GRADES K–2 CURRICULUM

RECYCLE RIGHT INTRODUCTION

Elementary School Programs

Kindergarten through Second Grade (K-2)

Research proves there is a direct link between knowledge and active involvement. From gathering stones, shells, or pine cones, and shuffling through piles of autumn leaves to studying ecosystems, to seeing how technology has changed over time, learning about the environment is a life-long process. It advances skills and habits that people can use throughout their lives to understand and act on environmental issues. It promotes critical and creative thinking skills that are key to finding solutions.

The Importance of Why We All Need to Recycle Right.

Recycling is an essential part of environmental protection. Forty years ago, the recycling challenge was about getting people and businesses at the grassroots level to embrace a new way of discarding waste. We started bundling newspapers, sorting out plastics and glass, and resisting the old habit of throwing everything in the garbage. Having won the public's support of recycling, we must now rethink recycling. With changing material streams, collections and processing systems, recycling has become more complex. The right materials really do matter. It is estimated that the rate of contamination of materials that are recycled is approximately 16%, indicating the need to educate everyone about what materials can be recycled. To meet the challenge of the Recycle Right program, everyone must understand why and how to recycle.

Education is the Key to Recycle Right.

With the support of you and your students, we can close this gap between public support for recycling and the number of people who make recycling a habit and follow the recycling rules. The past has proven that through education, students are true ambassadors of carrying this message forward. The lessons that follow are designed to ensure that students not only have the basic knowledge about the need to reduce, reuse, recycle and rethink our garbage, but also to promote a change in their behaviors so that their knowledge is turned into action.

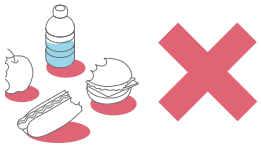
WHY RECYCLE?

Plastic bottles
can turn into clothing

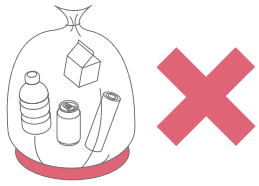
Aluminum Cans
can turn into new ones in 60 days.

Today's news
can become a new cereal box

Recycle clean bottles, cans, paper, and cardboard.



Keep food and liquid out of your recycling.



No loose plastic bags and no bagged recyclables.

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CURRICULUM MATERIALS AND LESSONS

This curriculum offers teachers a resource where they can access highly effective content and related support materials. These resources and materials are STEM based and align with the Next Generation Science Standards.1 Recycling is important for environmental protection. The goal is to help students develop an understanding of why they should make recycling a habit and how to recycle correctly. In this way, they will play an important role in furthering the recycling message in their homes, schools and communities. The lessons are designed to answer:

- What are the benefits of recycling?
- What should we recycle?
- What shouldn't we recycle?
- What are the challenges inherent in recycling efforts?
- What has been, and can be, the impact of recycling on our communities and natural resources?
- What is my part in becoming an environmentally responsible individual?
- How do I recycle forward?

Each lesson includes background information, the basic content to be delivered, a suggested lesson plan, a list of extension activities for going beyond the scope of the lessons provided, and the correlation between the lessons and the Next Generation Science Standards.[1] There are multiple opportunities to monitor learning and adjust teaching throughout each lesson. In addition to closure activities, these will provide opportunities for assessment of student learning. A suggested teacher dialogue is included with each lesson in order to reduce teacher preparation time and to help facilitate delivery of the lesson. As in all lessons presented by teachers, their own creativity, expertise, and adaptations to the levels of their students will make learning even more successful.

Although these can be considered stand-alone lessons, they are equally beneficial when integrated into other subject areas. For example, if a teacher's lesson is on persuasive writing, the need for a community to increase and improve recycling would be an excellent topic, and an opportunity for students to reinforce their learning about recycling. Research has shown it takes seven "touches" before someone will internalize and act on a call to action. We hope you see this curriculum as an ongoing opportunity for your students to learn and be inspired to become good stewards of the environment.

1 *"The Next Generation Science Standards (NGSS) is a registered trademark of Achieve. Neither Achieve nor the lead states and partners that developed the Next Generation Science Standards were involved in the production of, and do not endorse, this product."*

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WASTE MANAGEMENT

RECYCLE RIGHT GRADES K–2

Introductory Lesson

Time Frame:

This lesson has been developed to span a time period of 20-30 minutes. However, it can be adapted to fit your classroom needs based upon attention span and levels of students. It can also be adapted and used with learning centers and in reading and math lessons.

Teacher Introduction

This lesson is designed to introduce students to the concepts of reduce, reuse, recycle and rethink. The Recycle Right concept will be a core component of this and every other lesson in the series, and will be a central theme that is reinforced again and again. By the end of this lesson, students will have a better understanding of the different ways they can positively impact our environment. In addition to the lessons, there are extension activities included that will continue to reinforce the Recycle Right message in order to have an impact on affecting a behavior change with regard to recycling.

Lesson Objectives

1. Students will be able to define each of the 4Rs: reduce, reuse, recycle and rethink.
2. When presented with several discarded items, students will be able to successfully categorize each item as being garbage, a product that can be recycled, a product that can be reused, or a product that can be reduced.
3. Students will be able to verbally explain the difference between the concepts of recycling and recycling the right way.
4. Students will demonstrate their understanding of the importance of recycling, and the difference they can make, by signing the Recycle Right pledge.

Essential Learnings

1. Every person in our country throws away about four and a half pounds of garbage every day.
2. One of the ways to conserve our natural resources is to rethink the way we discard our garbage.
3. By rethinking the way we discard our garbage, we can reduce how much garbage we throw away, reuse some items that we are throwing away, and recycle some of the things we are throwing away.
4. When we recycle, we need to follow the recycling rules.

RECYCLE RIGHT GRADES K–2

Introductory Lesson

Anticipatory Set

"I'll bet you are all wondering why I have asked you to count all the paper we used every day this week, why we have been graphing our paper use every day, and why I asked you to fill out the Recycle Right Home Survey last night. But before I tell you why, I want all of you to think of three things that are thrown away in your house. Let me give you two examples. In my house, we get rid of the newspaper after we read it, and another thing we throw away is a cereal box after it is empty. Now you think for a minute about three things that you throw away, but for now don't share your ideas with anyone else. Just think to yourself and get your answers ready. Now that you've thought about that, listen to what your classmates say and see if that was one of your three."

Call on one student, and ask other students to signal whether that was on their list by raising one finger if it was, and two fingers if it wasn't. Continue with this process, calling on students who have two fingers raised after each answer to get different responses.

"Excellent, we have come up with lots of examples of things that are thrown away in our houses. Today, we are going to learn more about the things that we discard or throw away, and by the time we finish this lesson, you will be able to tell me if we could use less of them (reduce), if any of these items can be used over again (reused), if any of these items can be turned into new materials (recycled), or if any of them just have to be thrown away forever. And finally, we are going to learn how we can become Recycle Right Ambassadors. So, let's get started!"

Purpose for the Lesson

"You're probably thinking to yourself, why are we talking about garbage and what we throw away at home? Well, the truth is that what we throw away has a tremendous effect on our environment and together we can make a real difference in our world by increasing our recycling and following the recycling rules. If we do this, we save energy, natural resources, and space in landfills. It is one of the most important things we will talk about today, so you will want to pay very close attention. You'll also want to pay close attention because at the end of this lesson, I am going to ask you to sign a pledge to show that we, as a class, as individuals, and your family at home, will do everything we can to make the world a better place for everyone by recycling."

Learning Activities

Ask the students to think back to the different items they mentioned earlier that they threw away at home. Ask them if they think that people throw out a lot of stuff like that every day. Have the students guess how much garbage people throw away every day. Place the bag on the scale and show them that the bag weighs about four and a half pounds, which is what people throw out every day. Allow them to feel what four and a half pounds feels like by letting each one lift the bag.

- Tell the class that you are going to ask them to do something very difficult. You are going to ask them to rethink something. Elicit ideas as to what that means and then indicate that you are going to take things out of your garbage bag and ask them to rethink what they would do with it in order to see if they could reduce the amount of garbage in the bag.

- As each item is taken out, introduce the concepts of reduce, reuse, and recycle. Some items can be reduced in use, some can be reused as something else, and some can be recycled, made into other items, and some items can be reduced, reused, and recycled! Do not put items back in bag unless they cannot be reused, reduced or recycled. When you take out an aluminum can, tell the class that if one can like this is recycled, it can be turned into a new can. And, as you take out a piece of paper, tell the class it could be made into a cereal box or a piece of cardboard.

Teacher Idea

In order to help with the introduction of the reduce, reuse, and recycle concepts, make a word card for each term, and as each is discussed, place each word on a wall in a different part of the room, perhaps recycle on the front wall, reduce on the back wall, and reuse on the side wall. As you take items out of the bag, ask them to point to the word that describes whether the item could be reduced in use, reused, or recycled. This will allow you to determine if there is an understanding of the terms and if they can accurately identify types of garbage.

- At the end of this discussion, weigh the bag once again to show how much lighter the garbage bag is because they have been rethinking about garbage and where it goes. If appropriate to their level, have students attempt to compute the difference in weight from the four and a half pounds to the lesser amount.

"Did anyone ever hear the expression, 'One bad apple spoils the cart?'"

- Elicit responses from students.

"What it means is that if you are carrying a load of apples in a cart and one of them is rotten, it can make the rest of the apples rotten. That is a lot like recycling and why recycling the right way is so important. If you put something in the recycle bin that does not belong there (ask students to give an example) it can spoil all the other recycled materials in the bin and ruin or contaminate the load."

- For purposes of giving basic information about this concept, hold up an empty water bottle and ask if it can be recycled (yes). Then, hold up the same type of bottle with a few inches of liquid in it. Ask again, if it can still be recycled. The answer is no because any bottle that has liquid in it must be emptied before it is recycled. Similarly, any container or cardboard box with any food in it cannot be recycled. A pizza box is a good example because many times there are some food scraps like a crust or cheese in the box when you throw it out. This will serve as a basic introduction to the Recycle Right concept.

"Now listen carefully because I am going to tell you the recycling rules:

1. **Recycle clean bottles, cans, paper, and cardboard.**
2. **Keep food and liquid out of your recycling.**
3. **No loose plastic bags and no bagged recyclables."**

Teacher Idea

In order to bring more life to this section of the lesson and to remind them and others to follow the recycling rules, teach the class to react with the following every time someone does not follow the rules:

Hold tight! (Right arm/hand held up like a policeman stopping a car)
If we promise to recycle, (left arm extended straight out)
And we promise to do it right, (right arm extended straight out)
We take care of the environment (both arms crossed against chest)
And make our future bright!!!! (Both arms extending toward sky)

Show or give students a few examples of things that should not be recycled and allow them time to learn to react with above.

Closure

"We've talked about a lot of very important things today, so before we move on, let's make sure we remember the most important ideas. I am going to hand out a ***sheet of paper*** *(attached) and you will see that it has two empty cans on it, one that has a Recycle Right on it and one with the word Garbage on it. Everyone put your finger on the Recycle Right can. Great! Now I am going to hold up some things, and I want you to show me you know where it should go by putting your finger on the correct bin.*

However, if you are not sure, remember: When in doubt, throw it out, only recycle bottles, cans and paper."

- Proceed to present examples, either through pictures or through actual items in the classroom to determine if students understand basic concepts of what to recycle and how to recycle right. Make sure you utilize several examples of items that have food or liquids on them or in them, such as a bottle with some liquid in it, or food soiled paper, or food scraps attached to a cardboard box, as these items would make them non-recyclable.

"Finally, since we all know how important it is to our environment that we recycle as often as we can and that we recycle right, what would you think about us making the Recycle Right promise to help save our natural resources by recycling?"

- Pass out the **promise leaf** and have students complete (per the option chosen/described in the Teacher Prep materials).
- After signing, have a unison reading of the pledge (or have students read their own pledges.
- It would be appropriate to display the promise leaves somewhere in the classroom to remind everyone of their pledge.

"Congratulations, now become a Recycle Right Ambassador by having others make the promise, too! How many of you think that we should ask our family members to make a promise like this one so they can also help us? Great! I am going to give you another promise leaf to take home and you can ask the members of your family to sign it. Perhaps you could even put it on the refrigerator or somewhere in the house to remind everyone to recycle and follow the recycling rules. We are going to continue to study recycling and see how we can keep having a positive impact on our class and our families, but also on others here in the school and in our community. After all, we all share the same earth and we have to take good care of it."

Homework Assignment

"Just as we did in class today when we each completed a Recycle Right promise leaf, I would like each of you to take home a promise leaf tonight that your family can sign to join you as Recycling Ambassadors. And, on the back side of the Pledge, are the recycling rules we talked about today that you can review with your parents."

- Distribute **promise leaf** with backside completed or have students write in the Recycling Rules.

RECYCLE RIGHT GRADES K–2

Introductory Lesson Extension Activities

Take a Litter Walk

The objective is to collect litter in the schoolyard and then discuss the problems associated with it. Analyze (how much could have been recycled), weigh, and discuss possible ways to prevent littering. Be sure to prepare the students by reviewing safety procedures and providing rubber gloves.

Materials needed: *rubber gloves for students, bags to collect litter, and bathroom scale.*

Lunchroom Detective

Have students check their lunch bags before going to lunch. Have them investigate whether they could do anything differently to help reduce, reuse or recycle the amount of trash they will have left after eating their lunch.

Host a 4Rs Picnic

Invite the class to a picnic, a 4Rs picnic. The items they bring must produce as little garbage as possible. Weigh the garbage produced at centers or as additional classwork. Listed below are several **Recycled Art Activities.**

1. **Egg Carton Bugs** – Take old egg cartons and turn them into bugs! Have students accurately replicate the bug/insect/spider of their choice.
2. **Earth Day Grocery Bags** – Celebrate Earth Day by decorating and reusing paper grocery bags with messages to reuse and recycle paper.
3. **Milk Carton Planters** – Use milk cartons to grow flowers with your students! Make a milk carton pot, fill it with soil, plant a seed and watch it grow.
4. **Patchwork Geometry** – Reuse scrap paper to learn about geometry and make gift or greeting cards.
5. **Milk Carton Pen Pot** – Reuse milk cartons to make a pot for storing pens and pencils on your desk.
6. **Napkin Ring Holders** – Decorate your table with earth-friendly napkin ring holders.
7. **Cereal Box Folder** – Reuse colorful cereal boxes to make folders students can use to stay organized at school and at home, or make a cereal box drum that can be used in music class.

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Journal/Picture Writing

Take any aspect of the lesson and have students write about it or draw it (depending on grade). Examples:

a) In order to emphasize the Recycle Right message, have students write a paragraph on what the difference is between recycling and recycling the right way.

b) Have students describe an item that they recycled the night before and explain why.

c) Ask students what will happen if we do not follow the recycling rules.

d) Each night for a one week period, have students document what they recycled. At the end of the week, ask them to write about the impact that has had on how much garbage they got rid of.

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RECYCLE RIGHT GRADES K–2

Introductory Lesson Teacher Preparation

1. In the classroom, designate a recycle bin for recycling paper only.

2. One week prior to the lesson, each day at a designated time before dismissal, have students count how much paper is in the recycle bin. In K-1, that number should be placed on the board and compared from day to day, identifying whether the amount was greater, stayed the same, or was reduced. In grade 2, each student should draw a bar graph and compare the results.

3. The night before you present this lesson, distribute and review the Recycle Right Home Survey (attached). Ask students to complete this survey at home with adult assistance and bring it to class the next day.

4. Prior to the lesson, fill a garbage bag with four and a half pounds of garbage, the average amount of garbage that each person throws away each day. Minimally, include the following items: a tin can, a plastic bottle (purchased) with some water in it, a plastic bottle that has no liquid in it, a brown bag, a newspaper (or section of the newspaper), an aluminum or steel can, a plastic sandwich bag, a cardboard milk carton, magazines, a clothing item that you are ready to throw out, a plastic bag used to bag groceries at the market, used paper towels, and at least a few sheets of notebook or writing paper.

   To help you guide students, note the following recycling rules:

1. **Recycle clean bottles, cans, paper, and cardboard.**
2. **Keep food and liquid out of your recycling.**
3. **No loose plastic bags and no bagged recyclables.**

Do not exceed four and a half pounds but try to include a good cross-section of items that could be recycled, reused, or reduced in use. For example, the brown lunch bag could be replaced by a lunch box, and the plastic sandwich bag replaced with a plastic container that could be washed and reused each day.

Materials Needed

(Please note: consider laminating copies for shared or future use or display using available technology)

1. Recycle bin in the classroom (this can just be a cardboard box)
2. A scale (bathroom scale works well) in the classroom
3. **Recycle Right Home Survey** (attached)
4. A bag with garbage in it weighing approximately four and a half pounds. Minimally, the bag should include the following items: a glass bottle, a tin can, a plastic bottle full of water (purchased), a plastic bottle that has no liquid in it, a brown bag, a newspaper (or section of the newspaper), an aluminum soda can, a plastic sandwich bag, a cardboard milk carton, a clothing item that you are ready to throw out, a plastic bag used to bag groceries at the market, used paper towels, and at least a few sheets of notebook or writing paper.

5. **Handout with two cans on it, one that says Garbage and the other with the Recycle Right on it** (attached)

6. **Recycle Right Student/Family Pledge/Promise Leaf** (attached)

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TEACHER VOCABULARY FOR THE LESSON

Vocabulary for students should be adapted based upon grade level.

"CLOSE THE LOOP"

Recycling is a success when we choose to buy recycled-content products. Re-manufacture is the final leg in an object's journey from the recycling bin back to the supermarket shelf. In the case of an aluminum can, it can take as little as six weeks for it to reappear as a brand new can.

COMPOST

A mixture that consists largely of decayed organic matter and is used for fertilizing and conditioning soil.

CONTAMINATE

To make something dirty or unusable (refer to Recycle Right Recycling Rules)

DISCARD

Get rid of, or throw out

MAN-MADE PRODUCT

Something that people make, such as a shirt, a house, furniture, toys, etc.

NATURAL RESOURCES

Those raw materials supplied by the Earth and its processes. Natural resources include nutrients, minerals, water, plants, animals, etc.

PLEDGE

A promise to do something

RECYCLE

To make materials such as glass, aluminum, paper, steel and plastic into new products.

RECYCLE BIN

A container or box in which we place recyclables. Place a Recycle Right Bin Sticker on all your recycle bins. They are available from Waste Management. It looks like this:

REDUCE

To decrease the amount of waste we produce by buying only what we need, avoiding disposables, and buying products that are not over-packaged.

RETHINK

Think before you toss. Choose whether you can reduce, reuse, or recycle garbage before you throw it out. And, if you choose to recycle an item, make sure you follow the recycling rules.

REUSE

To extend the life of an item by using it again, repairing it, or creating new uses for it.

WASTE REDUCTION

The process of producing less waste. For example, people can reduce waste by minimizing what they use and by reusing and recycling items.

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HOME SURVEY

Take a look at your household habits. Are there ways you can reduce, reuse and recycle even more?

RETHINK AND REDUCE

Look in your kitchen garbage and find four items that your family regularly throws away.

Could you rethink any of these items in your garbage? (Hint: Think about the four Rs.

	ITEM Example: Plastic sandwich wrapper Example: Apple cores	HOW CAN YOU RETHINK IT? Pack my sandwich in the reusable container. Put the yard waste bin so that it can be composted.
1		
2		
3		
4		

REUSE

What type of bag does your family use for shopping?

☐ Plastic ☐ Paper ☐ Reusable

If your bag is not reusable, what do you do with it afterward?

☐ Throw it away ☐ Reuse it

Recycle an aluminum can today, and it could be back on the shelf as a new one in just 60 days!

If you use reusable bags, what does your family do to remember to bring the reusable bags to the store?

☐ Store them in the car ☐ Hang them by the front door ☐ Other:_____

RECYCLE

Do you have recycling collection where you live? ☐ Yes ☐ No

If yes, where are your recycling carts located?_____

Does everyone in your home know what's recyclable? ☐ Yes ☐ No

List three recyclable items: _____ _____ _____

Does your family recycle anywhere else?

☐ School ☐ Work ☐ Park ☐ Community Center ☐ Other: _____

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RECYCLING VS. GARBAGE CAN HANDOUT

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STUDENT/FAMILY PLEDGE/PROMISE LEAF

Preparation Notes: Options for making promise leafs:

- **Option 1**: Print this page, have students cut out leaves and glue the sides together
- **Option 2**: Print first leaf only, have students cut out then write down the Recycling Rules or make up their own reduce/reuse/recycle pledges on the backside

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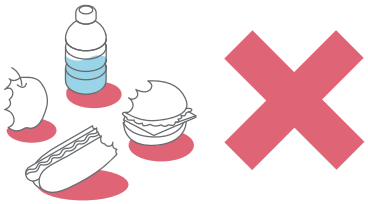
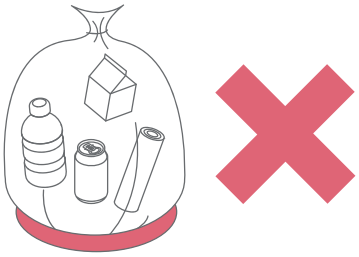
RECYCLING RULES

Certain offenders can slow down the recycling process or even ruin the load.

Recycle clean bottles, cans, paper, and cardboard.



Keep food and liquid out of your recycling.



No loose plastic bags and no bagged recyclables.

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Examples of Items That Contaminate the Recycling Process:

Paper Towels

Straws

Items with Food or Liquid

Chip Bags

Juice Pouches

Foam Cups

Candy Wrappers

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RECYCLE RIGHT GRADES K–2

Impact on Natural Resources Lesson

Time Frame:

This lesson has been developed to span a time period of 20-30 minutes. However, it can be adapted to fit your classroom needs based upon attention span and levels of students. It can also be adapted and used with learning centers and in reading and math lessons.

Teacher Introduction

This lesson is designed to be a follow-up to the Recycle Right Introductory Lesson. The concepts of increasing recycling and following the recycling rules are core components of this and every other lesson in the series, and will be a central theme that is reinforced again and again. By the end of this lesson, students will have a better understanding of the different ways they can positively impact our environment, particularly the preservation of our natural resources by recycling.

Lesson Objectives:

1. Students will be able to name three everyday items made from natural resources.
2. Students will be able to give one example of one renewable resource and one non- renewable resource.
3. Students will demonstrate their understanding of the impact that increased recycling can have on saving natural resources.
4. Students will individually, and as a class, develop an action plan to show how they can positively affect the preservation of natural resources by spreading the word on the right way to recycle.

Essential Learnings

1. Natural resources are things that occur naturally in the earth and are not made by people, but can be used by people. Examples of natural resources are trees, soil, plants, water, animals, minerals, and energy. They are classified as renewable and non-renewable.
2. Renewable resources are those that can be replaced as they are used. Examples of these are trees and water.
3. Non-renewable resources are those that are not replaced as they are used by people. Examples of these are oil, natural gas, and minerals.

4. Many things that we throw into the garbage are made from natural resources. If we do not find ways to conserve our natural resources, they will disappear. One of the ways to conserve our natural resources is to recycle.

5. The more we recycle, the more we save natural resources.

6. When we recycle, we always need to follow the recycling rules in our community.

Anticipatory Set

"Think back to the lesson where I brought in a bag full of garbage. Let's see who can remember how much garbage I told you every person throws out each day. Don't raise your hand, just think about it. Raise your hand if you think it was 10 pounds. Now raise your hand if you think it was three pounds. Now raise your hand if you thought it was four and a half pounds. If you thought it was four and a half pounds you are right! Good for you for remembering. Now, I want you to think of one way we talked about reducing that garbage amount by taking something out of the garbage and putting it in a special bin or container. I will give you a hint: it had a sticker like this one on it."

- Hold up the Recycle Right Bin Sticker

"Excellent, I heard so many of you say 'recycle!' In fact I even heard some of you say, 'follow the recycling rules!!!!!' You have been so good at remembering what we already learned! Today, we are going to learn more about the things we recycle and by the time we are done this lesson, you will be able to tell me why recycling is so necessary for our environment."

Purpose for the Lesson:

"What we are going to learn today is so important that I want you to listen very carefully, because when you line up at the door to go home at the end of the day today, I am going to ask you to tell me two things that you will tell someone at home tonight that you learned during this lesson about recycling. So listen very carefully."

Learning Activities

- Hold up an empty plastic water bottle.

"Tell me, what is this? Now tell me what I should do with it when I am finished drinking all the water out of it? Everyone. . . (Recycle it) What if there was still a half bottle of water in it and I wanted to throw it away. What would you say to me?"

- See if any students remember the following that was presented in the previous class:

  Hold tight! (Right arm/hand held up like a policeman stopping a car)

  If we promise to recycle, (left arm extended straight out)

  And we promise to do it right, (right arm extended straight out)

  We take care of the environment (both arms crossed against chest)

  And make our future bright!!!! (Both arms extending toward sky)

- If not, review the jingle with them so that they are focused on the message to follow the recycling rules.

We must all remember how to recycle the right way. Let's review the Recycling Rules:

1. **Recycle clean bottles, cans, paper, and cardboard.**
2. **Keep food and liquid out of your recycling.**
3. **No loose plastic bags and no bagged recyclables.**

"All of you just told me we need to recycle this empty plastic bottle. That is right because it takes petroleum products or fossil fuels to make plastic bottles and they are called natural resources. Natural resources come from the environment and are very important in our lives. They include trees, water, soil, the sun, minerals, oil, and wind. Some of these are renewable and others are non-renewable. What do renewable and non-renewable mean?" Elicit responses. "Renewable means that as we use something, more of it is made. An example would be water. How do we get more water? That's right, we get more water from rain and snow. So water would be called a renewable natural resource. In other words we do not use it all up whenever we drink it, or take a bath or shower. So what does non-renewable mean then? It means that once it is all used up, it is gone forever. Remember our plastic bottle? I told you it was made from petroleum products or fossil fuels, and they are a non-renewable natural resource. So, if every time we use a plastic bottle and throw it away, we are losing more of a natural resource.

But, if we recycle the bottle, it can be made into something new like the lining of a jacket, a pillow, or a sleeping bag. Now think about that. If it can be made into all of these things, we are saving a natural resource. We use natural resources for our food, energy including heat, lights and to power cars, and for products we use every day here at school and at home."

"This idea of renewable and non-renewable natural resources can be a difficult one to understand so I am going to help make it clearer for you. Look at these two jars I have sitting in the front of the room. They are both filled with candy (jelly beans work well here). One I have put a sign on that says renewable resources and the other says non-renewable. The candy in the renewable jar stands for natural resources like water, sunlight, and trees. The candy in the jar that says non-renewable stands for natural resources like oil, coal and natural gas. Now I am going to pass around the jar that says non-renewable resources and as the jar comes to you, you may take out as much candy as you like and then pass the jar to a classmate. But remember, if this jar is filled with a non-renewable resource like oil or coal or natural gas, when the jar is empty there will be no more to replace it."

- Pass around the jar until it is empty. Some students may not get any candy at all because it has been used up before it gets to them. Discuss how this will happen with non- renewable natural resources like oil and coal and natural gas and that in the future if we do not take care of the environment by recycling, there will be none of them left for others, just like there was no candy left for their classmates.

"Now, let's look at the other jar of candy, the one that says renewable resources on it. I am once again going to pass the jar around, starting in reverse from the way I passed around the other jar, and you can take as much as you want when it reaches your desk."

- After several students have taken candy out of the jar, refill it with more candy, and do this several times as the jar moves around the room.

"As you can see I am refilling the candy. Why am I doing that? What does the candy stand for? Yes, it stands for a renewable resource, like water that, as we use it, replaces itself. Let me ask you a question. Today, each of you used paper to write on. Do you think that is a renewable resource or non-renewable?"

- Select three or four students to answer.

"Can you tell me why? It is renewable because paper is made from trees and trees can be re-planted. But because trees take so long to grow after they are replanted, we need to make sure we are not using up this natural resource, so we should always recycle paper. Who can tell me what we can make from recycled paper?"

- Elicit ideas.

"You came up with some great ideas! Yes, we can make cereal boxes, cardboard, newspaper, and tissue paper all from recycled paper. And when we recycle paper, we are saving what? Yes, our natural resources."

Teacher Idea

Ask the students to count how many pieces of papers they used today. If each piece costs one cent, how much did they spend? How many pieces of paper could have been re-used, perhaps by writing on the back of the paper or on empty spaces on the paper? If each was one cent and they subtracted that from how much they spent, how much did they save by reusing the paper?

"Remember, every time we recycle, we save natural resources. Now, I am going to hand out the **Recycle Right tree***. I want you to draw on each branch of the tree, things that you can recycle. When we are finished, we will hang these in our room to remind us and others that to protect our environment we need to recycle. We also want everyone to know what should and should not be placed in the recycling bin."*

- Trees could also be sent home to display as a reminder for the family.

Closure:

"It is important for us to share these messages with our family and friends to help them as they recycle. Now I am going to read a poem to you that is entitled **When Is Garbage Not Garbage?**, by Katie Confused. I want to see if we can help Katie figure out when garbage isn't really garbage. So listen carefully and then we will see if you can help answer her questions about what she can recycle."

Impact on Natural Resources Extension Activities

Journal/Picture Writing

Have students write or draw about the relationship between natural resources and recycling (depending upon grade). Examples:

a. In order to emphasize the importance of recycling, have students write a paragraph on what will happen to natural resources if we do not do more recycling.

b. Have students describe an item that they recycled the night before and explain why they did it, and how that affects a natural resource.

c. Each night for a one week period, have students document what they recycled. At the end of the week, ask them to write about the impact that has had on how much garbage they got rid of and how it helped to use up less natural resources.

Take a Natural Resources Walk

Take a walk through the school grounds and have students identify all the natural resources they can see or feel (wind, sunlight, soil, trees, plants, rocks, etc.) Upon return to the classroom, have them list all the natural resources they found and then place an R next to those that are renewable, and an N next to those that are non-renewable. Once again, reinforce how they can help to save our natural resources by increasing their recycling and being sure to follow the recycling rules.

Impact on Natural Resources Teacher Preparation

1. Two jars full of candy are needed for this lesson; one jar labeled renewable resources and the other labeled non-renewable resources. (With concerns regarding allergies, please be aware of the type of candy chosen and what it contains. You may want to advise parents that you will be using this item in class in case there are any concerns.)
2. Review the poem "When Is Garbage Not Garbage?" by Katie Confused (see below) as it will be used in the closure of the lesson.

Materials Needed

(Please note: consider laminating copies for shared or future use or display using available technology)

1. Empty plastic water bottle (single-use kind that is purchased)
2. Plastic water bottle with some water in it (single-use kind that is purchased)
3. Jar full of candy (perhaps jelly beans) with a sign on it that says renewable resources
4. Jar full of candy that says non-renewable resources on it
5. Recycle Right Tree (attached)
6. Poem entitled "When Is Garbage Not Garbage?" by Katie Confused (attached)
7. Recycle Right Recycling Rules (attached)
8. Recycle Right Bin Sticker

TEACHER VOCABULARY FOR THE LESSON

Vocabulary for students should be adapted based upon grade level.

Recycling is a success when we choose to buy recycled-content products. Remanufacture is the final leg in an object's journey from the recycling bin back to the supermarket shelf. In the case of an aluminum can, it can take as little as six weeks for it to reappear as a brand new can.

Conservation

The use of natural resources in a way that ensures their continuing availability to future generations; the intelligent use of natural resources for long-term benefits.

Environment

The sum of all external conditions and influences that affect the development and ultimately, the survival of an organism or group of organisms.

Natural resources

Those raw materials supplied by the Earth and its processes. Natural resources include nutrients, minerals, water, plants, animals, etc.

Non-renewable Resources

Substances such as oil, gas, coal, copper, and gold, which, once used, cannot be replaced in this geological age.

Recycle

To make materials such as glass, aluminum, paper, steel and plastic into new products.

Reduce

To decrease the amount of waste we produce by buying only what we need, avoiding disposables, and buying products that are not over-packaged.

Renewable Resources

Resources that have the capacity to be replaced through natural processes; trees and animals are renewable resources.

Reuse

To extend the life of an item by using it again, repairing it, or creating new uses for it.

Stewards of the environment

Taking care of our natural resources for future generations

To learn more, visit
wm.com/recycleright

WASTE MANAGEMENT

RECYCLE RIGHT TREE

To learn more, visit
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WM
WASTE MANAGEMENT

WHEN IS GARBAGE NOT GARBAGE?

by Katie Confused

When is garbage not garbage,

That's the question I keep asking myself,

What goes in, what goes out,

and what can stay on the shelf.

For years I've been told the garbage needs to go out,

Not my favorite job but it does no good to pout.

But times have changed and now I'm just not sure

What goes into the garbage before it goes out the door.

I drank the milk out of the bottles, I read all the newspaper's news,

I blew my nose in the tissues – now aren't all of these used?

I emptied my soda can, there's no pizza left in the box,

I even need to throw out a pair of my hole-filled socks!

I've finished with these things, I don't want them anymore,

There's no reason I know not to show them the door.

Every one of these items in times gone past

I'd put at the curb till the garbage truck took them at last.

I'm just so confused I don't know what to do,

Is it garbage or something else? I'm counting on you,

To help me discover what's best for us all,

So when I take out the garbage I can stand proud and tall.

When is garbage not garbage,

I am beginning to see the light.

When is garbage not garbage,

When we all learn the way to recycle right!

To learn more, visit
wm.com/recycleright

WASTE MANAGEMENT

RECYCLE RIGHT BIN STICKER

RECYCLE

Plastic Bottles & Containers

Food & Beverage Cans

Glass Bottles
& Containers

Paper

Flattened Cardboard
& Paperboard

To Learn More Visit **wm.com/recycleright**

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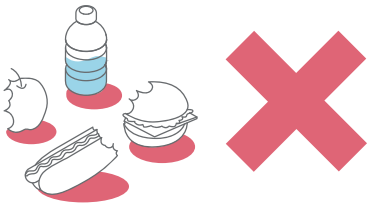
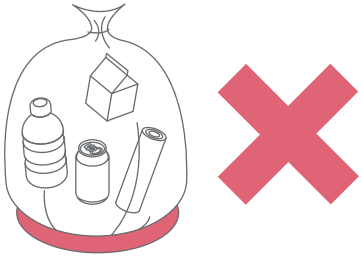
RECYCLING RULES

Certain offenders can slow down the recycling process or even ruin the load.

Recycle clean bottles, cans, paper, and cardboard.



Keep food and liquid out of your recycling.



No loose plastic bags and no bagged recyclables.

Visit wm.com/recycleright to join the cause and become a Recycling Ambassador.

Examples of Items That Contaminate the Recycling Process:

Paper Towels

Straws

Items with Food or Liquid

Chip Bags

Juice Pouches

Foam Cups

Candy Wrappers

To learn more, visit
wm.com/recycleright

WASTE MANAGEMENT

RELATIONSHIP TO NEXT GENERATION SCIENCE STANDARDS FOR GRADES K–2

STANDARD	RELATIONSHIP
K-2-ETS1-1	Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. Before beginning to design a solution, it is important to clearly understand the problems.
K-2-ETS1-2	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function, as needed, to solve a problem.
K-ESS-2	Construct an argument supported by evidence how plants and animals (including humans) can change the environment to meet their needs. Things people do can affect the world around them.
K-ESS3-2	People encounter questions about the natural world every day. People depend on various technologies in their lives; human life would be different without technology.
K-ESS3-3	Communicate solutions that will reduce the impact of humans on the land, water, air, and other living things in the local environment.
K.MD.A.1	Describe measureable attributes of objects such as length or weight. Describe measureable attributes of a single object.
K.MD.B.3	Classify objects into given categories, count the number of objects in each and sort the categories by count.
1-PS4-4	People depend on various technologies in their lives; human life would be very different without technology.
1-PS4-4	Science investigations begin with a question.
1-PS4-4	Scientists use different ways to study the world.
ETS1-B	Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.

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WASTE MANAGEMENT

RELATIONSHIP TO NEXT GENERATION SCIENCE STANDARDS FOR GRADES K–2

STANDARD	RELATIONSHIP
1-LS1-1	Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world.
1.MD.C.4	Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category and how many more or less are in one category than in another.
2-PS1-1	Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
2-PS1-2	Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world.
2-PS1-3	Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.
2.MD.D.10	Draw a picture graph and a bar graph (with single unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph.
2-LS2-1	Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.
2-LS2-2	Events have causes that generate observable patterns.
2-ESS2-1	Scientists study the natural and material world. Developing and using technology has impacts on the natural world.

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