

What curriculum will be addressed?		
Understand	Big Ideas	The distribution of water has a major influence on weather and climate
Do	Curricular Competencies	<ul style="list-style-type: none"> · Seek and analyze patterns, trends, and connections in data, including describing relationships between variables, performing calculations, and identifying inconsistencies · Construct, analyze, and interpret graphs, models, and/or diagrams · Use knowledge of scientific concepts to draw conclusions that are consistent with evidence · Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modeled · Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and in primary and secondary sources · Implement multiple strategies to solve problems in real-life, applied, and conceptual situation formulate physical or mental theoretical models to describe a phenomenon · Communicate scientific ideas, 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 · Assess risks in the context of personal safety and social responsibility demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal, local, or global interest · Make observations aimed at identifying their own questions, including increasingly abstract ones, about the natural world · Experience and interpret the local environment · Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information
	Core Competencies	<ul style="list-style-type: none"> · Personal and Social Awareness and Responsibility · Communication · Creative and Critical Thinking
Know	Content	Oceanography and the Hydrosphere <ul style="list-style-type: none"> · The hydrologic cycle is driven by the transfer of energy within the atmosphere and hydrosphere · First Peoples perspectives and knowledge of ocean processes · Water is a unique resource and is found in many forms on Earth: <ul style="list-style-type: none"> — Fresh water — Salt water — Environmental concerns · Use of remote sensing and direct observation to determine the properties of the ocean and ocean floor · Ocean currents are dependent on salinity, temperature, and density · Oceans and lakes influence local and global climates · Water sources are affected by climate change · First Peoples knowledge of climate change and interconnectedness as related to environmental systems

What thinking habits, skills or strategies will help students develop understanding? How will you help uncover and support student thinking?	
<ol style="list-style-type: none"> 1. Research Skills <ul style="list-style-type: none"> • Students will undertake an Environmental Concern Research PSA in which they will have to take ownership of one of the main content points (Water is a unique resource – Environmental Concerns). This project touches on all of our approaches to learning we wish to focus on for this unit – Research, Communication, and Self-management. Students will have to create a PSA that is assessable and can be shared with the school/community (the format is up to them) 2. Communication <ul style="list-style-type: none"> • Students will have opportunities to collaborate and share their findings from assignments such as our Environmental Concern Research PSA. Students will also have the opportunity to engage in Scientific Argumentation following the Argument-Driven Inquiry model when learning about ocean currents and forces that drive our climate. 3. Self-Management <ul style="list-style-type: none"> • The summative assessment of the unit is a "Connection Journal" connecting classwork to the experiential field trip at Bamfield Marine Science centre. Students will have to maintain a level of activity throughout the unit working on the journal, manage time efficiently, and set goals and expectations for themselves and their learning. 	
What will count as evidence (success criteria) of understanding? How will this criteria be communicated to or created with students?	
<ul style="list-style-type: none"> • Students will be able to describe how the hydrological cycle works • Students will be able to identify local and global ocean currents and the factors affecting currents • Demonstrate understanding of oceans currents through the use of models and simulations based on temperature, salinity, density etc... • Students will be able to describe hydrological role in the earth's climate locally and globally • Students will investigate chemical, physical and biological ocean characteristics and relate its impact to the hydrological cycle/ocean currents and how a changing climate may be affect it. • Students will be able to describe the impact of a changing climate and how it may impact, ocean currents, ocean acidification, melting glaciers • Students will be able to investigate environmental concerns related to the hydrosphere • Students will become familiar with remote sensing and ocean floor topography • This will be communicated and created with students by setting clear expectations of learning outcomes and instructions for assignments. Teacher will also be incorporating student feedback during formative and summative assessments. 	
What essential or driving question will frame the learning?	How will students demonstrate or perform their understanding? (i.e. performance tasks, exhibitions, reports, portfolios, presentations, etc.)
<i>Guiding Questions:</i> <ol style="list-style-type: none"> 1. What major characteristics drive the hydrological cycle? 2. What is climate? What forces affect climate around the globe? Can we 	Students will demonstrate their knowledge and understanding through a variety of multi model interactive lessons including: <ul style="list-style-type: none"> • inquiry • place based learning

DESIGN FRAMEWORK FOR INNOVATIVE TEACHING AND LEARNER SUCCESS

<p>identify similar characteristics that shape climate/topography around the globe?</p> <p>3. How does the weather in coastal and inland communities compare?</p> <p>4. How will a changing climate impact the hydrosphere? What are possible effects (both local and global) of this change?</p> <p>5. How is the hydrosphere connected to other aspects of Earth? What does this interconnectedness mean in terms of sustainability and global challenges?</p> <p>6. What is oceanography and how has our understanding of it changed over time?</p> <p>7. How would Earth be different if we had more or less surface water?</p> <p>8. How is energy transferred between the hydrosphere and atmosphere? What does this mean for settlements and climate?</p>	<ul style="list-style-type: none"> • fieldtrips • assignments • projects • labs
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What FORMATIVE ASSESSMENT strategies will you use to evaluate student learning and adjust your teaching? Where will students have the opportunity to share their understanding in order to receive feedback, revise and improve?

Students will be assessed throughout the unit in a variety of formative assessments including:

- In class discussions
- Exit slips
- Activities/ Labs
- One on one discussions with students
- In class questions

Students will receive formative input through formal exit slips and activity feedback as well as regular informal feedback through discussions and questioning.

SCAFFOLDING LEARNING FOR STUDENT SUCCESS

<p>What are the possible ways students might become engaged or curious about this task?</p> <ul style="list-style-type: none"> • <i>Where does the topic 'live' in the world? Who are the current people working in this field?</i> • <i>Why would someone care about this topic? What do you find interesting?</i> • <i>What might students find interesting, controversial, or shocking?</i> • <i>How might the curriculum be turned into a problem, puzzle, or a decision to be made?</i> • <i>Where might students have the opportunity to predict, design, solve, test and/or improve their own ideas, theories, solutions or creations?</i> • <i>How might there be an authentic audience or purpose for the task?</i> • <i>How will you introduce the task and 'hook' the students?</i> 	<ul style="list-style-type: none"> • Students will be engaged in the course content as it is a part of their everyday life such as weather, climate, water • Promote importance of this topic through inquiry and discussions by getting them to discover how where they live may be different if certain aspects were to change • Students will engage in discussion of climate change and how those potential implications may impact their climate • Throughout the unit there will be opportunities for students to engage through in class activities, discussions, labs. Additionally students will develop an inquiry based research project to explore an area that interests them. • Students will be introduced to the content through an interactive outdoor intro lesson to explore their communities surrounding and why it is the way that it is
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MAKING LEARNING VISIBLE

<p>How might the PROCESS of learning be documented and valued?</p>	<ul style="list-style-type: none"> • The learning process will be documented through the unit through a learning journal, notes, designing labs and the final inquiry based project on impacts of climate change. • The final project and test will consist of the majority of the units mark percentage. Participation, smaller activities, exit slips and labs will consist of the remaining course marks.
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<p>What opportunities are there for developing literacy or numeracy skills or integrating Aboriginal Perspectives?</p>	<p>Bamfield field trip – Hike to Kiix'in with Huu-ay-aht guide (5500 year old village). Along the way learn about First Peoples Perspectives on the changing climate, local flora and fauna, and importance of this settlement. <i>(First Peoples knowledge of climate change and interconnectedness as related to environmental systems)</i></p>
<p>How will you provide opportunities for student voice and choice?</p>	<ul style="list-style-type: none"> • Students will have an opportunity to inquire about an environmental concern of their choice that interests them by researching their topic and presenting their knowledge in a format that best promotes their learning needs. • Students will be encouraged to engage during in class discussions, activities, labs and to ask questions during class time to help foster a sense of inquiry and curiosity that will help guide their research project

<p>How will student thinking and understanding be shared and improved by others? Is there a possible audience to share their learning with?</p>	<ul style="list-style-type: none"> • Students will have regular formative and summative assessments done by the teacher • Students will have opportunities to give feedback to each other during group projects, activities and discussions • Their term end project on an environmental concern will be presented to school to help students become invested in their own education and to share their knowledge with the students body of the school
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<p>How will the learning be made accessible for ALL students to succeed? (Universal design, differentiated instruction, learning supports, multimodal resources, etc.)</p>	<ul style="list-style-type: none"> • Learning will be made accessible through multi modal teaching practices such as: • Lecture • Videos • Interactive Activities • Inquiry based learning • Placed based learning • Experiential learning <p>There will be after class hours that students will be able to book with the teacher to receive additional support if needed</p>
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<p>How will you design opportunities for students to reflect on their learning?</p>	<ul style="list-style-type: none"> • Self-assessment on inquiry project • Bamfield field trip journal and resource creation (Connection Journal – Summative) • Environmental Concern PSA • Student worksheet/quiz question development
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