



Renewable vs. Non-renewable Resources

Middle School Food and Agricultural Literacy Curriculum

Precepts

- E. Awareness
- E1. Address issues important to the community.

National Standards

- NRS.01.01.01.b. Differentiate between renewable and non-renewable natural resources.
- NL-ENG.K-12.4 – Communication Skills
- NL-ENG.K-12.5 – Communication Strategies
- NL-ENG.K-12.12 – Applying Language Skills
- NS.5-8.6 – Science in Personal and Social Perspectives
- NSS-GK-12.5 – Environment and Society

Student Learning Objectives

- As a result of this **unit** the students will...
- Compare renewable versus non-renewable resources.
- As a result of this **lesson** the students will ...
- Identify five renewable resources.
- Identify five non-renewable resources.

Content Outline

Objective 1. Identify five **renewable resources**.

- I. **Define renewable resources.**
 - A. **Renewable resource:** a resource that can be replenished when used through natural or human processes.
 - B. Provide a definition of what is a resource.
- II. **What types of resources can be considered renewable?**
 - A. Soil
 - B. Trees
 - C. Water
 - D. Crops

Time

Instruction time for this lesson: 60 minutes.

Resources

Lee, Jasper (2006). Natural Resources (2nd ed.). Upper Saddle River, NJ: Pearson.

Tools, Equipment, and Supplies

- Overhead or Projector
- Writing Surface
- MS.NR.1.1.TM.A – transparency or one copy for 3-4 students
- MS.NR.1.1.TM.B – transparency or on writing surface
- MS.NR.1.1.TM.C – transparency or on writing surface
- MS.NR.1.1.TM.D – transparency or on writing surface
- MS.NR.1.1.TM.E – transparency or on writing surface
- MS.NR.1.1.TM.F – transparency or one copy for 1-2 students
- MS.NR.1.1.ASSESS.A – one per student

Key Terms

The following terms are presented in this lesson and appear in **bold italics**:

Renewable resource

Non-renewable resource

- E. Wind
- F. Solar
- G. Geothermal

Objective 2. Identify five **non-renewable resources**.

- I. **Define non-renewable resources.**
 - A. **Non-renewable resource:** a resource that cannot be replaced after being used through natural or human processes.
- II. **What types of resources can be considered non-renewable?**
 - A. Petroleum oil
 - B. Gold
 - C. Coal
 - D. Natural gas
 - E. Propane
 - F. Uranium



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Interest Approach

Before students arrive, set up a projector and obtain a copy of **MS.NR.1.1.TM.A**. As students arrive, place students in groups of three. Once students are broken into groups, turn on the projector and display **MS.NR.1.1.TM.A**. If a projector is not available for use, copies can be made and distributed to groups of three to four students. Acknowledge students for arriving to class on time and being prepared for today's activities.

This transparency displays four different types of vehicles that are commonly used today. When I say GO, take 30 seconds to determine in each group which vehicle does not belong. Questions? GO.

Allow students to discuss in their groups for 30 seconds.

Which group will be first to share which vehicle they believe does not belong in this group?

As students elicit responses, write down ideas/thoughts on a writing surface visible to all students.

Great responses! Looking at these four vehicles, which one would you most likely see at your house?

Have students talk through the different vehicles as a class. If the gasoline-powered vehicle is not suggested, feel free to prompt this response.

You're right. This vehicle (pointing to the gasoline-powered vehicle) is commonly used by most Americans. It is powered by gasoline. Do you think gasoline is a renewable or **non-renewable resource**? Is there an unlimited supply of gasoline? How would your life change if we ran out of gasoline? What would happen if we ran out? Why are the other three cars in the picture important to us today?

Many of these resources are a part of our daily lives. Could they potentially run out? Why do some run out and others don't? Today we are going to explore the difference between renewable and **non-renewable resources** and identify examples of each in our community. Be ready to get active in groups while staying focused on the lesson.

Summary of Content and Teaching Strategies

Objective 1. Identify five **renewable resources**.

Reference **MS.NR.1.1.TM.B** for content outline of Objective 1. An overhead or writing surface will be needed to provide students with a visual of the content.

Provide only the definition of **renewable resources** on a writing surface or on **MS.NR.1.1.TM.B**. If an overhead is not available, write out the content outline prior to class on a large poster or butcher paper to display when needed. This will save time and energy when content is taught again.

I. Define **renewable resources**.

- A. **Renewable resource**: a resource that can be replenished when used through natural or human processes.

Utilize the Me-You-Us e-Moment®. Using this activity will get students to think about the definition.

Reflect on this definition without speaking. Think of an example of a **renewable resource**.

Pause and allow students to think for 10 seconds.

Take 15 seconds, turn to your neighbor and share those thoughts. Allow 15 seconds of discussion.

Who will be first to share their example of a **renewable resource**? Write down responses on a writing surface for students to view.

Great job! These examples are a great place for us to start learning more about **renewable resources**.

Reveal/write the remainder of **MS.NR.1.1.TM.B** on a writing surface or overhead.

II. What types of resources can be considered **renewable**?

- A. Soil
B. Trees



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- C. Water
- D. Crops
- E. Wind
- F. Solar
- G. Geothermal

Here are some examples of items considered to be **renewable resources**. What are the common ties present among all of these resources?

Pause for 10 seconds.

Ask for student volunteers to share their thoughts on the connection among these seven resources. If students do not provide the correct answer, offer suggestions about how these resources are created.

Items on this list can be replenished, either through nature or human activity. This categorizes each as a **renewable resource**.

We are now more familiar with **renewable resources** and understand that these are resources that can be replenished. So, if we are now going to talk about **non-renewable resources**, who will tell us what this could mean? Allow for a student to respond. Students should determine that a **non-renewable resource** is one that cannot be replenished. Excellent. Let's take a closer look at **non-renewable resources** and see if we can identify resources in our community that can be considered non-renewable.

Objective 2. Identify five **non-renewable resources**.

Use **MS.NR.1.1.TM.C** to reference content of Objective 2.

Provide only the definition of **non-renewable resources** on a writing surface or on **MS.NR.1.1.TM.C**

I. Define **non-renewable resources**

- A. **Non-renewable resources**: a resource that cannot be replaced after being used through natural or human processes.

Have a student read the definition of a **non-renewable resource** to the class.

The definition of a **non-renewable resource** is different from the definition of a **renewable resource**. What is one example of that difference?

Allow students to provide suggestions of how the two terms differ. Guide students to the correct answer.

That's right. A **non-renewable resource** is different because it cannot be replenished. Turn to your neighbor and come up with an example of a **non-renewable resource**.

Allow students 15 seconds to discuss.

Who will share their group's example of a **non-renewable resource**? Write down responses on a writing surface for students to view.

Great ideas. The following is a list of resources considered non-renewable.

Show students the remaining **MS.NR.1.1.TM.C** on an overhead or writing surface.

II. What types of resources can be considered non-renewable?

- A. Petroleum oil
- B. Gold
- C. Coal
- D. Natural gas
- E. Propane
- F. Uranium
- G. Fossil fuel
- H. Diesel

Once an item on this list is used, it can no longer be replenished through nature or human activity. It is in limited supply and could potentially run out. This categorizes these items as a **non-renewable resource**.

Our natural resources, both **renewable** and **non-renewable**, are an important part of our daily lives. Without some of these resources, we would drastically have to alter how we live. For example, if we do not take care of the **renewable resources**, such as planting trees after harvesting, we won't have that resource in the future.



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When I say WRITE, develop a list of **renewable** and **non-renewable** items that are used in our community. Fold a piece of paper in half, hot-dog style, labeling one side “**renewable**” and the other side “**non-renewable**.” List a minimum of three examples in each column without repeating the list we have already discussed. Include more if your brain is active today! Who will describe what we are about to do? Oh, by the way, you will be working with your partner on this task. Thirty seconds will be given for completion. WRITE.

As students are preparing their lists, obtain **MS.NR.1.1.TM. D**. At the end of the 30 seconds, display this on a writing surface or projector for students to see.

Let's categorize the items that you just came up with. Which group will be first to share one of their items?

As students share items, have students talk through whether the item belongs in the “I'm a **Renewable Resource**” column, or the “I'm a **Non-renewable Resource**” column.

Great job! As you can see, both renewable and **non-renewable resources** are an essential part of the community. Let's take a look back and review what we have learned.

Review/Summary

Today we talked about **renewable** and **non-renewable resources**. We looked at examples of each as well as the part they play in our community.

As your exit ticket today, you will be responsible for creating your own rhyme related to **renewable** and **non-renewable resources**.

Display/project information from **MS.NR.1.1.TM.E** on a writing surface. The following review activity will help students create a nursery rhyme to help process today's content. Students may struggle with what nursery rhyme to use. **MS.NR.1.1.TM.F** is a list of additional nursery rhymes available for student use. This can be projected on an overhead after the review is assigned, or a copy can be distributed for every one or two students. If you do not want to allow students the freedom to select their own nursery rhyme, you can also restrict them to a select few to choose from.

Let's read this together to the nursery rhyme of Humpty Dumpty. (Speak in the beat of Humpty Dumpty.)

Non-renewable resources came from the ground

Non-renewable resources were passed around

When all were used up and no more were left

Nothing could bring **non-renewable resources** back

In this nursery rhyme, the subject focuses on the definition of **non-renewable resources**.

Utilize the Mother Goose e-Moment:

When I say RHYME, you will have five minutes to create a rhyme about either renewable or **non-renewable resources**. Feel free to choose any nursery rhyme. Focus the rhyme on the definition or include examples. Include the content learned as well as the nursery rhyme used as a requirement. How many minutes do you have to complete this task?

Wait for student answers.

What questions are there? RHYME.

As students begin to work on their rhymes, keep **MS.NR.1.1.TM.E** on a writing surface for reference and also have **MS.NR.1.1.TM.F** available for additional nursery rhyme options.

Great job, everyone! Who will be first to share their rhyme with the class?

Allow students to share their scripted rhyme as time permits.

After today's lesson we are able to explain the difference between a renewable and a **non-renewable resource**. It is important to remain aware of how important our resources are and how they can impact our future. So, which is more important – **renewable** or **non-renewable**? Next time we will investigate the importance of each and determine their roles in conservation in not only our community, but also globally.



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Application

Extended classroom activity:

Gather a variety of illustrations of renewable and **non-renewable resources**. Instead of students making a list of items with a partner, similar to MS.NR.1.1.TM.D, students would identify the picture as belonging to a specific category and explain why.

FFA activity:

As a chapter, FFA members could volunteer to clean up a stretch of highway or a watershed to help maintain and take care of our **renewable resources**.

SAE activity:

Students could create an Agriscience Fair project that evaluates the water quality in their community.

Evaluation

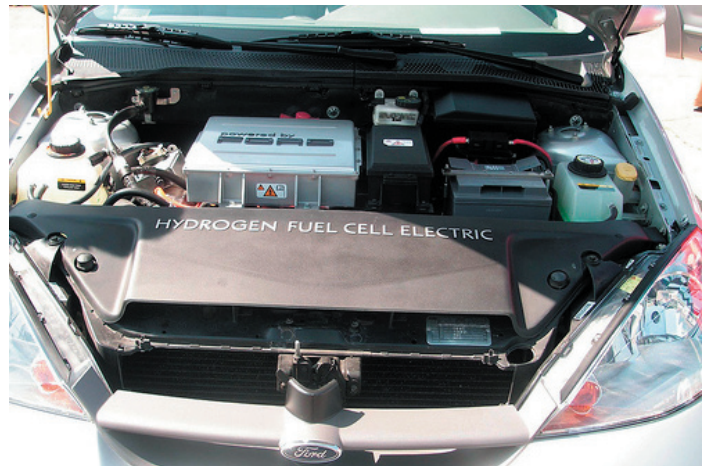
MS.NR.1.1.ASSESS.A

Answers to Evaluation

1. True
2. True
3. False
4. True
5. False
6. Answers must include three of the following: soil, trees, water, crops, wind, solar, geothermal
7. Answers must include three of the following: petroleum oil, gold, coal, natural gas, propane, uranium

Which Vehicle Does Not Belong?

What makes these vehicles the same?
What makes them different?





What Is a Renewable Resource?

- **I. Define renewable resources**
 - **Renewable resource:** a resource that can be replenished when used through natural or human processes.
- **II. What types of resources can be considered *renewable*?**
 - Soil
 - Trees
 - Water
 - Crops
 - Wind
 - Solar
 - Geothermal



What Is a Non-renewable Resource?

- **I. Define non-renewable resources.**
 - **Non-renewable resource:** a resource that cannot be replaced after being used through natural or human processes.
- **II. What types of resources can be considered non-renewable?**
 - Petroleum oil
 - Gold
 - Coal
 - Natural gas
 - Propane
 - Uranium
 - Fossil fuel
 - Diesel

Am I Renewable or Non-renewable?

There are many resources in our community. Write down examples of both renewable and non-renewable in the following columns.

[illegible]



Non-renewable Resources

To the nursery rhyme Humpty Dumpty

**Non-renewable resources
came from the ground**

**Non-renewable resources
were passed around**

**When all were used up and
no more were left**

**Nothing could bring non-
renewable resources back**



Nursery Rhyme Examples

Jack and Jill

Jack and Jill
went up the hill
To fetch
a pail of water.
Jack fell down
and broke his crown,
And Jill came tumbling after.

Baa, Baa Black Sheep

Baa, baa, black sheep,
Have you any wool?
Yes sir, yes sir,
Three bags full.
One for the master,
One for the dame,
And one for the little boy
Who lives down the lane

Rock-a-by Baby

Rock-a-bye baby,
in the treetop,
When the wind blows,
the cradle will rock,
When the bough breaks,
the cradle will fall,
And down will come baby,
cradle and all.

Three Blind Mice

Three blind mice.
Three blind mice.
See how they run.
See how they run.
They all ran
after the farmer's wife,
Who cut off their tails
with a carving knife,
Did you ever see
such a sight in your life,
As three blind mice?



Identifying Renewable and Non-renewable Resources

Name _____

Part I: True/False

Directions: Circle the correct answer for the following questions.

1. True False A renewable resource is a resource that can be replenished.
2. True False An example of a renewable resource is soil.
3. True False A non-renewable resource is a resource that can be replenished through nature or human activity.
4. True False An example of a non-renewable resource is petroleum oil.
5. True False An example of a renewable resource is gold.

Part II: Short Answer

Directions: Answer the following questions.

6. List three examples of renewable resources.

7. List three examples of non-renewable resources.
