Integrated Lesson Plan

Introduction

This lesson is prepared for an English speaking Grade 4 classroom. The lesson and activity can accommodate a class of 24+ as long as enough materials are procured for the science activity. Accommodations are available for a variety of learning styles and physical abilities. The main activity will be done in a small group setting that allows for students to take on roles and responsibilities that meet their strengths and needs.

Name	Taylor Rhedey	**Date**	
Lesson Plan Title	Pollution and Habitat Loss	**Lesson # in unit (approx)**	5
Subjects	Science Social Studies	**Grade/level**	4
Strand	**Social Studies** B. People and Environments: Political and Physical Regions of Canada **Science** B. Life Systems: Habitats and Communities	**Class length** (minutes)	75 mins
Location	Classroom Activity		

Planning Stage One: Desired Results

Brief Description

Students will consider the human impact on water habitats and how our pollution affects the wildlife that lives there. They will engage in a hands-on activity to show how difficult it may be to solve a pollution problem once it has happened. They will also consider how they can balance the needs of humans with environmental stewardship in real world contexts.

Lesson's Guiding Question (What question will students be able to answer at the end?)

How do human activities contribute to ocean pollution and how does this affect marine life?
How can we minimize our negative impacts on the ocean environments?

Overall & Specific expectations for this lesson (Numbers and descriptions from Ministry documents)

Science

Overall Expectations
B1. Relating Science and Technology to Our Changing World: assess impacts of human activities on habitats and communities and analyse actions for minimizing negative impacts and enhancing positive ones

Specific Expectations
B1.1 assess positive and negative impacts of human activities on habitats and communities, while taking different perspectives into account

Social Studies

Overall Expectations
B2. Inquiry: Balancing Human Needs and Environmental Stewardship: use the social studies inquiry process to investigate some issues and challenges associated with balancing human needs/wants and activities with environmental stewardship in one or more of the political and/or physical regions of Canada

Specific Expectations
B2.1 formulate questions to guide investigations into some of the issues and challenges associated with balancing human needs/wants and activities with environmental stewardship in one or more of the political and/or physical regions of Canada
B2.5 evaluate evidence and draw conclusions about issues and challenges associated with balancing human needs/wants and activities with environmental stewardship in Canada
B2.6 communicate the results of their inquiries using appropriate vocabulary

Prior Knowledge Activation (Prior to this lesson, students will have...)

- An understanding of habitats and communities and how animals depends on this to survive
- An understanding of Environmental Stewardship and how human can impact the environment both negatively and positively

Planning Stage Two: Learning experience and instruction

Learning Goals:	**Success criteria:**
Discuss with students & post: **1. Learning Intentions** Today I will: ● Consider how I, and other humans, contribute to the ocean's pollution. ● Evaluate how to be a responsible citizen **2. Why?** ● To play a part in preventing pollution and helping to preserve natural habitats	**Success Criteria for this Lesson:** Students will be able to explain how humans contribute to pollution in the oceans and why this occurs Students will be able to successfully demonstrate how oil is not easily separated from water and effective methods to begin separating them

Work Skills and Habits (Check ✓ those addressed in this lesson)		**Learning Environment**
	Responsibility	- Students will be grouped in random grouping of 4 using a playing card deck. The same number cards will form the group of 4 - Tables will be placed in groups - Materials will be sorted into groups and one student will be asked to pick up their materials from the front when appropriate
	Organization	
X	Independent Work	
X	Collaboration	
X	Initiative	
X	Self-Regulation	

Resources and Materials (What do you need for this lesson? (e.g., YouTube clip, chart paper, markers)	**Technology Integration** (Will students need personal devices and/or internet connections?)
- Pictures of the Oceans, animals who live in the oceans and human activity on the oceans, pollution - Aluminum Food Trays - Water - Vegetable Oil - Liquid Dish Soap - Paper Towel - "Clean Up Tools" (cotton balls, sponges, spoons, cloth etc.)	N/A

Planning Stage Three: Three-Act Lesson Plan

Mind's On

Timing: (Number of minutes)	10 minutes

- Display images on the screen, discuss and have students identify:
    - oceans that border Canada
    - animals that live in the waters that border Canada
    - human activity on the water (i.e shipping boats, plastic pollution, oil spills etc)
- Have an open discussion on the images and on how we use our oceans and what we can accidentally leave behind that may affect the animals, plants and habitats.

Action

Timing: (Number of minutes)	15 minute Instruction 25 minute Experiment

- **Direct Instruction**
    - Types of water pollutants and where they come from (Solid (plastic, fishing nets), Chemical, Liquid (oil))
    - Discuss impact of these pollutants on ocean life - How does oil affect birds and fishing nets or plastic affect turtles)
    - Introduce the experiment - Students will act as an emergency response team tackling an oil spill in our waters
- **Pollutant Experiment**
    - *Setup*: fill container half full with water - teacher to circulate and pour small amount of vegetable oil into the water, ask students what they notice about the properties of the oil
    - *The Challenge*: Use the tools provided to attempt to remove the oil. They must try not to remove water as much as possible
        - Oil will cling and stick to tools and too much water will have to be removed to make an impact - ask about the effectiveness of the tools and their observations
    - *Extension*: Add single drop of dish soap to the oil, have students observe its effects

(emulsification)
    - Ask how the detergent changes the oil? What happened? Will it be easier to remove the oil now?

Consolidation

Timing: (Number of minutes)	25 mins

- Discussion of Experiment finding
    - What did you observe about trying to clean up the oil? Do you think prevention is more effective than clean-up? Why?
- Discussion on how to minimize negative human impact and balancing human needs (Science B1, Social Studies B2)
    - What are the challenges and how can we make an impact in our daily lives?
- *Journal Reflection*: Have students write a journal entry encourages critical thinking on their observations or using a provided prompt:
    - What actions can we take to enhance our positive impacts and why is protecting our oceans important?

Assessment Tools

Assessment FOR/AS/OF learning:

- **Assessment FOR/AS:** Observation - circulate during experiment, checking for collaboration, reflection, connections and extending their learning and inquiry during the process
- **Assessment AS/OF:** Reflective Journals - Checking for understanding and connections between the experiment and global citizenship and sustainability

Accommodations:

- Pre-teach vocabulary and place definitions in a visible space for reference
- Break down the experiment into small steps which are written on the board for reference
- Offer variety of tools for fine motor abilities
- Offer alternative reflection methods, such as recording their responses or drawing solutions

Extension Idea:

- Design an invention that could help to eliminate oils in the oceans
- Use this format to explore how plastics affect marine wildlife - netting and plastic bags etc
- Extend to environmental stewardship - Create an Action Plan poster for a cause or organization they researched and includes at least one action students in the school can make

Post Lesson reflection: WWW (What went well, if applicable)?

Post Lesson reflection: (EBI) (Even Better If, if applicable)?