Lesson Two: Resource Responsibility

Grade Level: 2nd Grade

Time: 1 hour

Essential Question: How can we be stewards of Wyoming's minerals and energy to benefit current and future generations?

Objective: Students will participate in an activity to simulate consumption of nonrenewable natural resources by taking an unlimited amount of a "nonrenewable resource" to demonstrate overuse and what happens when a resource runs out.

Purpose: Students learn that nonrenewable natural resources are limited and must be conserved because consumption and distribution can impact current and future generations.

Required Materials/Resources:

- Wyoming's Natural Resources PowerPoint presentation (Sources 1-3)
- Chart paper
- Sticky notes (three per student)
- 4 different colored 4-8-ounce cups (enough cups of each color for one cup per student per group)
- Four bags of microwave popcorn or large bag of pre-popped popcorn
- Large bowl/container to hold popcorn
- Paper plates or paper towels to set "mined" popcorn upon at student desks (one per student)
- Timer
- Lesson 2 Sentence Stem sheet (one per student)

TEACHER NOTE:
Call and ask your local movie theatre if they will donate a large bag of popcorn for this activity.
Another option instead of using popcorn or any other food item is to use building blocks, counters, or other materials that students can scoop up easily.

Suggested Teacher Preparation:

- Read the Wyoming's Natural Resources Power Point presentation
- Prepare 3-column anchor chart labeled "What uses oil? What uses electricity? What uses natural gas?"
- Prepare popcorn, and portion a small amount to supplement after generation one collects their popcorn. (step 3)
- Keep some popcorn back from the activity, so all students will get some after the activity.
- Divide class into four equal groups.
- Designate an observation area in the classroom where each "generation" will show their "mined" popcorn.

Standards:

Social Studies: SS2.5.4 (Practiced/Encountered)

ELA: 2.W.8, 2.SL.1, 2.SL.6 (Practiced/Encountered)

CVE: CV5.3.1 (Practiced/Encountered)

Vocabulary:

- **Conservation** - the careful utilization of a resource in order to prevent waste and leave some for future generations.
- **Energy** - power derived from the utilization of natural resources, especially to provide light and heat or to power machines, usable power
- **Generation** - a group of individuals, most of whom are the same approximate age
- **Natural resources** - sources of life, materials, or energy that we are able to get naturally from the earth
- **Nonrenewable resources** - resources that cannot be replenished (made again) in a short period of time
- **Reclamation** - the act of returning something to its former or better state

- **Renewable resources** - resources that are capable of being replenished

Instructional Procedure/Steps:

1. Project and read aloud the Wyoming's Natural Resources PowerPoint presentation. When finished, have students turn and talk in pairs about the three following questions:
    - **"What uses oil?"**
    - **"What uses electricity?"**
    - **"What uses natural gas?"**

    When students are finished discussing, pass out three sticky notes to each student. Have students write a response to each question on a sticky note and place them on the 3-column anchor chart. After students have posted their notes, discuss the questions below with the whole group.

    - "**Why do lights in our home or school come on?"** *They are powered by electricity that comes from coal.*
    - "**What makes our cars run?"** *They run on gasoline or diesel that comes from oil.*
    - **"How do we make our homes warm?"** *Heat comes from either using natural gas mined from the ground or electricity that comes from coal.*

2. Divide students into four equal groups. Give each group a different colored cup. Pass out paper plates or paper towels. Display the bowl/container of popcorn. Do not answer any questions about what the cups or popcorn represent.

3. Choose one group of students to use their cups and gather popcorn. Say: **"You may take as much popcorn as you can in 20 seconds. You are generation one. You may make multiple trips if you would like within your allotted time. Put the popcorn on your desks. Do not eat the popcorn."** Have generation one collect their

TEACHER NOTE: This activity will begin to illustrate the idea of how nonrenewable natural resources are limited. If previous generations are not concerned with the conservation of these resources, they will eventually run out. Future generations will struggle with limited or no access to these resources at all.

popcorn. When generation one is finished, add 5-10 kernels of popcorn back to the bowl/container. Say: "**I am doing this because nonrenewable resources can be made again, but they do not do it fast enough to make enough to replace what is being used."** Have one student from the group bring his/her popcorn to the designated observation area, so all students in the class can see. Say: **"Silently make observations in your mind about what you noticed and how you felt when the generation was collecting popcorn. You will be able to share out your observations soon."** Repeat the process three more times. Generation two gets 15 seconds to take as much popcorn as they can. Once the 15 seconds are up, generation three gets 10 seconds to take as much popcorn as they can. Finally, generation four can use 5 seconds to get as much popcorn as possible with whatever is left within the time limit.

4. Make NEW groups of students with one representative from each generation to debrief the activity. Have each student share their thoughts about the following questions:

    - **"What did you notice?"**
    - **"How did this activity make you feel?"**

    As a check for understanding, listen to see if students recognize that early generations must leave some popcorn for later generations to enjoy.

5. Pull the class back together and say: "**The popcorn represents a nonrenewable natural resource that exists in a limited quantity and cannot be replenished. The first group was the first generation to have access to the resource, the second group was the next generation, and so on".** Have students compare their feelings from the activity. Ask the questions below allowing students to respond before

moving on to the next question.

- **"Who felt like they got enough of the resource?"**
- **"Who felt they did not get enough?"**
- **"Was there a lot of popcorn remaining or only a little?"**
- **"Was there any left by the time the fourth generation gained access to the nonrenewable resource?"**

Assessment: Ask: "**How is this activity a possible model for conservation?"** Guide students to developing the concept that conservation is *the careful utilization of a resource in order to prevent waste and leave some for future generations*. Make sure to inform students that there are some nonrenewable resources that will be mined for hundreds of years because there is so much of it in the earth. However, it is still important to conserve these resources. This is being a steward of Wyoming's minerals and energy to help benefit current and future generations. When finished discussing, add the term Conservation to the vocabulary anchor chart. Pass out the Sentence Stem sheet which asks students to complete the stem: Conserving resources is an important way to be a Wyoming steward because _____. When students are finished, collect sheets. Students' responses should emphasize that *it leaves resources for future generations.*

Credits/Sources:

1. Wyoming Mining Association. (2017). Retrieved July 24, 2017 from https://www.wyomingmining.org/
2. U.S. Department of Energy. ENERGY.GOV. (n.d.). *Department of Energy: Fossil*. Retrieved September 27, 2017 from https://www.energy.gov/science-innovation/energy-sources/fossil
3. Photo credits are listed in the PowerPoint presentation.