

Grade Level: 4 (9-year-old students)

Transdisciplinary theme:

Sharing the Planet: *An inquiry into the current use of renewable and non-renewable resources and the consequences of their use in the world today; the problems created by humankind's use of different types of energy; recognizing the problems we face today, as well as those we will face in the future, and begin to think creatively about possible solutions.*

Central idea

Consumption of finite resources impacts the sustainability of our Earth.

Curriculum Guidelines or Learning Objectives:

In this unit students will:

Learn about renewable and non-renewable resources.

Explain the benefits and drawbacks of using non-renewable energy sources.

Explain the benefits and drawbacks of using renewable energy sources (i. e. wind, turbines, hydroelectric dam, geothermal plant, solar panels.)

Create a solution to a real-world problem using renewable energy.

Prior Learning:

Students have already completed activities that demonstrate their understanding of natural resources, difference between renewable and non-renewable resources and the concepts of Reduce, Reuse and Recycle. The activity mentioned below will help them enhance their understanding of renewable and non-renewable resources by identifying products made using both types of resources.

Learning Outcome and ATL:

<i>Lesson specific Learning Outcome (2 Lessons)</i>	<i>Activity to demonstrate success (Success Criteria)</i>	<i>ATL Skill Developed</i>
<i>Lesson 1: 45 minutes</i> <i>At the end of this lesson students will be able to identify products made with non-renewable resources.</i> <i>Subject: Science</i>	<i>Students will create a resource to product book where they will either draw or paste pictures of the resources such as plants, trees, water, fossil fuels and of the products that are made using these resources.</i>	<u>Research Skills – Information-literacy skills</u> – <i>Students will practice this skill while gathering information about the non-renewable resources and the products made by using these resources. Furthermore, they will practice planning, recording, and communicating skills.</i>
<i>Lesson 2: 45 minutes</i> <i>At the end of this lesson students will be able to identify products made with renewable resources.</i> <i>Subject: Science</i>	<i>Students will create a resource to product book where they will either draw or paste pictures of the resources such as plants, trees, water, fossil fuels and of the products that are made using these resources.</i>	<u>Research Skills – Information-literacy skills</u> – <i>Students will practice this skill while gathering information about the non-renewable resources and the products made by using these resources. Furthermore, they will practice planning, recording, and communicating skills.</i>

<p><i>Lesson 3: 45 minutes</i></p> <p><i>Students will be able to use information and knowledge gathered about renewable and non-renewable resources to persuade parents to use energy efficiently</i></p> <p><i>Subject: Literacy – Writing</i></p>	<p><i>Students will write a persuasive letter to their parents encouraging them to take steps to save fossil fuels. Students will write letters to their parents persuading them to do one of the following:</i></p> <ol style="list-style-type: none"> <i>1. Walk or cycle to school and office at least twice a week.</i> <i>2. Reduce the usage of air conditioners and heaters</i> <i>3. Save electricity – suggest ways that this can be done.</i> 	<p><u>Research Skills – Information Literacy – Synthesizing and Interpreting</u> – <i>Students will use critical literacy skills to analyze the information on the usage of fossil fuels, interpret the information and then use <u>Evaluating and Communicating Skills</u> to draw conclusions and present the information in their letter.</i></p> <p><u>Communication Skills – Literacy</u> – <i>Students will practice using an appropriate form of writing, a persuasive letter in this case, and learn to organize information logically during this exercise.</i></p>
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<i>ATL Skill</i>	<i>Explicit Teaching</i>
<p><i>Research Skills – Information–literacy skills</i></p>	<ul style="list-style-type: none"> <i>• Give students a list of websites to read articles from.</i> <i>• Model planning by creating a table with clearly labelled columns.</i> <i>• Read one article with the students and model note taking by writing down the important information in the table.</i> <i>• Analyze and interpret the information provided.</i> <i>• Model communication of information gathered by taking one resource, drawing, painting or cutting and pasting the picture. Then clearly mention the name of the resource, type of resource, products made and uses of the products.</i>
<p><i>Research Skills – Information Literacy – Synthesizing and Interpreting and Evaluating and Communicating</i></p>	<ul style="list-style-type: none"> <i>• Teach persuasive writing with an anchor chart.</i> <i>• Refer to the Resource to Product Book and one fossil fuel.</i> <i>• Write an example of a powerful introduction with a claim.</i> <i>• Write an example of one reason to support the claim and back this with evidence from the research.</i> <i>• Discuss possible conclusions by giving examples of restating the claim and summarizing the reasons.</i>

Assessment Tool:

This tool will be used for Peer Assessment. Students will evaluate one classmate's research and findings.

Research Rubric			
Criteria	Above Expectations 3	Meets Expectations 2	Needs Improvement 1
Planning	The student created a well-planned document to collect meaningful data to support evaluation, synthesization and communication of information.	Student created a document to record findings but some of the information was difficult to decipher.	The student did not create a purposeful and meaningful document to record findings.
Resources for Information	The student used websites beyond the list provided to obtain information.	The student used all the websites provided in the list to gather information.	The student used only one website to obtain information.
Recording Information	The student clearly recorded all the information gathered and the columns were complete. Student recorded additional information which would help the analysis of the usage of the product.	The student recorded the information collected clearly but did not record any additional information.	The student haphazardly recorded information and the recording lacked clarity.
Communicating Information	The Resource To Product book is well presented and the information provided is clearly communicated in an appealing manner (colorful pictures or drawings, neat handwriting, and creative presentation.)	The Resource To Product book is well presented and the information provided is clearly communicated but lacks visual appeal (Little or no color, handwriting is clear but not spaced out and too much information on one page.)	The Resource To Product book is incomplete, does not provide complete information and lacks visual appeal (no color, untidy handwriting and too much information on one page)

This part of the assessment will be carried out by the teacher, me, in this case.

Persuasive Letter Rubric			
Criteria	Above Expectations 3	Meets Expectations 2	Needs Improvement 1
Parts of the Letter <i>Communication Skills – Literacy</i>	The letter has a clear introduction, body, which comprises of three reasons supported by evidence, and a conclusion.	The letter has an introduction, body, which comprises of less than three reasons supported by evidence, and a conclusion.	The parts of the letter are unclear
Introduction	Includes a greeting, the purpose of the letter and a clear persuasive statement/claim.	Includes the purpose of the letter and a persuasive statement/claim.	The letter does not have a clear persuasive statement or claim.

Reasons	Three reasons are clearly stated and supported by evidence.	Less than three reasons are stated and supported by evidence.	Three reasons are stated but there is no evidence to support the reason.
Conclusion	The letter has a powerful conclusion that summarizes all reasons given, restates the claim, and has a call to action.	Conclusion summarizes all reasons given, restates the claim.	Conclusion restates only the claim but does not summarize the reasons.
Structure	All paragraphs are four or more sentences long.	One or more paragraphs are less than four sentences long.	The letter does not have clear paragraphs.
Transitions	Letter includes transitions for every reason, the conclusion, and shift in examples/thinking.	Letter includes transitions for every reason.	One or more transitions are missing.
Spelling and Grammar	The letter has correct spelling, punctuation and grammar	The letter has more than one spelling mistakes and grammatical errors.	There are many spelling, punctuation and grammatical errors.
Research Skills – Information Literacy – Synthesizing and Interpreting (Refer to “Reasons” above)	Information presented in the letter clearly demonstrates a deep understanding (supported by detailed evidence) of the ill effects of the usage of fossil fuels. Knowledge acquired during research has been meaningfully transferred to the letter.	Information presented in the letter clearly demonstrates an understanding of the ill effects of the usage of fossil fuels. Knowledge gathered during research has been transferred to the letter.	Information presented in the letter does not adequately demonstrate an understanding of the ill effects of the usage of fossil fuels. The letter does not adequately transfer knowledge gathered during research.
Research Skills – Information Literacy – Evaluating and Communicating Skills	The letter has a powerful conclusion that summarizes all reasons given, restates the claim, and has a call to action.	Conclusion summarizes all reasons given, restates the claim.	Conclusion restates only the claim but does not summarize the reasons.