**Ryan’s Waste Week Schedule - Lesson and Activity Outline**

**Overview:** Students join Ryan on her week-long quest to learn about waste. Each day includes a full lesson that begins with a short story introduction.

**Instructions:** Start on Monday and follow the story and corresponding lessons for the entire week or select individual lessons based on grade level, time, topic, etc. Lessons may be extended or integrated into a full unit of study. Read the short story introduction out loud to students at the beginning of each lesson. Lessons contain story, full overview and logistics, instructions, and student worksheets.

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
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<tbody>
<tr>
<td>Ryan’s curiosity about waste is sparked and she is inspired to investigate more throughout the week.</td>
<td>After learning about the basics of waste, Ryan explores how to dispose of her waste properly by sorting into the 3 bins.</td>
<td>Now that she is an expert sorter, Ryan is curious to see how well her whole family is sorting. She performs a waste audit at home.</td>
<td>Ryan decides to try finding new ways to use old items or fix them before throwing them away.</td>
<td>Excited to share her new knowledge, Ryan discusses what she’s learned with her class and celebrates with Bingo!</td>
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**Instructions:**
- Watch the introduction video about waste. Make a simple model landfill.
  - Complete reflection questions
  - Build a model landfill with items from home (Grades 3-5)*

**Lesson/Activities:**
- **Monday Reflection Worksheet - “What is Waste?”** (Grades K-2 and 3-5)
- **Build a Model Landfill** (Grades 3-5)*

*Resource provided by our friends at the San Mateo County of Office of Sustainability

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What is Waste?

Lesson Plan

Ryan is at recess, playing soccer with her friends. She gives a final kick and the ball soars into
the goal just as she hears the teacher’s whistle blow. Ryan’s class lines up and heads back inside. As
they approach the classroom, Ryan notices that the class lights are off and the TV screen is on. The
students all take their seats, and Mr. Wilson explains that for Earth Day they’ll be watching a documentary
on where waste goes.

Ryan watches the movie and is amazed by what she’s learning. She sees a truck pick up waste
in a neighborhood that looks just like hers! The truck drops the garbage off at a Transfer Station, where
hundreds of garbage bags are loaded into a huge semi-truck. She watches as the semi-truck dumps its
waste into the landfill to be buried, and… oh no! Birds swoop down, trying to eat the trash. As she listens
to the movie closely, Ryan hears someone say, “Each of us makes about 4.5 pounds of waste a day.”
Ryan looks at her friend in disbelief. “No way!”, she thinks to herself. The documentary ends, but the idea
of waste sticks with her.

Ryan makes it her mission to find out more about waste. Using the computer in the library, Ryan
asks her teacher if she can look up more information about waste. With her teacher’s approval, Ryan
begins her search to find out more. Are there different types of waste? Does all waste go to the landfill?
What else could we do with waste instead? So many questions!

Overview:
On average, Americans throw away 4.5 pounds of waste daily. Over 50% of this waste is sent to
be buried forever at the landfill. Not only is this a poor use of our natural resources, but landfills
also release methane, a powerful greenhouse gas, that contributes to climate change.

By taking actions like practicing the 4R’s (Reduce, Reuse, Recycle, and Rot), we can make a
positive difference in our world by decreasing and diverting the waste we generate.

Purpose and Learning Objectives:
This activity allows students to reflect on the Where Waste Goes video. Students will be able to
share how they feel, better understand waste processes, and communicate what they wish to
learn more about. By learning more about waste issues, students can discuss with others and
encourage others to participate.

Materials:
Students will need internet access to watch the video before completing this reflection sheet.
Adult facilitation is helpful but not required.

Grade Level: 3rd grade, 4th grade, 5th grade

Time: 20 minutes (5 minutes for video + 15 minutes for reflection sheet)
What is Waste?

Student Worksheet

Watch the “What is Waste?” video.

Once you’ve finished watching our video, take some time to answer these questions:

1. Did you think of another item that belongs in the garbage? Write it below:

2. What new information did you learn about waste?

3. How did you feel when seeing the different kinds of waste (garbage, compost, and recycling)?

4. What is one thing that your family can do to create less garbage?

5. Review the 4R’s: Reduce, Reuse, Recycle, and Rot. Can you think of a 5th R?

6. What are you most excited to learn more about?

Next, complete the “Build A Model Landfill” activity!
Let’s Sort Successfully!

Lesson Plan

Yesterday, Ryan decided to learn more about waste after hearing that “Each of us makes about 4.5 pounds of waste a day.” With permission from an adult, Ryan used a computer to do research. Ryan discovered that:

1. All of our garbage is taken to a landfill, where it is buried in the ground.
2. Waste that makes its way into our environment can harm people and nature.
3. We can all help make a difference by making less waste!

The more Ryan learns, the more surprised she is. Learning about waste problems has made Ryan wonder what she can do about it. A lightbulb clicks on in her head—Ryan remembers the blue bin in her classroom, for all of the paper scraps! Her teacher said that those scraps will be made into new paper that can be used again. Ryan has a similar blue recycling bin at her family’s apartment, but she’s not sure her family knows what other items can be recycled.

Ryan sets a goal to learn how to sort her waste properly. She knows that correctly sorting items into the recycling and compost bins means less of her waste has to go to the landfill. But… Ryan realizes that her apartment doesn’t have a compost bin. How can they get one? They’ve been putting food and dirty napkins in the garbage bin, but if she got a compost bin, they could put food stuff in there instead!

Ryan decides to ask her mom for help. Ryan’s mom listens to the dilemma and begins to think. “Well,” says Ryan’s mom, “Maybe we should write a letter to the person in charge of our apartment complex and ask for a compost bin!” Ryan smiles excitedly. “Great idea!” she says, as she jets off to find a pencil and paper.

Overview:

39,485,479.05 tons of waste were sent to California landfills in 2018 alone (Cal Recycle, 2018). Of this, 181,189 tons were from the RethinkWaste service area (RethinkWaste, 2019). While this comprises less than 1% of our state’s total landfilled waste, we can still work to reduce it.

When material is sent to landfill, it is compacted and becomes a source of methane, which is a greenhouse gas that contributes to climate change. By reducing the amount of waste we are sending to landfill, we are reducing the amount of methane sent into our atmosphere.

Purpose and Learning Objectives:

This activity allows students to reflect on their own behaviors and think about how they affect the environment. Students are encouraged to share what they have learned with their caretakers or other decision-makers in their community.

Materials:

Students will need internet access for this activity. They will also need a pencil and paper. Adult facilitation is strongly recommended but not required.

Grade Level: 3rd grade, 4th grade, 5th grade

Time: 1 hour - 1.5 hours
Let’s Sort Successfully!

*Student Worksheet*

If you live in the RethinkWaste service area, which includes cities from Burlingame to East Palo Alto, the garbage we make at school, home, and businesses is sent to the Ox Mountain Landfill in Half Moon Bay - right next to Lemos Farms!

Ox Mountain is expected to fill up around 2039; when this happens, we need to start a new landfill. However, if we reduce the amount of waste that we send there every day, we can make sure that the landfill is open longer.

One way we can help is by sorting our waste into the recycling and compost bins instead of putting everything into the garbage.

For today’s activity, we are going to learn about how to sort our waste and how we can teach others to do the same.

**Instructions:**

1. Start today’s lesson by watching [Episode 2](#) of The Green Zone.
2. Next, try your hand at sorting with this [game](#) on the RethinkWaste website.
3. Finally, share what you’ve learned with everyone that you live with! If you have recycling, compost, and garbage options available to you at home, pick **one** of these options:
   - Post [these signs](#) wherever you see waste bins in your home.
   - Create your own new signs and post them wherever you see waste bins in your home. Use words or phrases that will work best for you and your family!
   - Teach the other people that you live with about how and why we sort our waste.

If you do **not** have sorting options available to you at home or at school, write a letter to whoever is in charge of arranging these services. For example, this could be your apartment complex’s property manager, your principal, or your adult guardian.

   - Explain why you are requesting compost or recycling services, and why it is important that we do our best to sort our waste!
   - If you don’t have a compost pail in your kitchen, ask your parent or an adult in your household to help request a free compost pail by contacting Recology [here](#).
When you have completed all of the activities, we can think about what we’ve learned so far:

1. Who or what do you think is affected by landfills being in or near their homes? Do you think they like the landfill? *Hint: Think about smells, litter, and natural habitats!*

2. What is the benefit of putting food in the compost bin instead of the garbage bin? What about putting recyclable items in the recycling bin instead of the garbage bin?

3. What is one change that you can make in your own life to send fewer things to the landfill?

4. What is one thing that you’ve learned during this lesson that you wish everyone knew?
Build a Landfill

Background: Humans have always had to think about what to do or where to put the waste we create. What happens when we can’t reuse, recycle or compost our waste? In the early 1900s, people would burn their trash at home or dump it in open areas around their towns. By the 1960s, cities decided that one way to deal with these informal “open dumps” was to create “sanitary landfills.” Why did engineers think that it was important to build landfills in a special way? New landfill standards aimed to protect groundwater, reduce runoff pollution and permanently contain the waste created by town and city residents.

Lesson: In this lesson, you will build a model landfill. You will then use it to demonstrate your understanding of the landfill layers concept used by landfill engineers around the United States.

1. Before you begin, read the following table of considerations that engineers must examine when constructing a landfill and each consideration’s definition or purpose. Answer the prompts to the right.

<table>
<thead>
<tr>
<th>Consideration</th>
<th>What it is/does.</th>
<th>Answer or Predict:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groundwater</td>
<td>Freshwater running beneath the earth’s surface that feeds wells and springs.</td>
<td>How might landfills contaminate groundwater?</td>
</tr>
<tr>
<td>Soil Type</td>
<td>There are 3 main soil types: sand, silt and clay. Each soil type has different qualities that allow life to thrive or struggle. Clay soil is important for landfill engineers because it is resistant to water moving through it.</td>
<td>Why do you think soil type is an important consideration when engineering a landfill?</td>
</tr>
<tr>
<td>Liners</td>
<td>Liners are made of thick, impermeable plastic.</td>
<td>Make a prediction on how you think liners are used in a landfill.</td>
</tr>
<tr>
<td>Leachate</td>
<td>Leachate is the liquid that settles at the bottom of a landfill. This liquid comes from a combination of the liquids in the garbage itself and rainwater that comes into contact with the garbage in the landfill</td>
<td>Make a prediction on how leachate must be removed and treated so that it does not contaminate groundwater.</td>
</tr>
<tr>
<td>Garbage</td>
<td>In a municipal landfill, garbage is any waste that comes from households and businesses. It should not include hazardous waste such as batteries, hazardous liquids or medical waste.</td>
<td>Garbage is bulky and has a lot of air space in between all the different items. Make a prediction on how landfill operators remove all the extra air space in a garbage heap.</td>
</tr>
<tr>
<td>Vegetation</td>
<td>Plants placed on top of a closed landfill heap.</td>
<td>Why are grasses favored over trees as landfill vegetation?</td>
</tr>
</tbody>
</table>
2. Gather as many of the following materials as you can:
   - A clean, empty 2-liter bottle
   - Craft foam sheets. If you don’t have these, you can substitute cardboard.
   - 1 or 2 plastic straws
   - 1 plastic bag, to cut up and make layers from
   - Small garbage items (This is a model, so you will have to break your garbage material down into small pieces.)
   - About a cup of small rocks, washed and rinsed clean
   - Food coloring or a tea bag (to color water)

When gathering supplies, reuse or find recyclable materials from your home. Get creative and write your own key for the items you find in your home to represent each layer:

<table>
<thead>
<tr>
<th>Clay</th>
<th>Liner</th>
<th>Leachate Pipes</th>
<th>Soil</th>
<th>Vegetation</th>
</tr>
</thead>
</table>

3. Now you will build a model landfill. Your goal will be to protect the groundwater underneath all the landfill layers. Here are some preliminary steps, but mainly you will use your materials and ingenuity!

   A. Carefully cut the top of your two liter bottle off so it looks like the shape below.

   B. Add about ¼ cup of water to the bottom of the bottle. This will be your groundwater. Place rocks in your groundwater to make it easier to build on.

   C. Now you will begin to add layers corresponding to the different materials that are needed to construct a landfill. You’ll notice that your first challenge is to keep your first layer from touching the groundwater.

   D. Your next challenge is to use as many of the landfill elements as possible and to keep your groundwater clean. On a separate piece of paper, make sure to draw and label your finished landfill. Example:

   E. Once your layers are complete, your last step will be to simulate rain by spraying or sprinkling about a ¾ - ½ cup of stained or colored water onto the top of your landfill model. Record your observations.

*Image Source: Wake County Environmental Services*
Finish your landfill investigation by answering the following questions:

1. Were you able to keep your groundwater clean? If yes, what strategies do you think helped your groundwater stay clean? If no, describe what you think happened.

2. Why are soil types an important consideration when constructing landfills? How does clay soil affect the movement of water in a landfill? Besides soil, what other factors are affecting the movement of water in a landfill?

3. What other daily and yearly considerations do landfill operators have to be prepared for when operating a landfill?

4. In the real world, what do you think happens to all the layers in a landfill over time? If we could slice through a landfill like a cake and look at the layers, would the layers look the same in 50 years? 100 years? 500 years?

This lesson was adapted from: Wake County Environmental Services, Solid Waste Management Division, Raleigh, NC
Waste Detective for a Day

Lesson Plan

Two days ago, Ryan watched a documentary about waste. She was so surprised to learn that each day, Americans make about 4.5 pounds of waste! Yesterday, Ryan learned how to sort using recycling and compost bins. Today, she’s going to see how much waste her family makes.

Ryan knows that sending all of her family’s waste to the landfill would not be good for the environment. When we put waste into the garbage bin, it goes straight to the landfill where it is buried forever. After learning about how to sort her waste, Ryan really wants to change her family’s habits – she wants everyone to use compost and recycling bins as much as possible, since things that go in those bins can be made into something new!

Ryan makes up her mind: she is going to show her parents how much waste they can save from the landfill by doing a waste audit. She will count her family’s waste and demonstrate what should be recycled and composted. Then, hopefully they’ll want to learn how to sort properly, too. Fingers crossed!

Purpose and Learning Objectives:
This activity allows students to reflect on their own behaviors and think about how they affect the environment. Students are encouraged to share what they have learned with their caretakers or other decision-makers in their community.

Key Terms:
- **Compost**: A nutrient-rich fertilizer made from our food and yard scraps. Anything we put in our green compost bin becomes fertilizer
- **Landfill**: An area of land meant to handle the disposal of solid waste. The landfill is the final destination for anything we put in our garbage bin
- **Reduce**: To make less waste by using fewer items and resources
- **Reuse**: To extend the life of an item by using it over and over again or thinking of new ways to use it
- **Recycle**: To make new products from used materials. This is what happens to items put in our blue bin

Materials:
Students will need internet access for this activity. They will also need a pencil and paper. Adult facilitation is required for younger students.

Grade Level: 1st grade, 2nd grade, 3rd grade, 4th grade, 5th grade

Time: 1 - 1.5 hours
Waste Detective for a Day

*Student Worksheet*

**Instructions:**

**Step 1:** For this activity, we will be taking a detailed look at the waste we create for 2 days! This is called a waste audit. From when you wake up to when you go to bed, make a list of the types of items you are using throughout the day (ex: hard plastic container). Tally of these items in the provided table.

To see an example waste audit and a refresher on how to sort your waste correctly into each bin, watch [this video](#).

**Step 2:** Answer the Data Review and Discussion questions.

**Step 3:** Next, do your best to reduce your waste over the next week. Try to use less paper, reuse containers, and save your leftovers for later! See the provided “Tips and Tricks” sheet for more ways to reduce.

**Step 4:** Conduct another waste audit. Think about what changed and what stayed the same.

**Optional:** If you do not have a compost pail in your kitchen, ask your parent or an adult in your household to help request a free compost pail by contacting Recology [here](#).

If you live in an apartment, ask your parent or an adult to talk to the property manager of your apartment complex about getting compost services for everyone in your building!

**Remember:** When we put items in the black bin, they go straight to the landfill and are buried in the ground forever. This means that if we put compostable or recyclable items into the landfill bin, they can never turn into nutrient-rich fertilizer or new items.

We all share the planet Earth with each other. Let’s do our part and think before we throw!
### Waste Audit #1

<table>
<thead>
<tr>
<th>Material type</th>
<th>Tally</th>
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<tbody>
<tr>
<td><strong>Hard Plastic</strong></td>
<td></td>
</tr>
<tr>
<td>Water bottles, applesauce and yogurt containers, peanut butter jars, etc.</td>
<td></td>
</tr>
<tr>
<td><strong>Soft Plastic</strong></td>
<td></td>
</tr>
<tr>
<td>Chip and candy wrappers, zip-top bags, plastic lids to snack containers, etc.</td>
<td></td>
</tr>
<tr>
<td><strong>Metals</strong></td>
<td></td>
</tr>
<tr>
<td>Cans for tuna, soup, beans, soda cans, aluminum foil, etc.</td>
<td></td>
</tr>
<tr>
<td><strong>Paper/Cardboard</strong></td>
<td></td>
</tr>
<tr>
<td>Boxes for cereal or snack bars, junk mail, magazines, newspaper, etc.</td>
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<tr>
<td><strong>Glass</strong></td>
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<tr>
<td>Soda bottles, jars for pasta, jam, pickles, etc.</td>
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<tr>
<td><strong>Other</strong></td>
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</tr>
<tr>
<td>Plastic straws, plastic utensils, juice boxes, tissues, diapers, pet waste, etc.</td>
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</tr>
<tr>
<td><strong>Food Scraps</strong></td>
<td></td>
</tr>
<tr>
<td>Egg shells, fruit peels, chicken bones, any uneaten food items</td>
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**Notes and Observations:**
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Notes and Observations:
Data Review

1) What material type did you generate the most of?

2) What fraction of your waste was soft plastic?

3) What fraction of your waste was hard plastic, metals, paper/cardboard, glass, AND food scraps? When sorted into the correct bins, these items will not end up in a landfill!

4) Choose 10 items and graph them by material type below. What do you notice?
Discussion

1) How is the waste you create at home different from the waste you create at school? Why is it different (or the same)?

2) Think about your answer to Question 1 of the Data Review. How could you reduce the amount of waste you create in this category? What about the other categories?

3) How did this activity make you feel?
Practicing the 4R’s at Home!

Tips & Tricks

Reducing your waste can seem hard, especially when it feels like everything is wrapped in packaging! Here are a few tips for practicing the 4R’s (Reduce, Reuse, Recycle, Rot) at home.

**Bulk Buy:** Small snack bags are perfect to pack in our lunches, but they create a lot of waste that gets sent to the landfill. Instead, buy a bigger container of your favorite snack and pack them in reusable containers. This is also a great way to reduce the number of trips you take to the grocery store.

**Reuse Reuse Reuse:** Store leftovers in containers instead of plastic bags. If you prefer plastic bags or it’s what you have on hand, give them a quick rinse so you use them more than once.

Instead of putting plastic food containers from restaurants and markets in the recycling or trash, clean them out and use them to store food or other small household items.

**Dismiss Disposables:** When ordering food to-go or delivery, ask the staff not to include disposable utensils if you will be eating at home.

Instead of using paper towels, try using more cloth napkins or small hand towels that can be washed when necessary.

Beeswax wrap is an easy, sustainable alternative to one-use plastic wrap. You can even make your own!

**Successful Storage Systems:** Try to eat food that will spoil first - move them to the front of the fridge or create a special, designated area for them and tell the people you are living with!

**Bad Banana Becomes Bread:** Be creative with produce that is past its prime. Soft fruits can go into smoothies and wilted vegetables can be added to soup or stew.

**Clean Clutter but Curb Waste:** If you plan to start spring cleaning early, save items that you don’t want but are in good condition for donation.
Another "R": Repair!

Lesson Plan

On Monday, Ryan watched a movie about waste, and decided to learn more. On Tuesday, she learned how to properly sort using the compost, recycling, and garbage bins. Yesterday, Ryan conducted a waste audit. She looked through her family’s waste to see what they throw away. She even wrote a letter to ask for a compost bin at her apartment. Today, Ryan wants to learn about new ways she could use items before putting them in any of the bins.

“Daaaaaaad!” Ryan yells. “Have you seen Teddy?” Ryan has been searching high and low for her favorite teddy bear, but can’t seem to find it! Ryan’s dad tells her that he hasn’t seen it either. Ryan continues searching, but it’s not under her bed, behind the couch, or in her chest of toys. Ryan sits on the couch to think about where it might be. From the corner of her eye, she sees a flash of golden fur. Ryan turns to look and sees Teddy in her dog’s mouth! She gently wrestles the toy from her dog, but notices that Teddy’s arm is badly ripped.

Ryan thinks about throwing the toy away, but she’s had so much fun playing with Teddy. She thinks back to everything that she’s learned this week and decides that she doesn’t want her toy to be buried at the landfill. Ryan brainstorms other things she could do with Teddy. Can she glue it back together? Maybe she can reuse the fabric for an art project. Finally, Ryan decides to ask her dad for help sewing the rip!

Overview:
Waste is generated at an increasing rate every year. On average, one person living in America (that includes us!) makes about 42 pounds of electronic waste per year. Sadly, most of that will likely end up in landfills. From electronics to small appliances, furniture to clothing, we want to remind students that “broken” doesn’t have to mean “trash”. We can all help conserve our natural resources by trying to fix our broken items insteading of throwing them away. We know the 4R’s: Reduce, Reuse, Recycle, and Rot (Compost). Now, we want to introduce one more important “R”: Repair!

Purpose and Learning Objectives:
This activity gives students the opportunity to practice observation skills by noting broken items in their home. They will be prompted to reflect on and discuss the theme of “Repair” using cause-and-effect reasoning. Students will also engage in creative problem-solving by brainstorming possible solutions and sketching.

Materials:
Students need a notepad and pencil to record their broken items if they are unable to print the following worksheets. Internet access will be helpful for the lesson extension, where students can directly input their data. Adult facilitation is strongly recommended, but not required.

Grade Level: 3rd Grade, 4th Grade, and 5th Grade

Time: 30 minutes – 1 hour
Standards and Topics Connections:

<table>
<thead>
<tr>
<th>3rd Grade</th>
<th>4th Grade</th>
<th>5th Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-5-ETS1-1 Engineering Design</td>
<td>4-ESS3-1 Earth and Human Activity</td>
<td>3-5-ETS1-1 Engineering Design</td>
</tr>
<tr>
<td>3-5-ETS1-2 Engineering Design</td>
<td>3-5-ETS1-1 Engineering Design</td>
<td>3-5-ETS1-2 Engineering Design</td>
</tr>
</tbody>
</table>

Adaptations and Extensions (Optional):
This activity can be expanded to analyze data as a class and include multiple students. Each student can input their findings into a spreadsheet, logging information such as number of broken items, item type(s), and brand(s). This data can then be graphed for further analysis and/or mathematical calculations. Use “Lesson Repair Template” as an example.

Alternatively, teachers may facilitate a discussion among students and encourage them to share their findings and compare what they found. This could become an extended exercise by keeping a posted log in the classroom (or online) of broken items at home and/or school.
Another “R”: Repair!

You have probably heard about the 4 R’s already: Reduce, Reuse, Recycle, Rot. These are great ways to think about waste, but there is another special “R” that is important, too. Can you guess what it is? You’re right! It’s Repair!

What does repair mean? Have you ever had a toy that stopped working? Or noticed a rip or hole in a pair of pants? Many people think that once something is broken it’s time to throw away, but there is probably a way to fix it or repair it first!

Repair is important because when you repair an item, you make it last longer. When we throw an item in the garbage, it usually goes straight to the landfill and stays there forever. When you repair something that was broken, you can extend its useful life - which means you are keeping it out of the landfill. Repairing an item also means you won’t have to buy a new one, which saves valuable resources, energy, and money. You might even learn handy new repair tricks!

Instructions:

All you will need is a pencil and creativity. You can either print the table from this worksheet, or write your answers on a separate sheet of paper and type it in later. Try using scratch paper if you have some available.

**Step 1:** Walk through all the rooms in your home. In each room, look for items that are broken in any way. This could be items like appliances, electronics, clothing, etc. Ask an adult to help you if you can’t reach something or if you aren’t sure what something is.

**Step 2:** When you find an item that could be repaired, document the details. Carefully fill out the table on the next page of this worksheet, or write down the answers to these questions if you’re using a separate sheet of paper:

- What is today’s date?
- What is the broken item? **Write the name or draw the item**
- Where was it found? **Example: kitchen cabinet**
- What material is this item made of? **Example: glass and plastic**
- What is it (intended to be) used for?
- How often would we use it if it were working? **Every day? Once a year?**

**Step 3:** Repeat Steps 1 and 2 until you think you’ve found most of the broken items in your home. You can also check your back or front yard with adult permission.

**Step 4:** Answer the questions at the end of this worksheet. Happy repairing!
<table>
<thead>
<tr>
<th>Date</th>
<th>What item is broken? <strong>Write or draw the item</strong></th>
<th>Where was it found? (Ex: kitchen cabinet)</th>
<th>What material is this item made of? (Ex: glass and plastic) <strong>How often do we use it? Write a sentence.</strong></th>
</tr>
</thead>
</table>
| Example: 2/20 | Example: ![Image of an iron](image)          | Example: Laundry room shelf               | Example: The iron is made of metal and plastic.  
We use it 3 times a week.                                                                 |
|          |                                                |                                           |                                                                                                    |
|          |                                                |                                           |                                                                                                    |
|          |                                                |                                           |                                                                                                    |
|          |                                                |                                           |                                                                                                    |
|          |                                                |                                           |                                                                                                    |
Questions

1. Find the sum of all of the broken items. Then, multiply the sum by the number of classmates you have. How many total broken items might belong to you and all your classmates?

2. Choose one item and guess how it might need to be fixed. Write your idea below:

   Then, with the help of an adult, look up a video on how to fix the item. Was your idea similar? What were the similarities? What were the differences?

3. How do you think this item could have been made differently to prevent it from breaking in the first place?

4. What do you think about when considering whether or not to fix a broken item vs. replace it? Cost? Convenience? Time?

Optional: With the permission of an adult, report your broken items here: http://bit.ly/brokenitemreport. This form helps us track and compile a record of items that are more likely to break. When enough data is collected, it can provide insight into which brands, products, and materials may be better to choose because they are more durable and last longer!

If you are able to, hold onto your broken items and bring them to the next Fixit Clinic in your neighborhood. Fixit Clinics are free events hosted by special Fixit Coaches who can help you try to repair your items.

If your teacher is collecting data from your class, input your findings to the shared spreadsheet.
A Few Tips from the Fix-it Fairies!

Clothing can easily be fixed by sewing up small holes or putting patches over large rips. Even a broken backpack strap can be repaired with a needle and thread!

Has the rubber or plastic covering on a cord worn away or broken so that the metal wires are exposed? Use some electrical tape to carefully cover up the wire - no need to buy a new one.

A zipper that opens behind the zipper slider is an easy fix. Use locking pliers to squeeze the top and bottom plates of the zipper slider closer together - just a little at a time. Repeat slowly until the zipper starts closing behind the zipper pull.
Waste Week Wrap-Up

Student Worksheet

On Monday, Ryan discovered what waste is, and where it goes. On Tuesday, Ryan learned how to properly sort using recycling, compost, and garbage bins. Ryan did a waste audit on Wednesday to see what items her family was throwing away. Yesterday, Ryan had fun experimenting with fixing old items and reusing materials that she already had at home.

Ryan is so excited about how much she learned this week that she started to share her new knowledge with others! She taught her family how to sort properly and even drew posters to remind them about what bin items should go into. Now, Ryan wants to share everything she learned to help motivate her classmates. Ryan decides to make a presentation about waste to her class and talk to them about why waste matters. She hopes that together, her class can come up with more ways to reduce their waste and make a big difference that positively impacts the school, their community, and the environment. Maybe they can even start a Green Team!

We’ve made it to the final day of our Waste Week! This week, we followed Ryan as she investigated what waste is generated in her home and ways she could reduce what goes into the landfill. She learned about how to sort properly, what happens with the waste she puts into the 3 bins, and why it’s important (and fun!) to try repairing and reusing things before throwing them away.

Reflect on the activities you completed for Waste Week and answer the following discussion questions:

1) What is something you learned this week that surprised you?

2) Describe how you felt about waste at the beginning of the week and compare it to how you feel now. Are you more confident about what goes into the different bins?

3) Why do you think it’s important that we learn about waste?
4) Where does waste come from, and why do we have so much of it?

5) **Ryan’s challenge to you:** Think back to the waste audit you completed on Wednesday. What is one change you or your family is going to make next week to reduce the amount of waste being thrown out?

Next, play the “At - Home Waste Bingo!” activity!
**Introduction:**
We all create waste everyday, whether it’s an apple core that can be composted, a plastic water bottle that can be recycled, or a wrapper that has to be landfilled. Waste happens! Let’s take a closer look at what we put into the 3 bins and identify the different types of waste you have at home.

**Instructions:**
Go around your home and neighborhood to find examples of waste. When you find an item that fits the description on the square, write or draw the item on the line. See the middle square for an example.

You can use the same item to fill in multiple squares, as long as the item correctly fits all of the descriptions. To win bingo, you must fill out 5 squares in a row, column, or diagonally.

If you are interested in being entered in a drawing for a fabulous prize, fill in every square with an item you found. To enter, email a picture or screenshot of the your finished bingo card to tours@rethinkwaste.org. Please include your name, the name of your parent or guardian, city, phone number, and email address so we can contact winners!

**Vocabulary:**

<table>
<thead>
<tr>
<th><strong>Single-Use</strong></th>
<th>An item that was made to be used only one time before being disposed of.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Soft-plastic</strong></td>
<td>Plastic that easily crumples up into a ball when you squeeze it, such as plastic bags.</td>
</tr>
<tr>
<td><strong>Hard plastic</strong></td>
<td>Plastic that stays the same shape when you squeeze it, such as plastic water bottles.</td>
</tr>
<tr>
<td><strong>Recyclable items</strong></td>
<td>Items that can be made into new items through the recycling process.</td>
</tr>
<tr>
<td><strong>Compostable items</strong></td>
<td>Items that can break down naturally into nutrient rich soil, which is called compost.</td>
</tr>
<tr>
<td><strong>Trash items</strong></td>
<td>Items that go straight to the landfill - be careful, because some items are too dangerous to put in the regular trash (like batteries!)</td>
</tr>
<tr>
<td><strong>Tetra-Pak</strong></td>
<td>A food carton made of different layers, usually including cardboard, plastic, and aluminum.</td>
</tr>
<tr>
<td><strong>Food-soiled paper</strong></td>
<td>Paper or cardboard that has touched food and has oil, grease, sauce, or crumbs on it, such as a pizza box.</td>
</tr>
</tbody>
</table>

**Sorting Resources:**
If you are having trouble figuring out what bin items belong in, use these resources to figure out the answer. Click on the links below:

- [What Bin - Recology of San Mateo County](#)
- [Interactive Carts - RethinkWaste](#)
<table>
<thead>
<tr>
<th>Item that belongs in the trash</th>
<th>Metal that belongs in the recycling</th>
<th>Single-use item</th>
<th>Item that belongs in the recycling</th>
<th>Yard trimmings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item made from mixed materials</td>
<td>Soft plastic</td>
<td>Tetra-Pak</td>
<td>Broken item</td>
<td>Item that does not belong in any of the bins</td>
</tr>
<tr>
<td>Item made from recycled material</td>
<td>Type of glass that does not belong in the recycling</td>
<td>Item that belongs in the compost</td>
<td>Item that belongs in the trash</td>
<td>Hard plastic</td>
</tr>
<tr>
<td>Hard plastic</td>
<td>Item that belongs in the compost</td>
<td>Black plastic</td>
<td>Packaging</td>
<td>Something you can reuse</td>
</tr>
<tr>
<td>Something you can reuse</td>
<td>Item that does not belong in any of the bins</td>
<td>Soft plastic</td>
<td>Food-soiled paper</td>
<td>Item that belongs in the recycling</td>
</tr>
</tbody>
</table>

**Follow Up Questions:**

1.) Of the total waste that you found, what fraction of it belongs in the trash? What about recycling? What about composting?

2.) List 2 reasons why it’s important to sort our waste properly.

3.) How can you help decrease the amount of waste you produce at home?