**Outcome(s) of Lesson: Grade 8 Science Unit E Freshwater and Saltwater Systems**

- SLE 4. Analyze human impacts on aquatic systems; and identify the roles of science and technology in addressing related questions, problems and issues.
  - Identify major factors used in determining if water is potable, and describe and demonstrate tests of water quality.

**How will I know the students have achieved the learning outcome?**

- (Introductory Lesson) – However notes and conversational participation will indicate understanding.
- Written responses on worksheet will provide formative feedback on where to begin scaffolding for unit objectives.

**HOOK:**

- [https://www.sacredrelationship.ca/documentary/](https://www.sacredrelationship.ca/documentary/)
  - Water Sacred Relationship Video (52mins) – (Download and crop around key points)
    - Albertan made documentary on sacred relationship between Indigenous culture and water.
    - Students are instructed to take notes while enjoying video of interesting facts and opinions.
      - Inform students notes will be handed in for participation marks.

**Learning Opportunities:**

<table>
<thead>
<tr>
<th>Time</th>
<th>Learning Opportunity</th>
<th>How do I check that students understand what to do?</th>
</tr>
</thead>
</table>
| 20   | Use *As Big as The Sky, As Tall as the Trees* illustrated book as a backdrop while discussing documentary.  
  - Share - (*B=Illustrated Book, D=Documentary)  
  **Teacher will pose a statement highlighted in *As Big as the Sky*... and students will share notes and thoughts (from the documentary) associated with bold statements.**  
  - Sharing will be done in Round Robin style (Kagan Structure) with their table groups.
    - **Statement 1.** (B p.6-7) Mother Earth is home to creation and connects us all.
      - Possible notes from Documentary.
      - (D) Indigenous culture believes we are all interconnected through nature.
      - (D) Everything thrives and survives due to relationship
        - Creator and People | Heads down – Thumbs Up. |
|      | **Materials Needed** | |
|      | - *As Big as The Sky, As Tall as the Trees*  
  - Water Testing Kits  
  - Water Quality Testing Worksheet |
- People and Mother Earth
  - (D) All gifts from the creator deserve our respect
  - (D) We must take care of the Creator gifts for we depend on them
- (B p.16-17) **Water is a most important gift. It gives and sustains life for all living things.**
  - (D) Water can wash away sickness and purify the body
  - (D) Water brings life to your table
    - Animals (Meat) require water to survive
  - (D) Water is tantamount to survival
- (D) **For thousands of years Aboriginals sought balance with the natural world**
  - (D) They believe that everything was created in balance
  - (D) Water is like the heart and veins of our planet
- (B p.26-27) **Mother Earth’s Heart beat is like the sound of a rushing river**
  - (B) She is all around us and we must take care of her gifts, so her song can be strong and continue to sing for years to come.

Pose Inquiry Based Question to class: **How well do you think we are doing at keeping the balance? Explain or give an example of why you have come to your conclusion.**
  - Think Pair Share using Stand Up, Hand Up Pair Up to find a partner.
  - (Movement break)
  - Repeat as necessary

Give students instructions for next week experiment. **Let’s find out how well we are taking care of the water sources around us.**
  - Students are asked to retrieve water samples from local sources and bring them to class in Tupperware.
    - Water should not be from a tap but can be from any other source.
      - Ex. Pond, Stream, River, Lake, Puddle
      - Send home form/email directing parents to ensure safety when collecting samples.
  - Students will complete **Water Quality Testing** worksheet as an introduction to an Analyzing the human impact on aquatic systems unit.
    - Using some water testing kits students will measure:
      - Alkalinity
- Ammonia
- Carbon dioxide
- Chlorine
- Nitrite and Nitrate
- Dissolved oxygen
- pH
- Phosphorus
- Turbidity

- They will then hypothesize what each sample could be used for and ways in which each sample could be improved.

Resources Courtesy of:
- [https://www.sacredrelationship.ca/documentary/](https://www.sacredrelationship.ca/documentary/)

Further Information:

**How do I differentiate the learning opportunity for all learners?**

Offer note taking strategies:
- Mind mapping
- Using I-pads
- Bullet point
- Sketching

Video could be watched individually.

**CLOSURE:**

- Send home form to parents concerning water collection.
- Have students reflect on possible solutions to decrease water pollution. May ask guardians/siblings/peers/adults.
### Lesson Plan Analysis: Using your lesson above, describe the following: (This information must be in your learning opportunities)

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accommodations</strong></td>
<td>Video is available in Closed Captioning.</td>
</tr>
<tr>
<td></td>
<td>Headphones available for individual focus.</td>
</tr>
<tr>
<td></td>
<td>Additional water samples should be brought by teacher for students unable to retrieve their own.</td>
</tr>
<tr>
<td><strong>Cooperative Learning Strategies used</strong></td>
<td>Round Robin</td>
</tr>
<tr>
<td></td>
<td>Think Pair Share</td>
</tr>
<tr>
<td><strong>Movement Breaks</strong></td>
<td>Stand Up Hand Up Pair Up</td>
</tr>
<tr>
<td><strong>Modes of Learning (Differentiation)</strong></td>
<td>V – Visual Component – Video <em>Water Sacred Relationship</em></td>
</tr>
<tr>
<td></td>
<td>A – Audio Component – Round Robin Activity</td>
</tr>
<tr>
<td></td>
<td>R – Reading Component – <em>Water Quality Testing</em> worksheet</td>
</tr>
<tr>
<td></td>
<td>K – Kinesthetic Component – Students must retrieve water samples from Neighborhood</td>
</tr>
<tr>
<td><strong>Higher Order Question(s)</strong></td>
<td>What key to our survival according to Indigenous Culture? Ex. Relationship, Balance</td>
</tr>
<tr>
<td></td>
<td>What steps can we take as individuals to achieve better balance with the gift of water?</td>
</tr>
</tbody>
</table>