Seaquaria in Schools Core Competencies 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 – Curricular Competencies

Grade	Questioning and predicting	Planning and conducting	Processing and analyzing data and information	Evaluating	Applying and innovating	Communicating
K	Demonstrate curiosity and a sense of wonder about the world Observe objects and events in familiar context Ask simple questions about familiar objects and events	Make exploratory observations using their senses Safely manipulate materials Make simple measurements using non-standard units	Experience and interpret the local environment Discuss observations Represent observations and ideas by drawing charts and simple pictographs		Take part in caring for self, family, classroom and school through personal approaches Transfer and apply learning to new situations Generate and introduce new or refined ideas when problem solving	Share observations and ideas orally Express and reflect on personal experiences of place
Seaquarium Links	The Seaquarium is available as a year-long educational tool that is stocked with a diverse set of organisms • Can be used as a launching pad for discussions and inquiry • Students are encouraged to spend time observing and asking questions about the Seaquaria throughout the year.	There are simple measurement tools that can be used to measure salinity and temperature • Students can interact with the Seaquaria by measuring food and cleaning algae from the glass	The Seaquarium is available as a year-long educational tool that is stocked with a diverse set of organisms • Can be used as a launching pad for discussions and inquiry • Students can draw charts and simple pictographs representing the population, size, shape, eating tendencies of each species.		Students are responsible for the feeding, cleaning, and general care of the animals Students are also responsible for observing, recording, and reporting any abnormal animal behaviours	Students can share weekly Seaquaria observations as a show and tell with their classmates The Seaquaria can serve as a journal topic, relating to personal experience within and without the school

1-2	Demonstrate curiosity and a sense of wonder about the world

Observe objects and events in familiar contexts

Ask questions about familiar objects and events

Make simple predictions about familiar objects and events | Make and record observations

Safely manipulate materials to test ideas and predictions

Make and record simple measurements using informal or non-standard methods | Experience and interpret the local environment

Sort and classify data and information using drawings, pictographs and provided tables

Compare observations with predictions through discussion
• Identify simple patterns and connections | Compare observations with those of others

Consider some environmental consequences of their actions | Take part in caring for self, family, classroom and school through personal approaches

Transfer and apply learning to new situations

Generate and introduce new or refined ideas when problem solving | Communicate observations and ideas using oral or written language, drawing, or role-play

Express and reflect on personal experiences of place |
| **Seaquarium Links** | The Seaquarium is available as a year-long educational tool that is stocked with a diverse and local set of organisms
• Can be used as a launching pad for discussions and inquiry | The Seaquaria logbook holds records students make on the conditions of the ecosystem such as temperature and salinity | Students are also responsible for observing, recording, and reporting animal behaviours

The Seaquaria logbook provides a tables, drawings and pictographs students can use to sort and classify data. | Tank conditions such as temperature mimics the ocean and so changing 1 degree can have a huge impact on the health of the flora and fauna - which is the direction our global temperature is going

Great way to start a discussion around increasing temperature and the effect on animals in their Seaquarium | Students are responsible for the feeding, cleaning, and general care of the animals

Students are also responsible for observing, recording, and reporting any abnormal animal behaviours | Seaquaria is a great launching pad for project and discussion inspiration |

3-4	Demonstrate curiosity about the natural world Observe objects and events in familiar contexts Identify questions about familiar objects and events that can be investigated scientifically Make predictions based on prior knowledge	Suggest ways to plan and conduct an inquiry to find answers to their questions Consider ethical responsibilities when deciding how to conduct an experiment Safely use appropriate tools to make observations and measurements, using formal measurements and digital technology as appropriate Make observations about living and non-living things in the local environment Collect simple data	Experience and interpret the local environment Identify First Peoples perspectives and knowledge as sources of information Sort and classify data and information using drawings or provided tables Use tables, simple bar graphs, or other formats to represent data and show simple patterns and trends Compare results with predictions, suggesting possible reasons for findings	Make simple inferences based on their results and prior knowledge Reflect on whether an investigation was a fair test Demonstrate an understanding and appreciation of evidence Identify some simple environmental implications of their and others' actions	Contribute to care for self, others, school, and neighbourhood 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	Represent and communicate ideas and findings in a variety of ways, such as diagrams and simple reports, using digital technologies as appropriate Express and reflect on personal or shared experiences of place
Seaquarium Links	The Seaquarium is available as a year-long educational tool that is stocked with a diverse and local set of organisms • Can be used as a launching pad for discussions and inquiry Many Seaquarium organisms are	The Seaquarium houses live organisms making dialogue on ethical handling in class or independently on the beach relevant and necessary The Seaquaria logbook holds records students make on the	The Seaquarium reflects the local, coastal marine ecosystem The Seaquarium is a launching pad for First People's knowledge of local information Data collected from the Seaquarium (e.g. temperature) can be used for graphing and identifying patterns	The Seaquarium ecosystem is directly affected by student's interactions with it and can serve as a discussion point for exploring environmental implications of their actions Prior knowledge of animal care and beach exploration can help inform a student's interaction with the Seaquaria	The Seaquaria is useful for interdisciplinary teaching, encouraging students to transfer and apply learning to new situations Students have used the Seaquaria ecosystem as a topic for cooperatively designed projects	Students have used the Seaquaria as a subject for projects involving digital technologies (mini-movies), diagrams, reports, and presentations. Students have used the Seaquaria as the subject for regular journal writing and as a reflection on shared experiences of place.

| | commonly found on local beaches

Predictions of animal behaviour, algae lifespan, and water quality can be made throughout the year | conditions of the ecosystem such as temperature and salinity

Simple measurements of salinity, temperature, and overall conditions can be done with tools provided by Seaquaria (e.g. thermometer, hydrometer etc.) | | Observations of animal behaviour can enable the students to develop hypothesis for which they much research and look for evidence | Students are responsible for the feeding, cleaning, and general care of the animals

Students are also responsible for observing, recording, and reporting any abnormal animal behaviours | The ecosystem of the Seaquaria reflects the intertidal ecosystem that students may have a shared experience of. |

5-6	Demonstrate a sustained curiosity about a scientific topic or problem of personal interest Make observations in familiar or unfamiliar contexts Identify questions to answer or problems to solve through scientific inquiry	With support, plan appropriate investigations to answer their questions or solve problems they have identified Decide which variable should be changed and measured for a fair test Choose appropriate data to collect to answer their questions	Experience and interpret the local environment Identify First Peoples perspectives and knowledge as sources of information Construct and use a variety of methods, including tables, graphs, and digital technologies, as appropriate, to represent patterns or relationships in data	Evaluate whether their investigations were fair tests Identify possible sources of error Suggest improvements to their investigation methods Identify some of the assumptions in secondary sources	Contribute to care for self, others, and community 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	Communicate ideas, explanations, and processes in a variety of ways Express and reflect on personal, shared, or others' experiences of place
Seaquarium Links	Because the Seaquaria is present in the school year-round, students can demonstrate a sustained curiosity in the biology, chemistry, and mechanics of it. The Seaquaria becomes a familiar figure in the school community, and also encourages links between the familiar and the unfamiliar when students go on beach or nature field trips Observations of the Seaquaria can lead to identifying questions or problems to solve	Related experiments that the Seaquaria could serve as a backdrop for include ocean acidification, how chlorophyll reacts to different light, what is the preferred algae of a decorator crab, etc.	The Seaquaria acts as a snapshot of the local Salish Sea intertidal zone. Many of the animals and algae in the Seaquaria have long histories of use in First Peoples' cultures. Students can use a variety of methods to represent patterns or relationships of data observed in the Seaquaria, such as water temperature, water level, animal behaviour, algae decomposition	During Seaquaria related experiments, students can evaluate whether their investigations were fair tests, identify possible sources of error, etc.	The Seaquaria is useful for interdisciplinary teaching, encouraging students to transfer and apply learning to new situations Students have used the Seaquaria ecosystem as a topic for cooperatively designed projects Students are responsible for the feeding, cleaning, and general care of the animals Students are also responsible for observing, recording,	Students have used the Seaquaria as a subject for projects involving digital technologies (mini movies), diagrams, reports, and presentations. Students have used the Seaquaria as the subject for regular journal writing and as a reflection on shared experiences of place. The ecosystem of the Seaquaria reflects the intertidal ecosystem that students may have a shared experience of.

	through scientific inquiry				and reporting any abnormal animal behaviours	

7-8	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	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	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	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	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	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

				findings from their own and others' investigations		
Seaquarium Links	Because the Seaquaria is present in the school year-round, students can demonstrate a sustained curiosity in the biology, chemistry, and mechanics of it. The Seaquaria becomes a familiar figure in the school community, and also encourages links between the familiar and the unfamiliar when students go on beach or nature field trips Observations of the Seaquaria can lead to identifying questions or problems to solve through scientific inquiry	Related experiments that the Seaquaria could serve as a backdrop for include: ocean acidification, how chlorophyll reacts to different light, what is the preferred algae of a decorator crab, etc.	The Seaquaria acts as a snapshot of the local Salish Sea intertidal zone. Many of the animals and algae in the Seaquaria have long histories of use in First Peoples' cultures. Students can use a variety of methods to represent patterns or relationships of data observed in the Seaquaria, such as water temperature, water level, animal behaviour, algae decomposition	During Seaquaria related experiments, students can evaluate whether their investigations were fair tests, identify possible sources of error, etc.	The Seaquaria is useful for interdisciplinary teaching, encouraging students to transfer and apply learning to new situations Students have used the Seaquaria ecosystem as a topic for cooperatively designed projects Students are responsible for the feeding, cleaning, and general care of the animals Students are also responsible for observing, recording, and reporting any abnormal animal behaviours	Students have used the Seaquaria as a subject for projects involving digital technologies (mini-movies), diagrams, reports, and presentations. Students have used the Seaquaria as the subject for regular journal writing and as a reflection on shared experiences of place. The ecosystem of the Seaquaria reflects the intertidal ecosystem that students may have a shared experience of.

| 9-10 | Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest

Make observations aimed at identifying their own questions, including increasingly complex ones, about the natural world

Formulate multiple hypotheses and predict multiple outcomes | 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

Use knowledge of scientific concepts to draw conclusions that are consistent with evidence | 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 | 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 | 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 | 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 |

				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		
Seaquarium Links	Because the Seaquaria is present in the school year-round, students can demonstrate a sustained curiosity in the biology, chemistry, and mechanics of it. The Seaquaria becomes a familiar figure in the school community, and also encourages links between the familiar and the unfamiliar when students go on	Related experiments that the Seaquaria could serve as a backdrop for include: ocean acidification, how chlorophyll reacts to different light, what is the preferred algae of a decorator crab, etc.	The Seaquaria acts as a snapshot of the local Salish Sea intertidal zone. Many of the animals and algae in the Seaquaria have long histories of use in First Peoples' cultures. Students can use a variety of methods to represent patterns or relationships of data observed in the Seaquaria, such as water temperature,	During Seaquaria related experiments, students can evaluate whether their investigations were fair tests, identify possible sources of error, etc.	The Seaquaria is useful for interdisciplinary teaching, encouraging students to transfer and apply learning to new situations Students have used the Seaquaria ecosystem as a topic for cooperatively designed projects Students are responsible for the feeding, cleaning,	Students have used the Seaquaria as a subject for projects involving digital technologies (mini-movies), diagrams, reports, and presentations. Students have used the Seaquaria as the subject for regular journal writing and as a reflection on shared experiences of place. The ecosystem of the Seaquaria reflects the intertidal

	beach or nature field trips Observations of the Seaquaria can lead to identifying questions or problems to solve through scientific inquiry		water level, animal behaviour, algae decomposition		and general care of the animals Students are also responsible for observing, recording, and reporting any abnormal animal behaviours	ecosystem that students may have a shared experience of.