Lesson Number: MS.NR.1.2

Are natural resources really that important?

Middle School Food and Agricultural Literacy Curriculum

Precepts

D. Character

D3. Accept responsibility for personal actions

E Awareness

E1. Address issues important to the community

National Standards

NRS.01.01.01.b. Differentiate between renewable and non-renewable natural resources.

CS.09.01.01.b. Describe the economic impacts of natural resource preservation vs. use of the resource.

NL-ENG.K-12.4 – Communication Skills

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 …

Explain the importance of renewable and non-renewable resources.

Determine roles in the ***conservation*** of natural resources.

Content Outline

Objective 1. Explain the importance of renewable and non-renewable resources.

I. Define renewable and non-renewable resources

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

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

Time

Instruction time for this lesson: 45 minutes.

Resources

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

Tools, Equipment and Supplies

Writing surface
Disposable cups – one per student
Drinking water – 1/2 a disposable cup per student
Saltine crackers – three per student
Wrapped soft-candy – one per student
Projector/Overhead
Sheet of paper – one per student
Writing utensil – one per student
MS.NR.1.2.TM.A – one per teacher
MS.NR.1.2.TM.B – one per teacher
MS.NR.1.2.TM.C – one per teacher
MS.NR.1.2.TM.D – one per teacher
MS.NR.1.2.ASSESS.A – one per student

Key Terms

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

Consumption

Conservation

Preservation

II. Why are renewable and non-renewable resources important?

A. Loss of resource

B. Limited quantities

C. Lifestyle changes

D. Conscience consumer

Objective 2. Determine roles in the ***conservation*** of natural resources.

I. Define *consumption*

A. ***Consumption***: to use or use up.

II. Define *conservation*

A. ***Conservation***: to use or manage wisely.

III. Define *preservation*

A. ***Preservation***: to maintain and reserve for continued survival

IV. Personal responsibilities in *conservation* and *preservation* of natural resources

Interest Approach

Be conscious of food allergies during this lesson.

Before students arrive, set up class with each student receiving a disposable cup filled half way with water. Once all students are seated, carefully pass out the cups of water. Advise students not to touch or drink their water until instruction is given. Acknowledge class for arriving to class on time and prepared.

Look at the item you have in front of you. Will someone please share with us what the item is?

Wait for student responses.

That's correct. Each one of you has received a cup half full of water. At any time during class today if you would like to drink it, please do not hesitate. There are no refills though! What questions are there?

Answer any questions that students might have about this activity. Be purposefully vague; do not give too much away. Some students will drink the water right away and others will not. In the lesson content, right before objective 2, students will be given three crackers. Many students will eat them and want more water, but since water is a non-renewable resource, in this example, there will be none left. This will allow students to see an example of why it is important to conserve and be conscience consumers.

Great! I know many are anxious to know how this cup of water is linked to what we will talk about today. We discussed yesterday the difference between renewable and non-renewable resources and gave examples of each seen in our communities. Let's dig a little deeper and find out why these resources are important to us and their roles in ***conservation***. Be ready to make choices today!

Summary of Content and Teaching Strategies

Objective 1. Explain the importance of renewable and non-renewable resources.

When I say GO, you will have 30 seconds to define renewable resource in one word. Be prepared to report back to the class. You may include examples and work with a partner. What questions are there? GO.

As students are talking in their groups, prepare a writing surface or an overhead with **MS.NR.1.2.TM.A**. When 30 seconds are over, regain the class's attention.

Who will share their one-word definition of a renewable resource?

Record students' ideas on a writing surface or overhead in the columns provided from **MS.NR.1.2.TM.A**. If students struggle for answers, help guide the discussion.

Great job. Let's do the same thing again, but this time you and your partner will have 30 seconds to define non-renewable resources. Again, think of those examples! GO!

When 30 seconds are over, regain students' attention.

Which group will share their one-word definition of non-renewable resources?

Record students' ideas on the opposite column in **MS.NR.1.2.TM.A**. If students struggle with ideas, guide their answers.

Let's look at the renewable resource list.

Read through the renewable resource definitions.

Are there any words that should be removed from this list? Have students talk through the list. If they feel a word should be removed, have them explain and justify their answer.

Which words show the importance of renewable resource?

Are natural resources really that important?

Wait for class responses.

Now let's look at the non-renewable resource list.

Read through the non-renewable resource definitions.

Are there any words that should be removed from this list? Again, have students talk through the list. If they feel a word should be removed, have them explain and justify their response.

Which words show the importance of non-renewable resources?

Wait for class responses.

In a moment three crackers will be placed in front of you. Upon receiving the crackers, eat them and enjoy if you like!

At this time, give each student in the class three saltine crackers to eat.

As students eat their crackers, students will have the urge to drink water because of the dryness of the crackers. Students that have water left over will be able to drink their water. Those that do not have water will not be able to get any more.

If you have water, you may want to guard it! The dryness of those crackers will make you very thirsty. Remember, there are no refills on water. Unfortunately, supplies have run out and we are no longer able to get water as a resource. What type of resource would this make water in this situation?

Wait for class responses. Students should come to the conclusion that water, in this case, is a non-renewable resource. If all students have saved their water, you can still have students think about how thirsty they will be when their cups run out. There still will not be more water, so even if they have some to drink now, when they want more later, supplies will be gone.

III. Why are renewable and non-renewable resources important?

A. Loss of resource

B. Limited quantities

C. Lifestyle changes

D. Conscience consumer

Is water really a non-renewable resource?

Wait for students' responses.

Can you imagine our community with a limited supply of water? Are there situations when we have a limited supply of water? Even though water is renewable, we need to be conscience consumers and make sure when we use any type of resource that we understand its importance. In order to become more conscience consumers, we must first understand the meaning of ***conservation***. Let's now look and see how ***conservation*** plays an important role in the vitality of natural resources.

Objective 2. Determine roles in the ***conservation*** of natural resources.

Have available **MS.NR.1.2.TM.C** for display on either an overhead or a writing surface. Students will need a piece of paper to take brief notes during the following activity. If a projector or overhead is not available, prior to class you can write the outline for objective 2 on poster board or butcher paper. This is a great time saver and can be used again when content is taught to additional students.

Pass out a wrapped piece of candy to each student. The best type of candy to use is soft and will quickly dissolve. It is a good idea to check with school policy and the school nurse prior to this activity to ensure there are no allergies in your classroom related to the type of candy you select. Advise students to wait for instructions before eating their candy. After all students have a piece, number students off 1 to 3. If school policy or allergies do not permit this activity, you can perform the activity personally for the class. Go through each number yourself, talking about ***consumption***, ***preservation***, and ***conservation***.

Each one of you has a piece of candy and has been assigned a number. DO NOT eat your candy until after the instructions! Questions?

Answer any questions students might have.

First, let's get out our notes. Next, listen very carefully to these instructions and do only what your number is told to do. All number ones – open your piece of candy and eat it. Go ahead, enjoy it! If this piece of candy were a natural resource (I know you all wish!), eating it would be an example of ***consumption.***

Are natural resources really that important?

The rate at which you consumed this piece of candy is very similar to how we visit 24-hour stores or gas stations and get the resources we need whenever we would like.

Write the word and definition of ***consumption*** on your paper. ***Consumption*** can be defined as something we use or use up. What would be an example of a product we readily ***consume?***

Content outline for Objective 2 can be found on **MS.NR.1.2.TM.C**. Project or write on the writing service the definition of ***consumption*** for students to see.

I. Define *consumption*

A. ***Consumption***: to use or use up.

Wait for student responses. If students are unsure of how to answer, start with food, then lead into other products – talk about gasoline products, water, propane tanks, etc.

OK, all number twos – When I say GO, slowly open your piece of candy. While you gradually peel back that wrapper, savor the candy. Smell the candy and observe how beautiful it is. Take small bites and bit by bit enjoy the flavor as you eat it. Do not consume the whole piece, but just take small pieces from it and save the rest for later. GO

By saving your piece of candy, you are actually ***conserving*** your resource. This candy comes from a limited source and is not readily available. This is very similar to wanting to get this candy at a store that is not always open or having to drive a long distance to get a piece.

Underneath ***consumption,*** write down the definition for ***conservation***. ***Conservation*** can be defined as to use or manage wisely. What would be an example of a natural resource that we try to ***conserve***?

Answers may be water, electricity, etc.

Content outline for Objective 2 can be found on **MS.NR.1.2.TM.C.** Project or write on the writing surface the definition of ***conservation*** for students to see.

I. Define *conservation*

A. ***Conservation***: to use or manage wisely.

Wait for student responses. Help students answer if they are unsure, guiding them with responses like soil, plants, fossil fuels.

And last, but not least, all the number threes – Just admire your piece of candy. Do not open the wrapper. Simply look at it and appreciate it for what it is. Take in the smell, the beautiful wrapper, and think about this great piece of candy.

By not eating your candy and making sure it stays around, you are actually ***preserving*** your resource. This is similar to the candy coming from a store that has closed down, and it is no longer available.

Finally, underneath ***conservation*** write the definition of ***preservation***. ***Preservation*** can be defined as maintaining and reserving for continued survival. What is an example of a resource that we are currently working toward ***preserving***?

Answers may be fossil fuels, forests, etc.

Content outline for Objective 2 can be found on **MS.NR.1.2.TM.C**. Project or write on the writing surface the definition of ***preservation*** for students to see.

II. Define *preservation*

A. ***Preservation***: to maintain and reserve for continued survival

Wait for student responses. This may be difficult for students to understand, so it may be necessary to go further into explaining that the future may bring us to ***preservation*** of many resources that are now being readily consumed.

For example: national parks were set aside for future generations. If they had not been preserved, the land could have been developed and we would not have natural areas with wildlife and plant life for people to enjoy today and tomorrow.

From this activity, you can now visualize the importance of better understanding ***consumption, conservation,*** and ***preservation***.

What natural resources do we ***consume*** on a daily basis?

Wait for student responses. Have them think about how quickly the candy was eaten during ***consumption***, and with not much thought. What types of natural resources would they treat this way?

Are natural resources really that important?

Why would we want to ***conserve*** our natural resources?

Wait for student responses. Have them think about the activity they just took part in, slowly using a resource, and remind them of some of the examples they gave. Why would they want to do this?

Why would we want to ***preserve*** our natural resources?

Wait for student responses. Again, have them think about the activity and the inability to touch the piece of candy. Why would this be important? Wildlife, plants, etc.

Close your eyes. Visualize a weekend picnic with your friends at your local park. You have a wonderful time there – you walk the trails, ride on the paddle boats, and enjoy playing basketball on the courts. As you are leaving, one of your friends decides to leave their trash behind on the picnic bench. The following weekend you return, excited about the time you had last week and ready to repeat it. When you arrive at the picnic spot, the tables are littered with trash. There is no where for you to enjoy your lunch. You notice your friends' garbage is still there from last week.

Open your eyes. How did this make you feel?

III. Personal responsibilities in *conservation* and *preservation* of natural resources

Wait for student responses. Discuss personal responsibility and how that can affect our natural resources.

As citizens of our community, we need to understand our personal responsibilities. Even the littlest thing, like picking up your own trash, can play a huge part in conserving and preserving our natural resources.

Review/Summary

Today we talked about renewable and non-renewable resources and their importance in our lives. Now, let's creatively test our learning!

Utilize the *Bob the Weather Guy e-Moment®*.

Have students break into groups of appropriate size for your class. Groups should not exceed four students. Students will be presenting the concepts of the importance of natural resources as well as the importance of being conscience consumers in the role of ***conservation***. In their groups, students will be challenged to create a forecast of what will happen: showing how other people and activities might be affected. They will also give a "radar" report, explaining basic ideas and concepts covered.

To recap today's activities, we are going to summarize and forecast the state of natural resources. Please pause and hear these directions. Brainstorm the characteristics of a weather forecast. What are some of the terms weather reporters use? Take one minute to write down as many phrases as you can think of. Do you have questions? Work in your groups. GO

As students prepare their lists, locate **MS.NR.1.2.TM.D**. This will show you a list of weather reporting terms to complete the list developed by the students. At one minute, regain the class's attention.

Who will share a weather forecasting term with the class?

Write students' responses on a writing surface for them to view.

Great job.

Help students complete the list with the additional terms located on **MS.NR.1.2.TM.D**.

Today's final challenge is to give a "weather report" about what we learned today regarding the importance of natural resources. When I say ACTION, groups will have three minutes to write a 30-second report. Include at least three vocabulary words, one major concept, and one prediction about what could happen in the five-day forecast. How long will your report be?

Wait for students to say 30 seconds.

How many vocabulary words do you need?

Wait for students to say three.

Again, create a 30-second report, including at least three vocabulary words, one major concept, and one prediction about what will happen in the five-day forecast. What questions are there?

Wait and answer student questions.

ACTION.

Allow students to work in their groups for three minutes. When students finish, allow at least two or three groups to report the '"weather." If time permits, allow more to report. This would also be a great introduction activity the next day as a review of previous content.

Excellent job forecasting our "weather"! Today we learned how important our natural resources truly are. If we do not learn how to conserve them, our way of life could drastically change.

It is our personal responsibility to remain educated and be conscience consumers of our resources. Being conscience consumers can even affect the quality of air we consume every day. In the next lesson, we will take a closer look at air pollution and how the quality of air can impact plant, animal, and human life.

Application

Extended classroom activity:

Students research ***conservation*** and/or ***preservation*** groups in their area to learn more about the state of natural resources locally.

Advocate and start a recycling program.

FFA activity:

Have a ***conservation*** expert come talk to FFA members about activities they can participate in.

SAE activity:

Perform a research project on how ***conservation*** and ***preservation*** can have an effect on the quality of life for wildlife in your local area.

Evaluation

MS.NR.1.2.ASSESS.A

Answers to Evaluation

Answers from MS.NR.1.2.ASSESS.A

1. D
2. A
3. B
4. E
5. C
6. Answers may vary.

Renewable vs. Non-renewable

What does it mean when you hear renewable? What does it mean when you hear non-renewable?

RENEWABLE	NON-RENEWABLE

Why Are Renewable and Non-renewable Resources Important?

Objective 1. Explain the importance of renewable and non-renewable resources.

- **Define renewable and non-renewable resources**
  - **Renewable resource:** a resource that can be replenished when used through natural or human processes.
  - **Non- renewable resource:** a resource that cannot be replaced after being used through natural or human processes.
- **Why are renewable and non-renewable resources important?**
  - **Loss of resource**
  - **Limited quantities**
  - **Lifestyle changes**
  - **Conscience consumer**

What Role Do Natural Resources Have in Conservation?

Objective 2. Determine roles in the conservation of natural resources.

- **Define consumption**
  - Consumption: to use or use up.
- **Define conservation**
  - Conservation**:** to use or manage wisely.
- **Define preservation**
  - Preservation: to maintain and reserve for continued survival
- **Personal responsibilities in conservation and preservation of natural resources**

Common Weather Terms

Highs	**Lows**
Fronts	**Low Pressure**
High Pressure	**Winds**
Temperature	**Humidity**
Rain	**Snow**
Sleet	**Regions**
Doppler	**Radar**
Weather Phrases	**"by mid-afternoon we'll expect…."**
"We'll have partly cloudy skies until tomorrow morning, and then the skies will clear."	

Importance of Natural Resources

Name_____

Part I: Matching

Directions: Match the letter with the correct definition.

1.	_____	**A resource that can be replenished by nature or human activity.**	**a. Conservation**
2.	_____	**To use or manage wisely.**	**b. Consumption**
3.	_____	**To use or use up.**	**c. Preservation**
4.	_____	**A resource that cannot be replenished by nature or human activity.**	**d. Renewable Resource**
5.	_____	**To maintain or reserve for contained survival.**	**e. Non-renewable Resource**

6. Briefly explain the importance of renewable and non-renewable resources.

_____

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