Lesson 11.1 Renewable and non-renewable resources

Curriculum for Sustainability

Topic II

This Land is Our Land

Module 11: Sustainable vs non Sustainable resource use

Concepts:

Anything that people use that comes from nature is a natural resource.

Most, if not all, of the things we use, eat, wear, build with, and live in, came from nature as some point, and thus originated as a natural resource.

Some resources are replenished very quickly or not removed from availability by using them. We call these renewable resources. Some resources take a long time to replenish themselves. We call these resources non-renewable.

Terminology:

Natural Resource – anything occurring in nature that is used by people. We divide natural resources into two categories, Renewable and Non-Renewable.

Renewable Resource – a resource that is quickly replaced or recycled by natural processes in a time frame that makes it useful for human consumption or use. (Examples include: cotton, wood, solar energy, water)

Non-renewable Resource – a resource that is replaced slowly by natural earth processes in such a way that once used by people, it will not be available again within a useful time frame. (Examples include: oil, coal, rocks, minerals)

- Many non-renewable resources are recyclable. This is one of the reasons that recycling is so important. Plastic is made from oil, which is a non-renewable resource, but plastic can be recycled and reused. Most metal items such as aluminum cans can also be recycled.
- Most scientists and resource managers define a "useful time frame" as within an average human lifespan.

The powerpoint presentation "11.1renewable resources" is available as a companion for this lesson.

Activity :

Students will sort items into categories based on what natural resource they are made out of and then into categories based on whether they are renewable or nonrenewable.

Provide a bag full of items that are made from natural resources:

Some Ideas:

Cloth rag	Piece of paper	Pencil
Styrofoam plate	Aluminum can	Plastic beads
Salt	Paper clip	Cotton swab
Tooth pick	Plastic bag	Feather
Piece of leather	Rope	Plastic spoon
Glass marble	Penny	Paper cup

Preferably, have actual items for the children to sort. If not available, photographs will work.

Begin the lesson by developing a definition for Natural Resources (anything that people use that comes from nature) and then ask the students to list a variety of things that they use every day that are made from natural resources. Once you have a list, have the students come up with categories of Natural Resources (ex: plant, animal, rock/mineral, oil, water).

Once the students have created a list of categories, provide them with the box of items that are all made up of natural resources. Ask the students to sort the items in their box into categories (Plant, Animal, Oil, Rock/Mineral, and Metal) based on what resources make up each item.

(Variation: have the students cut photos out of old magazines that represent renewable and nonrenewable resources.)

Next, discuss what a renewable resource is and what a non-renewable resource is. Ask the groups to divide their items into renewable and non-renewable resources. (if they need hints, remind them that animals and plants grow quickly while rocks and minerals take a long time to form) Make sure that students differentiate between “reusable” and “renewable.” Though a plastic cup can be reused over and over again, the oil that is used to make the plastic takes a very long time to form, so the plastic cup is nonrenewable.

Once groups have made their decisions and divided their resources into two piles, have them present their choices to the rest of the class. Ask if everyone agrees, and if not, ask why. Note that there are some that are easy to determine, while others have a lot of factors that may influence their category.

To test their understanding, show photographs of items made from natural resources (glass jars, wool yarn, plastic bag, aluminum can, etc.). Ask one student whether the item is

made from renewable or nonrenewable resources. Then ask the class to raise their hands if they agree. Follow with a reveal as to whether or not they are correct.

Optional: Finish by asking the students what would happen if we used up all of our nonrenewable resources (answer = there won't be any more). Follow with a discussion of what we can do to make sure that we don't use up all of our nonrenewable resources. (some ideas: recycle, reuse, use less, choose renewable, rebuy)

Following the lesson, students should be able to define a natural resource and distinguish between a renewable and nonrenewable resource and understand why a resource is considered nonrenewable.

Discussion Options or Writing Prompts for Older Students
For Background information, read the provided handout "Background Information and Discussion Topics - Natural Resources: Renewable Resources."

What factors may also be considered when we determine whether or not a resource is renewable?

- Does it make any difference if we consider where a resource is harvested from?
- What about its age or place in its natural environment?
- Does how a resource is harvest contribute to whether you would consider it renewable or not?

(Some examples of food for thought: bamboo farms vs old growth bamboo, wool from sheep vs fur from rabbits, pine trees vs red woods, fossil aquifers vs above ground streams, cotton (which needs a lot of water to grow) from the southeastern US vs cotton grown in a desert)

- Supplementary Material from SC DHEC
  http://www.scdhec.gov/environment/lwm/recycle/pubs/natural_resources.pdf