

Waste Management Arrrs

“If you want grown-ups to recycle, just tell their kids the importance of recycling and they’ll be all over it.” –Bill Nye

Background Information:

Bin Information

This bin is the first in a series of three lesson teaching about waste management. In this lesson, students will be introduced to the “3R’s” of solid waste management (Reduce, Reuse, Recycle) and learn why they are important, and practical things that they can do to reduce, reuse, and recycle in ways that are developmentally appropriate. To add fun and interest, this lesson is written with a pirate theme.

The second lesson in this series takes a closer look at greenhouse gases and landfills, and in the third, students will perform a waste audit for their own lives.

Information for Instructors

The 3Rs: When single-use plastics and a culture of disposable products started to become increasingly prevalent in the 1970’s, public initiatives to encourage proper disposal and slow the production of such waste also increased. The three R’s of solid waste management—reduce, reuse, recycle—were introduced at this time (Eschner, 2017). Recycling is the third in that list because it is the least effective of the three. Most consumers have a poor understanding of what can be collected by their local recycling program or how to prepare materials to be recycled. Poor collection rates, contaminated materials, and limited infrastructure for processing all reduce the effectiveness of recycling. Furthermore, materials that are properly processed are rarely returned to their original form. Instead they are ‘downcycled;’ used as material for a different product ultimately destined for a landfill. Recycling is still heavily pushed because despite not being nearly as effective as it has the potential to be, it does still divert a significant amount of waste from landfills and is more palatable for some people less willing to make the lifestyle changes reduction and reusing can require.

The Minnesota Pollution Control Agency has a designated waste management hierarchy which lists the order of priority of strategies as waste reduction, reusing, recycling, composting, processing waste to energy, and considers landfills as a last resort once all other options have been exhausted (Slater, 2018).

Author:

Dominique Menard

Themes:

Empathy, waste management, reuse, reduce, recycle, pirates

Estimated Duration:

60 minutes

Audience Identified:

K-5th grade

Location:

Outdoors

Goal:

Students will learn more about the ‘3R’s’ of solid waste management in ways that are practical to their life.

Objectives:

Students will be able to define reduce and give an example of a way that they could reduce waste.

Students will be able to define reuse and give an example of a way that they could reuse something instead of throwing it away.

Students will be able to define recycle, and be able to identify types of materials that are recyclable and know that they must be clean and dry before being tossed.

Materials and Set-Up:

This kit includes:

- Pirate hat for instructor
- Reuse/Recycle station:
 - 2 buckets
 - Waste material icons
 - Recycle Well print out
 - Optional: cones to mark a starting line

You will need:

- Ball
- Optional: Classroom trash or recycling items for the reuse station

Set-Up:

- Reduce station:
 - No set up required
- Reuse station:
 - Determine whether the Reuse station will be sharing materials with the recycle station or if classroom waste will be used instead. Set up appropriately.
- Recycle station:
 - Use something to designate a starting line (cones, rope, environmental markers, etc.)
 - Set the waste materials at the start point
 - Set up the two buckets about twenty feet away. Mark one as trash and the other as recycling.

Introduction:

Estimated Duration: 5 minutes

Attention Getter:

Any established group or classroom attention-getters can be used to regain the attention of the students when giving directions for transitioning activities. If you choose to use an attention-getter personalized to this lesson, introduce the following before introducing the lesson:

- The instructor calls out “Reduce, Reuse, Recycle!”
- The students put one hand over an eye to mimic an eyepatch and make a hook shape with the other hand and call back “Arrrrr!” in their best pirate voice.

Warm Up:

Start this lesson in character as a pirate with the hat included in the bin. Optionally, you can adopt a pirate voice or a pirate name.

Tell the students that you have been having a lot of trouble lately while you been sailing and looking for treasure because there has been so much trash in the water. You have learned some ways for people to reduce their waste and are now going around to teach the ‘Arrrrs’ of waste management.

If you will be going through the groups as stations, divide the group into three at this point.

Content and Methods:

Estimated Duration: 15 minutes per station (45 minutes total)

There are three different activities for this lesson: one for each of the three main “R’s” of waste management.

Reduce: Trash Talk

- The best way to get rid of waste is to avoid producing any in the first place.
- For this activity, have students arrange themselves in a circle. The instructor will start with a ball, and say a type of trash- for example, a snack wrapper.
- Students will attempt to think of ways that they can reduce that type of trash in their life. When they think that they have an answer, they can raise their hand, and the ball will be tossed to them.
- They then give their alternative way to reduce that type of trash. In this case, they might choose to eat an apple or another snack that doesn’t have a wrapper. Then it is their turn to list a type of trash and pass the ball.
- If students get stuck, work as a group to come up with an answer, but keep in mind that reducing waste requires different lifestyle changes. Some of the answers may require more of a change than others, even cutting something out, which not everyone is willing to do, and that’s okay. For example, a plastic bag can be reduced by taking a reusable bag to the store, or carrying small items in your hands which is a small lifestyle change. Eliminating waste from food packaging usually requires changing where you purchase food and sometimes what you will eat, which is not always a viable option.
- Keep going until everyone has gone at least once.

Discussion

- What’s a way that you can reduce waste?
- Do you have to completely get rid of all waste to be successful at reducing? Why or why not?

Reuse: Brainstorm

- There are two main ways to reuse; one is to use items for the same purpose multiple times, such as refilling a water bottle or reusing a plastic fork. The other method is to take items that cannot still be used for their original use, and repurposing them for a new, future use, such as turning an empty can into a planter.
- Either using the same items from the recycling relay, or better yet, pulling from (clean!) items from a recycling or trash can from school, the instructor will pull out one item at a time and give students a few moments to determine if it can be used again or made into something new.
 - If the item could be used again, like a bag in good condition, then students can put their hands on their head.
 - If the item could be used for a new purpose, like a paper towel roll used for a craft project, students can put their hands on their shoulders.

- If the item could be used again OR repurposed, like a glass jar that could be used for storage or as a drinking glass, etc. then students could put one hand on their shoulder and one hand on their head.
- If it is really time for the item to be disposed of, students should keep their hands on their laps.
- Go around and hear from a couple of students for each item, especially the ways that it could be repurposed. If the group decides that it is time to toss the item, double check that the trash is the right spot and it should not be recycled or composted.
- Optionally, have a challenge round as well, where students are put into small groups and each shown the same item. Whichever group can come up with the most potential uses for the item 'wins.'

Discussion

- What's an item that you can use again instead of throwing away?
- What's something that you usually throw away that you could make something new with?
- Is it better to use something for the same purpose again, or to make something new with it, or does it depend? Why?

Recycle: Recycle Relay

- Have participants line up behind the starting line. The first person will select a piece of waste from the pile at the starting line and run to the buckets at the other end. They must determine if the item can be recycled or not and place it in the corresponding bin. Then they will run back and give the next person in line a high five to start their turn.
- The round can be done when everyone has had a turn, all the waste is sorted, or a set amount of time has ended. Call off of the end and tally the points. Each item correctly put in the recycling is worth 2 point, however, trash items that have been put in the recycling are -3 points.
- Check as a group to see if there are things in the trash that could have been recycled and go over items in the recycling that were incorrect, clarifying why. Play another round and try to improve the score.

Discussion

- What's something that you learned about recycling?
- Is there anything that you can do to improve recycling at your home?

Conclusion:

Estimated Duration: 10 minutes

To conclude this lesson, gather back as one group. In the pirate character, thank the students for learning about all of the ways that they can reduce waste with the 'arrrs.' Spend some time back as one group quickly reviewing what happened at each station and reiterating key points while checking for understanding. If there are any misconceptions, correct them before moving on.

Ask students if they will be using the 'arrrs' going forward. Invite any students who respond positively to become honorary members of your crew.

Reflection and Evaluation:

Estimated Duration: during lesson

Reflection

Reflection questions for this activity are included with each respective station so that the activity will be fresh in the minds of the students.

Evaluation

Evaluation for this activity takes place during the reflection after each station. Students are considered successful if they are able to consistently give examples of ways that they can reduce, reuse, and recycle that show they have an understanding of each concept.

Extensions:

Accessibility and Accommodation

Distance Learning: In this activity, all of the stations are possible to run with social distancing. In addition, there are also options for transitioning these activities to occurring virtually over web conferencing.

- For Trash Talk, run the activity the same way, but have students mime throwing a ball and directing it by saying the name of one of their classmates.
- For Brainstorm, the activity can be run either by having the instructor hold items up to a camera and having students answer, or by each student choosing an item from their own household that has been tossed, but they think could have new life and taking turns presenting and responding to their classmates.
- The Recycling Relay game can be replaced by an online activity from National Geographic Kids that has students virtually sort items in a quick game. The link can be found here: <https://kids.nationalgeographic.com/games/action-and-adventure/recycle-roundup-new/>

Moving Through the Activities

This lesson contains three different activities: one for each 'R' of solid waste management. There are several different options for completing each activity.

- The group can go through each activity as written.
- The group can be broken into three smaller groups and rotate through the activities as stations.
- Each activity can be done separately to extend the lesson.

Other Themes

If, for any reason, a pirate themed activity does not best meet the needs of your programing, the content of this lesson can be easily adapted. It can be taught without any extra theme, or another one can replace pirates. Simply change the attention getter and role of the instructor.

Recycling Sort Extensions:

- Put out 4 buckets at the end and have two teams compete against each other.
- Hand participants items instead of letting them choose. (This may be a good option to adjust the challenge level for a variety of ages or to prevent waste from blowing around in the wind.)
- Use the "Recycle Well" print out to help participants double check before tossing.

Reference Materials:

Eschner, K. (2017, November 15). How the 1970's created recycling as we know it. *Smithsonian.com*. Retrieved from <https://www.smithsonianmag.com/smart-news/how-1970s-created-recycling-we-know-it-180967179/>.

Slater, B. (2018, May 26.) Priorities clash in garbage arena—Local authorities, MPCA at loggerheads over landfills. *Duluth News Tribune*. Retrieved from <https://www.duluthnewstribune.com/news/4452193-priorities-clash-garbage-arena-local-authorities-mpca-loggerheads-over-landfills>

