p> <p>photosynthesis and cellular respiration</p> <p>the relationship of micro-organisms with living things:</p>				<p>The Seaquarium is stocked full of live observable organisms</p> <p>Although algae are not true plants, they photosynthesize and are essential to life under water</p>

					All Seaquarium organisms are linked to micro-organisms (e.g. phytoplankton and zooplankton)
9	<p>asexual reproduction: mitosis</p> <p>different forms sexual reproduction: meiosis</p> <p>human sexual reproduction</p>			<p>effects of solar radiation on the cycling of matter and energy</p> <ul style="list-style-type: none"> • matter cycles within biotic and abiotic components of ecosystems • sustainability of systems 	<p>Seaquarium animals and algae represent both asexual (e.g. sea anemone cloning or fission) and sexual reproduction (e.g. broadcast spawning)</p> <p>The selection of animals in a Seaquaria represents a sustainable ecosystem with no one species out of balance.</p>
10	<p>patterns of inheritance mechanisms for the diversity of life</p> <p>mutation and its impact on evolution</p> <p>natural selection and artificial selection</p> <p>applied genetics and ethical considerations</p>				<p>Seaquaria provides a launching board for conversations about the diversity of life and the mechanism that drives it</p>