

1 Activity 1: What's Being Thrown Away?

Humans throw away a lot of different kinds of trash throughout the day. Scientists can learn more about the types of trash people throw away during the day by making observations. They do this by recording and analyzing their observations.



Your Mission: Collect and analyze data to determine what kinds of trash is being thrown away throughout the day.

Directions:

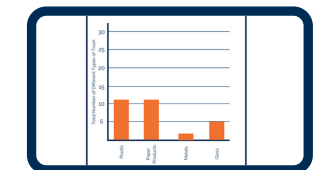
1) Use tally marks to record the different types of trash you observe being thrown away.



2) Count the total and put the number in the "Total Box."



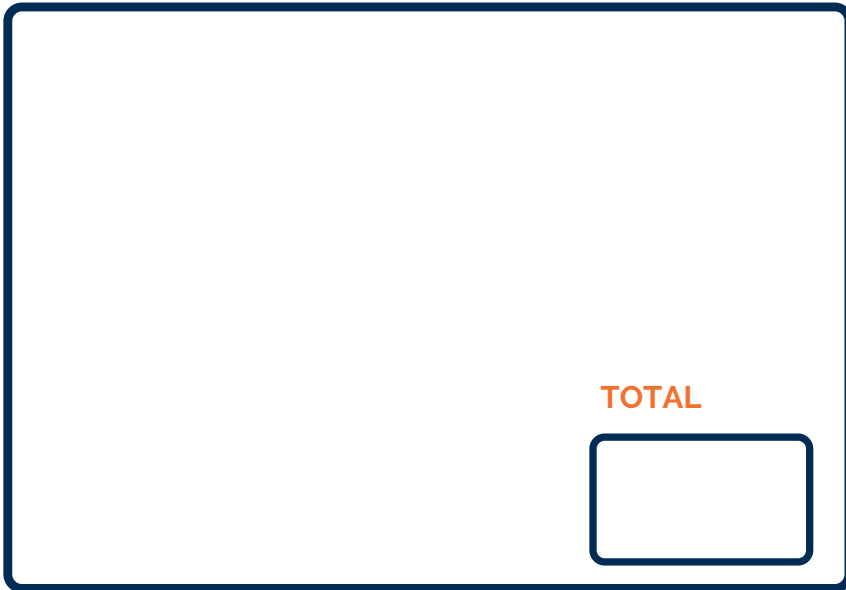
3) Create a bar graph. Shade in the types of trash you observed being thrown away each day and reflect and answer the questions.



Observation Trackers

Use tally marks to track the different types of trash you see being thrown away.
Count the total and put the number in the "Total Box."

Plastic



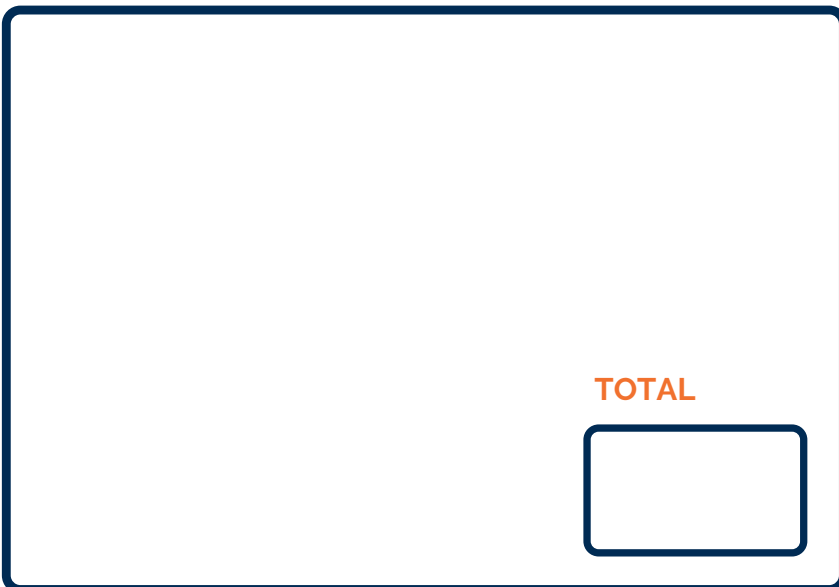
A large rectangular grid for tracking plastic trash. In the bottom right corner, there is a smaller rectangular box labeled "TOTAL" in orange text.

Paper Products



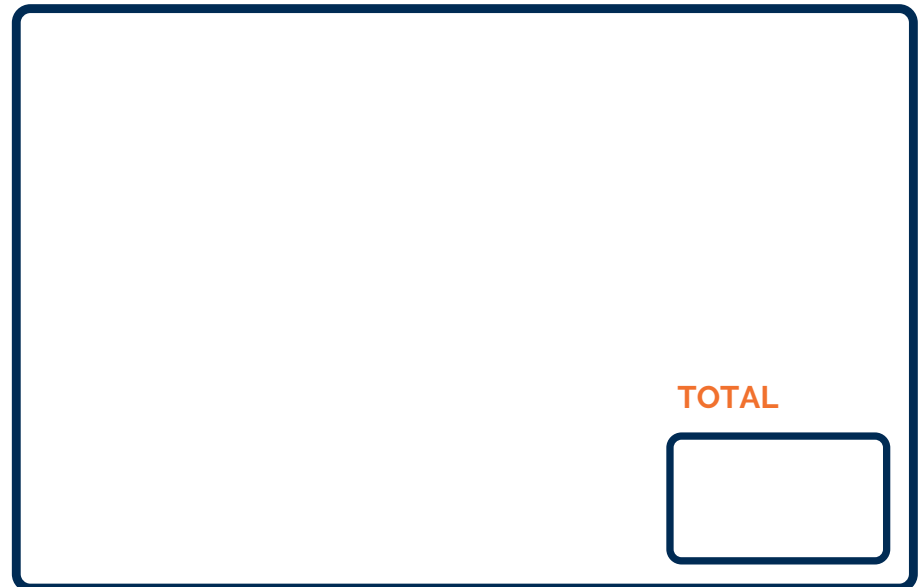
A large rectangular grid for tracking paper products trash. In the bottom right corner, there is a smaller rectangular box labeled "TOTAL" in orange text.

Metals



A large rectangular grid for tracking metals trash. In the bottom right corner, there is a smaller rectangular box labeled "TOTAL" in orange text.

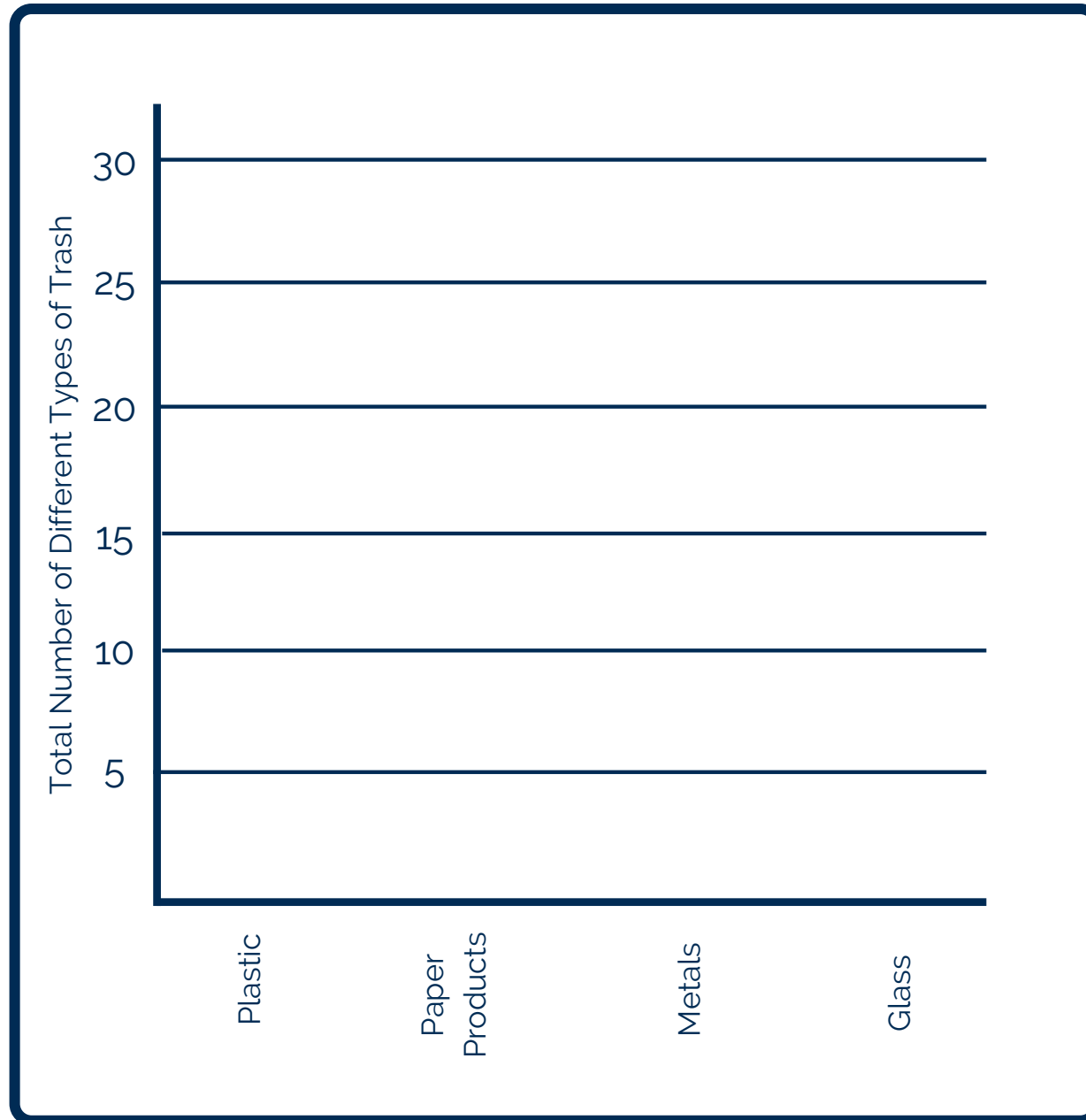
Glass



A large rectangular grid for tracking glass trash. In the bottom right corner, there is a smaller rectangular box labeled "TOTAL" in orange text.

Different Types of Trash Bar Graph

Create a bar graph. Shade in the number of the different types of trash you observed being thrown away each day.



Were you surprised by the amount of different types of trash you saw being thrown away. Why or why not?

What types of trash was thrown away the most? How could that trash have been used in a different way?

2 Activity 2: Sensory Bin

The objects we use every day can be described using their properties. Properties are characteristics that can be observed. For example:



Rough



Smooth



Light



Heavy



Your Mission: Using your senses, explore a variety of materials in the sensory bin and sort them using different properties.

Materials

- Paper Rolls
- Cardboard
- Scrap Paper
- Sticks
- Aluminum Cans
- Washers, nuts bolts, screws, etc.
- Leaves
- Plastic Bottles
- Crinkle Grass
- Feathers
- Rubber Bands

Materials should not be purchased at the store. Please look for items that may be considered trash or items you can upcycle for this project that you already have in your home or school.

Sensory Adjectives

You will use four of your senses to explore the sensory bin.

Sight



What can your eyes see?

examples: red, green, big, small, square, round, rolls

Hear



What can your ears hear?

examples: loud, soft, screeching, yelling

Smell



What can your nose smell?

examples: sweet, spicy, flowery

Touch



What can your hands feel?

examples: soft, rough, smooth, scratchy, hairy

Directions

1) Using all of your senses, (except taste), explore and observe the different materials in the sensory bin.



3) Record the materials and their properties.

Reflection Questions

What properties did you observe while investigating the sensory bin?

Paper Smooth
colors Sharp
metal

How did you decide what properties to use to sort the objects the second time?

2) Decide how you want to sort some of the materials based on their properties. Sort the items into different piles. For example, you may sort the plastic in one pile and cardboard in another.

4) Repeat steps 1-3 using different properties to sort the materials.

5) Answer the reflection questions.

Category #1	Sort #1	Category #2
Objects toilet paper roll cardboard	Objects Coins bolts screws	
What property do these objects have in common? They're both paper and cardboard	What property do these objects have in common? They're all metal	



Sort #1

Category #1

Objects

What property do these objects have in common?

Category #2

Objects

What property do these objects have in common?

Sort #2

Category #1

Objects

What property do these objects have in common?

Category #2

Objects

What property do these objects have in common?

Reflection Questions

What properties did you observe while investigating the sensory bin?

How did you decide what properties to use to sort the objects the second time?

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Activity 3: Light Shining Through



Have you ever wondered why light shines through some objects but not others? It is due to the properties of the object!



Your Mission: Make a prediction and then complete an investigation to determine which objects will allow light to pass through.

Materials

- Empty plastic bottle (colored)
- Full plastic bottle (colored)
- Balloon (blown up)
- Black piece of paper
- Book
- Clear lamination
- Flash light
- White piece of paper
- Clear glass jar

Directions

1) Use the prediction worksheet to make a prediction about which items will allow light to pass through.

		Through?
Book		Yes
Balloon		No
Full Plastic Bottle		No
Empty Plastic Bottle		Yes

2) In a dark room, use a flashlight to shine light through each object.



3) Record if light was able to pass through each object and decide if the object was transparent, translucent or opaque.

Object	Photo	Observed Will Light Pass Through?	Observed Did Light Pass Through?
Book		Yes	No
Balloon		No	Yes
Full Plastic Bottle		No	Yes
Empty Plastic Bottle		Yes	Yes

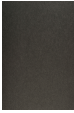
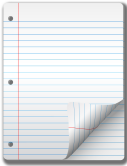
4) Answer reflection questions.

Reflection Questions

What surprised you about your observations?

I was shocked
light went through
a full bottle.

Making Predictions

Object	Photo	(Before) Will Light Pass Through?	(After) Did Light Pass Through?
Book			
Balloon			
Full Plastic Bottle			
Empty Plastic Bottle			
Black Paper			
White Paper			
Clear Glass Jar			

Reflection Questions

What surprised you about your observations?

Why do you think some objects let light through and others did not?

4 Activity 4: Shadow Art

Have you ever noticed how shadows can be different shapes, sizes, and colors? The shape, size, and color of shadows depends on the properties of the object that makes the shadow. Artists use this information to help them create beautiful pieces of art.



Your Mission: Create a piece of upcycled shadow art using what you've learned about light and properties of materials.

Materials

- Empty plastic bottle (colored)
- Scrap Paper
- Scissors
- Full plastic bottle (colored)
- Cardboard
- White Glue
- Plastic Bags
- Hot Glue



Materials should not be purchased at the store. Please look for items that may be considered trash or items you can upcycle for this project that you already have in your home or school.

Directions

1) Explore the available materials and decide what you want your shadow art to look like. You will need to pick at least one item that let's light pass through and one that does not.



2) Create your shadow art. Test the shadow art using the sunlight or a flashlight.

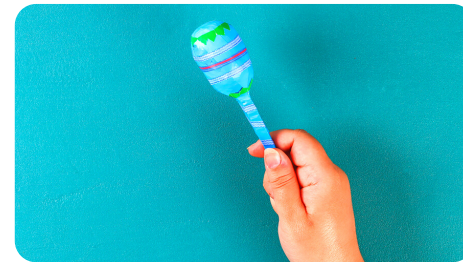
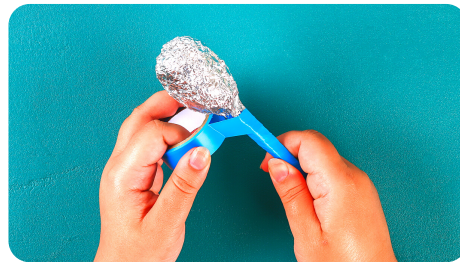


3) Decide if there are any changes you would like to make to your shadow art. Then make those changes.

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Activity 5: Upcycled Instruments

You can make old things new again by upcycling. One of the ways you can upcycle is by thinking about the different sounds materials make in order to create a musical instrument.



Your Mission: Using trash, or recycled materials, create a musical instrument.

Materials Examples of materials you may want to use:

- Paper Rolls
- Cardboard
- Empty Containers
- Sticks
- Aluminum Cans
- Washers, nuts bolts, screws, etc.
- Leaves
- Plastic Bottles
- Feathers
- Rubber Bands
- Metal or Plastic Utensils

Materials should not be purchased at the store. Please look for items that may be considered trash or items you can upcycle for this project that you already have in your home or school.

Directions

1) Explore the materials that are available to use for your instrument.



4) Build and test your instrument.



2) Investigate the sounds made by each object. Try hitting the objects together or against a hard surface.



5) Answer the reflection questions.

Reflection Questions

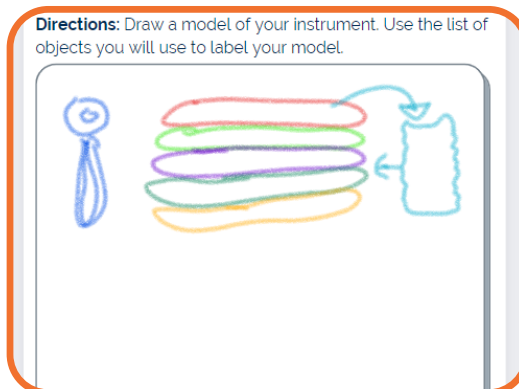
What did you name your instrument?

Drummer Extreme

How did you decide which materials to use?

The wand made a drum sound on the sticks. The bottle carried the sound.

3) Decide which objects you will use. Then draw and label a model of your instrument.



What sound do you want your instrument to make?

Directions: Draw a model of your instrument. Label your model with the materials you will use for each part.

Reflection Questions

What did you name your instrument?

How did you decide which materials to use?

Explain how you used creativity while creating your instrument.