



TREES, FORESTRY, AGRICULTURE AND ME

Academic Standards:

3rd Grade – Social Studies – Standard 4 – 3.4.5, 3.4.7

4th Grade – Social Studies – Standard 5 – 4.5.2, 4.6.2; Standard 9 – 4.9.2

5th Grade – Science – 5-ESS3-1; ELA – RI.5.7, RI.5.9, W.5.8

6th Grade – Science – 6MS – ESS3-4; ELA – WHST.6-8.9; Math – 6.RP.A.1

Lesson Objectives:

1. Students will be able to identify various value-added forestry products that are used in construction and manufacturing.
2. During this lesson students will also learn the difference between renewable and non-renewable natural resources and the importance of sustainability.



Video Link:

www.lsuagcenter.com/agmagicagventuresnw

Materials Needed:

- *List of supplies needed for “Build a House” Activity:
- Cardstock
- Wooden popsicle sticks
- Wooden toothpicks
- Cotton fabric
- Small glass stones or tiles
- Small rocks (fish tank rocks)
- Sand
- Plastic drinking straws
- Paint/crayons/markers
- Scissors
- Other random items — be creative!
- Books: The Lorax and/or The Giving Tree



Introduction

- Holding a real tree seedling or a picture of a real tree, “Who can tell me what this is?”
- A tree!
- Who can tell me something about this tree?
- Now, how many of you have ever heard the word agriculture?
- Does anyone know what the word agriculture means?
- Agriculture is necessary for all of us. We need agriculture to be able to live.
- What are some things we use every day that come from agriculture?
- So, what does this tree have to do with agriculture?
- Did you know that trees are an agricultural crop? Just like we get our food from agriculture — like corn, rice, milk, etc. — we also get wood products from agriculture. Forestry is a very important industry and agricultural crop in our lives.
- Forestry is the No. 1 (largest) agriculture industry in the state of Louisiana.



Vocabulary Words

Agriculture – Agriculture is the art and science of growing plants and other crops and raising animals for food, other human needs or economic gain.

Conservation – The Earth’s natural resources include air, water, soil, minerals, plants and animals. Conservation is the practice of caring for these resources so all living things can benefit from them now and in the future.

Forestry – The science of planting and taking care of trees and forests.

Forestry products – Forest products include materials derived from a forest for commercial and personal use such as lumber, paper and firewood as well as “special forest products” such as medicinal herbs, fungi, edible fruits and nuts, and other natural products.

Natural resources – Useful raw materials that we get from the Earth. They occur naturally, which means that humans cannot make natural resources. Instead, we use and modify natural resources in ways that are beneficial to us. The materials used in human-made objects are natural resources.

Non-renewable natural resources – A non-renewable natural resource (also called a finite resource) is a natural substance that is not replenished with the speed at which it is consumed.

Activity

Letter forestry challenge (Expand for upper grades: have students use letters from a phrase you give them about forestry, have them use the letters of their name, label the items that are value added products, etc.)

1. Explain to the students that for every letter of the alphabet, they must come up with a way we use forests, or a product that comes from the forest.
2. Write all the letters up on the board and see how many they can come up with before the time is up.

Body of Lesson

- What about what we live in?
 - Many parts of our home that we live in and use as shelter comes from forestry.
 - What are some parts of your home that come from forestry?
 - (List)
-

- There are other parts of our homes that may not come from trees but do come from other natural resources.
- What are some other parts of our homes that do not come from trees but come from other natural resources?
 - (List)

Some examples of natural resources and the ways we can use them are:

Natural Resources and Uses

Natural Resource	Products or Services
Air	Wind energy, tires
Animals	Foods (milk, cheese, steak, bacon) and clothing (wool sweaters, silk shirts, leather belts)
Coal	Electricity
Minerals	Coins, wire, steel, aluminum cans, jewelry
Natural gas	Electricity, heating
Oil	Electricity, fuel for cars and airplanes, plastic
Plants	Wood, paper, cotton clothing, fruits, vegetables
Sunlight	Solar power, photosynthesis
Water	Hydroelectric energy, drinking, cleaning

- Natural resources exist without any actions of humankind. On Earth, it includes sunlight, atmosphere, water, land (includes all minerals) along with all vegetation, crops, and animal life that naturally exists upon or within the previously identified characteristics and substances. Natural resources are material provided by the Earth that humans can use to make more complex (human-made) products.
- Natural resources that we use in our lives each day can be put into two categories:
 - Renewable natural resources and non-renewable natural resources.
 - Renewable natural resources essentially have an endless supply, such as solar energy, wind energy and geothermal pressure. Other resources are considered renewable even though some time or effort must go into their renewal (e.g., wood, oxygen, leather and fish). Most precious metals are also renewable. Although precious metals are not naturally replaced, they can be recycled because they are not destroyed during their extraction and use. The sunlight used in solar power and the wind used to power wind turbines replenish themselves. Agriculture resources are considered renewable because they are sustainable — for an example, an apple tree. If you plant an apple seed, after a while, there will be a new apple tree! In the forestry agriculture industry, timber reserves can be sustained through replanting.
 - Non-renewable natural resource refers to a natural resource that is found beneath the earth. When consumed, these resources do not replenish at the same speed at which they are used. The resources typically take millions of years to develop. The main examples of non-renewable natural resources are fuels such as oil, coal, and natural gas, which humans regularly draw to produce energy. These resources are depleted and cannot be recovered once they are used. There are four major types of nonrenewable natural resources: oil, natural gas, coal and nuclear energy. Oil, natural gas, and coal are collectively called fossil fuels. Fossil fuels were formed within the Earth from dead plants and animals over millions of years — hence the name “fossil” fuels. They are found in underground layers of rock and sediment. Pressure and heat worked together to transform the plant and animal remains into crude oil (also known as petroleum), coal and natural gas. Most fossil fuels, minerals and metal ores are non-renewable natural resources.
- Name some renewable natural resources
 - (List)
- Name some non-renewable resources
 - (List)
- Are trees a renewable resource? Yes.
- There are many steps that are taken to get a tree from the forest to it becoming a part of your home.
 - Step 1: After the forestry crop was planted and has grown, it must be periodically measured to determine when it is ready to cut.
 - Step 2: When the trees are ready, they will be cut and harvested.
 - Step 3: Once harvested, trees will be loaded onto a truck and transported to a timber mill. There are different types of mills according to the type to wood the tree is. For example, there are pine mills for pine trees and hardwood mills for trees that are considered hardwood, such as oak, maple and cherry.

- Step 4: Depending on what the wood is being used for, the milled lumber and/or lumber products may go to a treatment plant.
- Step 5: The forestry products will then be loaded and transported to wholesale businesses, retail businesses, etc. for us to purchase and use.
- We are going to take a “virtual” field trip so that you can see these steps happening. We will now watch a video so that you can see the steps that forestry crops go through to get to you and me to be used in our homes.
 - SHOW VIDEO (7 min.) https://isuagctr-my.sharepoint.com/:v/g/personal/kmartin_agcenter_isu_edu/ESxROk8_U1dNgb-XHs7EflcBf1c4aesigPVCH5W7mZZOmg

Application

Earlier, we talked about the home we live in and how natural resources are used for and in our homes. Now, let's practice what we have learned and build a house for ourselves using as many sustainable natural resources as we can.

Activity*:

1. Place students in small groups of three to four.
2. Have students list materials to build a house. (Example: wood siding, nails, shingles, paint, etc.)
3. Do some more thorough research to add to the list of materials needed.
4. Identify materials as renewable or non-renewable
5. Identify natural resources that the building materials come from
6. Design a house using as many sustainable natural resources as possible (be creative)

*See list of supplies needed for this activity

List of renewable and non-renewable natural resources examples: (have small-scale examples to show)

Renewable natural resources:

1. Lumber
2. Plywood
3. Wood shingles
4. Flooring
5. Doors
6. Glue
7. Paints/varnishes
8. Wood siding
9. Molding/trim

Non-renewable natural resources:

1. Asphalt shingles
2. Metal roofing*
3. Nails*
4. Screws*
5. Wiring*
6. Insulation
7. Pipes – metal or PVC
8. Windows*
9. Concrete*
10. Bricks*
11. Vapor barrier
12. Metal beams – steel or aluminum*

*can be recycled

Building Materials

	Exterior	Interior
Renewable	Non-renewable	Wood: Paint, varnish, paper, doors, molding, cork flooring, cabinets
Non-renewable	Windows Screws	Nails Insulation

Reflection

When we talk about using our natural resources and how important they are to our daily lives, we must also think about how important it is that they will always be there for us to use. We must consider the sustainability of our natural resources. Sustainability is important for a very simple, very straightforward reason: we cannot maintain our quality of life as human beings, the diversity of life on Earth, or Earth's ecosystems unless we embrace it. There are indications from the smallest to the largest scale that sustainability is something we must address. We will run out of fossil fuels. Thousands if not millions of animal species will become extinct. We will run out of lumber. We will damage the atmosphere beyond repair. Both renewable and non-renewable resources are depleted by usage and consumption. As the human population continues to grow, the demand for renewable resources increases. We must make sure that we do our part to sustain our renewable natural resources. It is important that we use non-renewable resources wisely or else we will run out of them. The reserves of these substances took billions of years to form, and it will take billions of years to replace the supplies used. If we do not make an effort to conserve our natural resources they could run out and we, as a human population, will suffer greatly without the benefits of our natural resources.

- Name some ways that you can help conserve our natural resources.
 - (List)
- “I speak for the trees, for the trees have no tongues.”
- Dr. Seuss, The Lorax
- Read: “The Lorax” or “The Giving Tree”

References

Project Learning Tree - <https://www.plt.org/>

Louisiana Dept. of Agriculture and Forestry - <https://www.ldaf.state.la.us/>

LSU AgCenter - <https://www.lsuagcenter.com/>

Lesson Planet - <https://www.lessonplanet.com/>

Department of Ecosystem Science and Management – Penn State College of Agricultural Sciences - <https://ecosystems.psu.edu/outreach/youth/sftrc/lesson-plans/forestry>



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