Lesson Three: What's the Difference? Nonrenewable and Renewable

Grade Level: 2nd Grade

Time: 30-45 minutes

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

Objective: Students will sort pictures of renewable or nonrenewable resources found in Wyoming to determine the difference between them.

Purpose: Students learn the difference between renewable and nonrenewable natural resources found in Wyoming.

Required Materials/Resources:

- Wyoming Resource picture cards (one set per small group)
- Draw and Write assessment sheet (one per student)

Suggested Teacher Preparation:

- Prepare materials listed above for the lesson.

Standards:

Science: 2-ESS1-1(CCC) - (Practiced/Encountered)

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

Vocabulary:

- **Coal** - a black/dark brown rock made from old plant matter found mainly underground. Coal is mined and used as fuel.
- **Energy** - power derived from the utilization of natural resources, especially to provide light and heat or to power machines, usable power
- **Gasoline** - a by-product of oil that is used for fuel in most cars and vehicles
- **Hydropower** - electricity produced from machines that are run by moving water
- **Mineral** - a substance (such as quartz, coal, petroleum, salt, etc.) that is naturally formed under the ground
- **Natural gas** - odorless gas that is taken from under the ground and used as fuel and used to make materials
- **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
- **Oil** - a natural liquid formed from plants and animals that lived millions of years ago that can be refined into gasoline, diesel fuel, jet fuel, wax, asphalt, and many other valuable products
- **Reclamation** - the act of returning something to its former or better state
- **Renewable resources** - resources that are capable of being replenished
- **Trona** - a gray mineral that occurs as an evaporate in salt deposits and consists of a hydrated carbonate and bicarbonate of sodium

TEACHER NOTE: Continue to add new words to vocabulary anchor chart as they are introduced in the lesson/unit.

TEACHER NOTE: The sorting activity will provide students with background knowledge needed to differentiate between a renewable and nonrenewable resource.

Instructional Procedure/Steps:

1. Review the previous lesson by asking: **"What do we know about a nonrenewable resource?"** *Nonrenewable resources can be depleted and are not capable of being replenished in a short period of time.* Ask: **"What do you think a renewable resource is?"** *A resource that can be*

renewed. Discuss the difference between renewable and nonrenewable resources. Make sure students understand that just because a resource is renewable does not mean that the resource is guaranteed. For example, a drought will affect energy provided by water and a cloudy day affects solar power.

2. Say: **"Renewable resources can be replenished meaning they come back. Nonrenewable resources are natural resources that cannot renew themselves as quickly as we use them; they will run out over time."** Discuss what properties of a resource make it renewable or nonrenewable. For example, wind is continuous, so it is a renewable resource. Coal is developed by matter that has been decaying over millions of years under great pressure; this is a nonrenewable resource as it is not something that is continuously supplied.

3. Place students into small groups of 3-4. Give each group a set of the Wyoming Resource picture cards. Say: "**For each resource, decide whether it is renewable or nonrenewable and why."** Have groups discuss their choices. Encourage student discussion by asking groups to defend their reasoning and about what type of tools and equipment they think are used to access each type of resource.

4. When all groups have finished sorting, play a game of "pick a side." Designate one side of the classroom as the renewable resource side and the other side of the classroom as the nonrenewable side. Holding up one of the picture cards at a time, ask students: **"Is this resource renewable? Why or why not?"** Each student will then walk over to the side they think that natural resource belongs to. Call on students to supply reasons for why they chose the side they did with the whole group.

TEACHER NOTE: It is important to avoid the misconception that there is a right or wrong answer. All natural resources found in Wyoming are used in a variety of ways and are important to our state.

5. After all picture cards are correctly named, have students discuss and focus on approximately how long it takes for each resource to replenish. Some resources are renewed quickly such as water, wind, and solar. Timber takes a little bit longer but not as long as resources we have to mine. Those resources take a much longer time to create.

6. Say: "**In our next lesson, we will be looking at the role some of these resources play in our daily lives."**

In this task, students will be engaged in the higher order thinking skill of evaluation by judging and defending their chosen natural resource.

Assessment: To check students understanding of the difference between renewable and nonrenewable natural resources, pass out the Draw and Write assessment sheet. Have students complete the sheet and draw a picture to accompany it. Check that students correctly label their chosen resource as either renewable or nonrenewable.

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