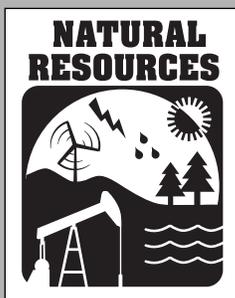


Kids Doing the 4Rs



OBJECTIVES:

Students will:

1. explain the need for each of the 4Rs.
2. give at least two ways to practice of each of the 4Rs, i.e.: Reduce, Reuse, Recycle and Rot (Compost).



STANDARDS: Science



SKILLS: Analysis, classification, construction, description, problem solving



SETTING: Classroom



TIME: 45 minutes



VOCABULARY:

Compost
Conserve
Decomposition
Hierarchy
Pictograph
Recycle
Reduce
Reuse
Rot

Introduction

Overview:

In this lesson, students will learn about the 4Rs hierarchy by watching a video of students demonstrating ways to practice the 4Rs. Working in groups, they will use 4Rs pictographs to brainstorm ways to practice the 4Rs.

Teacher Background:

The 4Rs (Reduce, Reuse, Recycle and Rot/Compost) are organized in a hierarchy, or order of importance. The first goal is to reduce the amount of waste we generate. If we use less stuff, we reduce the amount of waste produced. Some ways to reduce waste include buying products with minimal packaging, using a cloth bag instead of paper or plastic and buying durable products with a longer life span. When waste does occur, the next level in the hierarchy is to reuse items. The reuse of items does not require the expense of energy or new materials because the manufacturing process is not involved. Some ways to reuse items include using both sides of a piece of paper, saving and using plastic or paper grocery bags for future visits and donating unwanted items such as clothing, books or toys to a charity. If waste items cannot be reused, the next level is recycling. For example, paper can be recycled

to produce new paper. Glass can be recycled to produce new bottles or kitchen tile. Recycling conserves natural resources, reduces air and water pollution and saves energy. Finally, organic materials (originally living plants or animals) that cannot be reused or recycled can be decomposed (rot) to produce compost, a rich soil amendment that helps plants grow.

Materials:

Students:

- “4Rs Pictographs” with labels (one set per group of four)
- “Kids Doing the 4Rs” worksheet (one per student)

Teacher:

- Doing the 4Rs: Reduce, Reuse, Recycle, Rot* video
- “4Rs Pictographs” (without labels) overheads
- Rubric overhead
- Rubrics (one per student)

Preparation:

Be prepared to divide the class into groups of four for part of the activity.



ACTIVITY

Discussion

1. Ask students whether they can name the 4Rs. Write them on the board.
2. Explain that the 4Rs are arranged in a hierarchy of importance, and guide them to list in the correct hierarchy (Reduce, Reuse, Recycle, Rot/Compost). Give another example of a hierarchy.
3. Show an overhead of the lesson rubric, and review the expectations for this lesson.

Procedure

1. Before showing the video, inform the students that they will be looking for examples of students practicing the 4Rs.
2. Ask them to write down several examples for each of the 4Rs while they watch the video.
3. Show the video *Doing the 4Rs*.
4. Organize the students into groups of four. Pass out one set of the "4Rs Pictographs" to each group.
5. Ask each group to cut out the pictographs.
6. Provide a definition for each of the four pictographs and have the groups identify which pictograph represents each of the 4Rs. Ask them to write the name of each pictograph below the picture.
7. Have them place the 4Rs pictographs in the correct hierarchy.
8. Have them brainstorm examples of 4R practices shown in the video.

Wrap-Up

1. Put up the "4Rs Pictographs" overheads one at a time. Have groups name and provide a definition for the pictograph and provide examples of how to practice that particular R.
2. Ask students to address why each of the 4Rs is important.
3. Pass out "Kids Doing the 4Rs" worksheet to each student. Have students write down two examples for each of the 4Rs that they would like to implement at home or school.

Final Assessment Idea

Have students draw or create their own pictograph showing one way to practice each of the 4Rs at home or school. In groups, have them present their pictographs, and the group members can choose which of the 4Rs each pictograph represents.

RESOURCES

Extensions:

Have students interview family members about ways they practice the 4Rs at home. Have students record their family's waste reduction behaviors and identify other ways to reduce waste at home.

Teacher Materials:

California State Content Standards

The standards below represent broad academic concepts. This lesson provides connections to these academic concepts through hands-on activities and exploration. This lesson is not designed for a student to master the concepts presented in the standards. Additional lessons in the classroom that build on this lesson or the standard(s) ensure that students will have the opportunity to master these concepts.

SCIENCE	CONTENT STANDARDS
Grade 4	Life Science 2.a. Students know plants are the primary source of matter and energy entering most food chains. 2.b. Students know producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs and may compete with each other for resources in an ecosystem. 2.c. Students know decomposers, including many fungi, insects and micro-organisms, recycle matter from dead plants and animals. 3.a. Students know ecosystems can be characterized by their living and nonliving components.
Grade 5	Physical Science 1.c. Students know metals have properties in common, such as high electrical and thermal conductivity. Some metals, such as aluminum (Al), iron (Fe), nickel (Ni), copper (Cu), silver (Ag) and gold (Au), are pure elements; others such as steel and brass are composed of a combination of elemental metals. 1.h. Students know living organisms and most materials are composed of just a few elements.





Teacher

Kids Doing the 4Rs Rubric

A rubric is a scoring tool that defines the criteria by which a student's work will be evaluated. This rubric is provided to assist you in setting expectations for students and assessing their performance and engagement during the lesson based on specific tasks. Ideally, a rubric is developed with the cooperation of the students. Two blank rows have been provided for you and your class to develop and add your own assessment criteria.

CATEGORY	4	3	2	1
Define and explain the need for the 4Rs	Student is able to define and explain the need for each of the 4Rs.	Student can define but is not able to explain the need for each of the 4Rs.	Student is able to define two of the 4Rs and explain the need.	Student is not able to define any of the 4Rs.
Give examples of each of the 4Rs	Student is able to provide more than two examples of each of the 4Rs.	Student is able to provide two examples for each of the 4Rs.	Student is not able to provide two examples for each of the 4Rs.	Student is not able to provide any examples of the 4Rs.





4Rs Pictographs

REDUCE



REUSE



RECYCLE



ROT





Student

4Rs Pictographs

Directions: Cut out and write the name next to each pictograph.





Kids Doing the 4Rs

1. List two examples of how to “Reduce”:

a. _____

b. _____

2. List two examples of how to “Reuse”:

a. _____

b. _____

3. List two examples of how to “Recycle”:

a. _____

b. _____

4. List two examples of how to “Rot (compost)”:

a. _____

b. _____

5. Explain why it is important to practice the 4Rs:

6. Explain why “Reduce” is placed at the top of the 4Rs hierarchy:

Name: _____ Date: _____



DEFINITIONS

Vocabulary:

Compost: the process or end result of living organisms digesting and reducing organic material into a dark, rich, soil amendment.

Conserve: to protect something from harm or destruction.

Decomposition: the process of materials being digested and broken down into simpler substances, making nutrients more available to plants. Decomposition happens all the time in nature and in human-managed systems such as compost bins.

Hierarchy: a ranking system according to relative importance.

Pictograph: a picture or symbol showing an idea.

Recycle: the process of producing new products from used material or the process of remanufacturing used materials into new products. Some used materials can be made into new items of the same thing. Others are made into entirely new items.

Reduce: use less “stuff” and produce less waste.

Reuse: extending the life of an item by reusing it again as it is or creating a new use for it.

Rot: to decompose.