

Design Framework for Innovative Teaching and Learner Success

What curriculum will be addressed?		
UNDERSTAND	Big Ideas	The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them.
DO	Curricular Competencies	Transfer and apply learning to new situations; Contribute to care for self, others, community, and world through individual or collaborative approaches; Communicate scientific ideas, claims, information, and perhaps a suggested course of action, for a specific purpose and audience; Make observations aimed at identifying their own questions about the natural world.
	Core Competencies	- Communication: presentations, written work, using technology - Thinking: researching, critically analyzing information - Personal & Social: collaboration, reflection on learning
KNOW	Content	- Effects of solar radiation on the cycling of matter and energy - Matter cycles within biotic and abiotic components of ecosystem - Sustainability of systems - First peoples knowledge of interconnectedness and sustainability

What thinking habits, skills or strategies will help students develop understanding? How will you help uncover and support student thinking?
- Compare & Contrast - Analysis - Cause and Effect - Concept Maps - Discussion - Critical thinking about research - Brainstorming as a group This will be uncovered and supported through modeling for the class, providing real-life examples, and scaffolding (providing prompts and more structure when starting out).

What will count as evidence (success criteria) of understanding? How will this criteria be communicated to or created with students?	
- portfolio of notes/pictures/drawings of spheres and interactions from nature walks, field trips, or other times. Students can write a reflection on the developments of knowledge and understanding relating to these documents in the portfolio. - knowledge of the spheres and cycling of energy and matter. Assessed through projects, quizzes/tests, and formative assessment. - Implement and apply knowledge and understanding to projects, and when reflecting on field trips and other real-life situations. - Criteria for projects and portfolio developed with input from students	
What essential or driving question will frame the learning? Overarching theme: Earth's Interconnectedness Essential Questions: What are the conditions for life on Earth? How do the different spheres interact? What are First People's view of the interconnectedness of spheres? (do we need this here?)	How will students demonstrate or perform their understanding? (ie, performance tasks, exhibitions, reports, portfolios, presentations, etc) - portfolios - presentations - quizzes and tests - service learning project (community)

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?
- Project check ins in-person - Rough drafts of proposals - Portfolios - Self assessments - Peer assessments - Entrance slips - Exit slips - Plickers - Mini-white boards - Think/Pair/Shares - Class discussion

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SCAFFOLDING LEARNING FOR STUDENT SUCCESS

What are possible ways students might become engaged or curious about this task?

- *Where does the topic 'live' in the world? Who are the current people working in this field?*
- *Why would someone care about this topic? What do you find interesting?*
- *What might students find interesting, controversial or shocking?*
- *How might the curriculum be turned into a problem, a puzzle or a decision to be made?*
- *Where might students have the opportunity to predict, design, solve, test and/or improve their own ideas, theories, solutions or creations?*
- *How might there be an authentic audience or purpose for the task?*
- *How will you introduce the task and 'hook' the students?*

- local, relatable
- student choice
- field trips outside
- planning how to be involved in a sustainability initiative that will actually be put into action
- use of technologies for virtual field trips and videos
- "controversy" of climate change
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What opportunities are there for developing literacy or numeracy skills or integrating Aboriginal Perspectives?

- researching develops reading and analysis skills
- projects emphasize communication (verbal, written, technological)
- technological literacies in virtual field trips, portfolio options (instagram, blog, etc)
- Aboriginal perspectives: the concepts of interconnectedness and sustainability are central to the whole unit's holistic approach to studying earth systems. Aboriginal knowledge and perspectives can be options to explore in projects. There is also a fish farms inquiry-based project that integrates Aboriginal knowledge.

How will you provide opportunities for student voice and choice?

- In the hook activity students can choose how they record their observations
- In the community service proposal, students can choose an initiative that interests them. They will then have the opportunity to vote to choose which project they would like to take on.
- In the Aboriginal fish farm project students can choose how they want to present their research

How will the learning be made accessible for ALL students to succeed? (universal design, differentiated instruction, learning supports, multimodal resources, etc)

- choice of how to show learning through projects, presentations, and portfolio
- learning in different environments: in class, field trips, at home, virtual
- multimodal learning through watching, reading, listening, games and other activities, experiencing, doing (putting knowledge into practice)
- showing learning through technology (or the option to use it)
- scaffolding collaboration and group work through assigning roles

MAKING LEARNING VISIBLE

How might the PROCESS of learning be documented and valued?

- portfolio material gathered throughout unit
- reflections on development of understanding and knowledge
- being able to apply knowledge and understanding to real-life situations, including field trips, projects, and service learning opportunities.

How will student thinking and understanding be shared and improved by others? Is there a possible audience to share their learning with?

- class presentations: can get feedback and be asked questions
- group work: discussions, peer-assessment
- service learning project will be voted on, improved on by the whole class, and the audience is the whole school community potentially who will get involved.
- portfolios can be shared with parents/guardians and others, which is especially relevant if done using technology/social media

How will you design opportunities for students to reflect on their learning?

- self assessment
- portfolio development and reflections/summaries
- check-ins with teacher throughout unit
- exit slips
- entrance slips