



Blizzard Bag Lesson Plan 1

- Grade Level: 4-6
- Lesson: I.A.1—What is Waste? The Solid Waste Stream
What is in Our Solid Waste Stream?
- Source: *3Rs of the Common Core*
- Activity/Craft: Get Organized PDF
- Video Link: How to Care for the Environment—TurtleDiary.com
(<https://www.youtube.com/watch?v=V0lQ3lj140>)
- Game Link: EPA Trash & Climate Change PDF (<https://www.epa.gov/sites/production/files/2015-09/documents/k00-001.pdf>)

Lesson Matrix Grades 4-6

3R's of the Common Core

| Lesson | Leading Question | Objective | Common Core Alignments | Skills |
|--|---|---|---|--|
| 4-6 Litter Search I.A.1 | What kind of trash is found around the school? | Develop awareness of variety, sources and amount of litter Classify litter elements | Grade 4 CC.L.4.6 CC.SL.4.1 CC.4.MD.4 | Communicating results Gathering information Graphing data Investigating |
| | | | Grade 6 CC.L.6.6 CC.SL.6.1 CC.6.SP.4 | |
| 4-6 Lunch Bags I.A.2 | How much of your lunch do you eat and how much do you throw away? | Measure lunch waste Categorize content of lunch waste Identify ways to reduce solid waste | Grade 4 CC.SL.4.1 CC.SL.4.4 CC.4.OA.3 | Analyzing Applying mathematical concepts Collaborating Collecting data |
| | | | Grade 6 CC.SL.6.2 CC.SL.6.5 CC.6.NS.3 | |
| 4-6 The Story of... I.A.3 | What kind of container is best for the environment? | Understand resources that make up packaging Determine ways to reuse or recycle packaging | Grade 4 CC.SL.4.2 CC.SL.4.4 CC.W.4.8 | Communicating information Designing Evaluating Gathering information |
| | | | Grade 6 CC.SL.6.2 CC.SL.6.5 CC.W.6.8 | |
| 4-6 What Kind of Waste Am I? I.B.1 | Name one thing we throw away that didn't come from the earth. | Understand the characteristics of waste | Grade 4 CC.L.4.3a CC.L.4.6 CC.SL.4.1c | Designing Developing models Identifying Questioning |
| | | | Grade 6 CC.L.6.3a CC.L.6.6 CC.SL.6.1c | |

| Lesson | Leading Question | Objective | Common Core Alignments | Skills |
|----------------------------------|---|---|--|--|
| 4-6 The Lorax I.B.2 | What are some of the consequences of our throw-away habits? | Explore the impact of humans on natural systems Draw conclusions about the environmental impact of human behaviors | Grade 4 CC.RI.4.3 CC.SL.4.2 CC.SL.4.6 CC.W.4.4 | Communicating solutions Interpreting Problem solving Researching |
| | | | Grade 6 CC.RI.6.3 CC.SL.6.3 CC.SL.6.4 CC.W.6.4 | |
| 4-6 Then and Now I.C.1 | How have our lifestyles changed in the past one hundred years? How have these changes affected our waste stream? | Describe ways in which changing domestic habits have intensified human impact on the environment | Grade 4 CC.SL.4.1 CC.SL.4.3 CC.W.4.4 CC.W.4.7 | Interviewing Inventing Investigating Synthesizing |
| | | | Grade 5 CC.SL.5.2 CC.SL.5.3 CC.W.5.4 CC.W.5.8 | |
| 4-6 Hauling it Away II.A.1 | How much does waste disposal cost? | Understand that trash must be disposed of, that disposal options are limited, that managing trash can be problematic | Grade 6 CC.SL.6.3 CC.W.6.4 CC.W.6.8 | Applying mathematical concepts Communicating information Interviewing Questioning |
| | | | Grade 4 CC.SL.4.3 CC.SL.4.4 CC.W.4.2 CC.4.OA.3 | |
| | | | Grade 5 CC.SL.5.3 CC.SL.5.4 CC.W.5.2 CC.5.NBT.5 | |
| | | | Grade 6 CC.SL.6.3 CC.SL.6.5 CC.W.6.2 CC.6.NS.3 | |

Lesson Matrix Grade 4-6

3R's of the Common Core

Lesson Matrix Grade 4-6

3R's of the Common Core

| Lesson | Leading Question | Objective | Common Core Alignments | Skills |
|---|--|---|--|--|
| 4-6 Plastic Litter II.A.2 | Is plastic litter a problem? | Recognize the environmental hazards of plastic litter | Grade 4 CC.L.4.6 CC.RI.4.2 CC.SL.4.2 CC.W.4.3 | Analyzing Carrying out investigations Explaining Observing |
| | | | Grade 6 CC.L.6.6 CC.RST.6-8.3 CC.RST.6-8.9 CC.W.6.3 | |
| 4-6 Landfills II.B.1 | Do we take our trash to a sanitary landfill or an open dump? | Understand how sanitary landfills are made and are operated Understand the pollution problems associated with sanitary landfills | Grade 4 CC.RI.4.7 CC.SL.4.1c CC.W.4.4 | Designing Gathering information Observing Questioning |
| | | | Grade 5 CC.RI.5.7 CC.SL.5.1c CC.W.5.4 | |
| 4-6 Investigating Incineration II.B.2 | Is burning a good way to get rid of trash? | Consider advantages and disadvantages of incineration | Grade 4 CC.RI.4.5 CC.SL.4.1c CC.SL.4.3 CC.W.4.4 | Analyzing Defining problems Evaluating Questioning |
| | | | Grade 5 CC.RI.5.5 CC.SL.5.1c CC.SL.5.3 CC.W.5.4 | |
| 4-6 Solid Waste Bulletin Board II.C.1 | What can I do with this piece of solid waste? | Categorize solid waste items into reusable, recyclable, recoverable or able to be revised | Grade 4 CC.L.4.6 CC.SL.4.4 CC.W.4.4 | Applying ideas to solve problems Designing Developing models Evaluating |
| | | | Grade 6 CC.L.6.6 CC.SL.6.4 CC.W.6.4 | |

| Lesson | Leading Question | Objective | Common Core Alignments | Skills |
|---------------------------------------|---|---|--|--|
| 4-6 Pondering Packaging III.A.1 | What problems does packaging pose? | Examine examples of over or conglomerate packaging Assess the negative impact of overpackaging Brainstorm alternatives to overpackaging | Grade 4 CC.L.4.6 CC.RI.4.8 CC.SL.4.1c CC.W.4.4 | Designing Developing models Interpreting Problem solving |
| | | | Grade 6 CC.L.6.6 CC.RI.6.8 CC.SL.6.1c CC.SL.6.6 CC.W.6.4 | |
| 4-6 Wise Use of Paper III.A.2 | How much paper do you think you use? Do you need to use all of it? | Understand how much paper is wasted Know how to conserve paper | Grade 4 CC.SL.4.1 CC.W.4.4 CC.4.MD.4 | Collaborating Collecting data Investigating Researching |
| | | | Grade 6 CC.SL.6.1 CC.W.6.7 CC.6.SP.2 | |
| 4-6 New Things From Old III.A.3 | Why did our grandparents make patchwork quilts? | Understand that materials can be reused to make useful objects | Grade 4 CC.SL.4.4 CC.RI.4.7 CC.RL.4.2 | Collaborating Designing Interviewing Sharing research and writing |
| | | | Grade 6 CC.SL.6.6 CC.RI.6.7 CC.RL.6.2 CC.W.6.7 | |

Lesson Matrix Grade 4-6

3R's of the Common Core

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3R's of the Common Core

| Lesson | Leading Question | Objective | Common Core Alignments | Skills |
|---|---|---|---|---|
| 4-6 Where From, Where To? III.B.1 | Where do things we use come from and where do they go to? | Trace lifecycle of objects from source, to consumer, and back again | Grade 4 CC.SL.4.1c CC.SL.4.5 CC.W.4.4 | Analyzing Applying ideas to solve problems Communicating information Researching |
| | | | Grade 6 CC.SL.6.1d CC.SL.6.5 CC.W.6.4 | |
| 4-6 Papermaking III.B.2 | Why should we recycle paper? | Learn how paper is recycled Make recycled paper | Grade 4 CC.L.4.6 CC.RI.4.3 CC.SL.4.2 CC.W.4.4 CC.4.MD.4 | Applying mathematical concepts Collecting data Designing Researching |
| | | | Grade 5 CC.L.5.6 CC.RI.5.3 CC.SL.5.2 CC.5.MD.2 CC.5.NBT.7 | |
| 4-6 Where to Recycle III.B.3 | What is recyclable and where can we take our recyclables? | Gather information about where materials can be recycled | Grade 6 CC.RI.6.4 CC.RST.6-8.3 CC.SL.6.2 CC.6.RP.3c CC.6.SP.2 | Collaborating Communicating information Gathering information Sharing research and writing |
| | | | Grade 5 CC.SL.5.1 CC.W.5.1b CC.W.5.6 | |
| 4-6 Mini-Compost III.C.1 | What do you do with your food scraps? | Learn about recycling organic matter | Grade 4 CC.RI.4.1 CC.W.4.4 CC.4.NBT.3 | Graphing data Investigating Observing Predicting |
| | | | Grade 6 CC.RI.6.2 CC.W.6.4 CC.6.SP.2 | |

What is in Our Solid Waste Stream?

Concept

The solid waste stream can be classified into a number of categories.

Objective

Students will develop an awareness of the variety, sources and amount of litter and will be able to classify its elements.

Method

Students will collect and categorize different litter items from around the school and will dispose of the human-made litter properly.

Materials

Paper bags (preferably reused) for each student, newspaper to spread trash out

Subjects

Social Studies, Science, Language Arts, Mathematics

Skills

Communicating results, gathering information, graphing data, investigating

Time

60 minutes

Vocabulary

Biodegradable, human-made, natural, decompose

Resources

Brad Herzog, *S is for Save the Planet: A How-to-be-Green Alphabet*

3R's of the Common Core

Parallel Activities

K-3, Garbage Bag Recipe

7-8, School Trash Analysis

Information

Components of the Waste Stream

Resources

Environmental Education and Educational Resources



Leading Question

What kinds of trash do you think we'll find around the school?

Procedure

NOTE: Before beginning this activity, make sure there is enough litter outside.

1. Pass out used bags for collecting litter. Discuss some possible items and where they are likely to be found.
2. Take the class outside. Set the boundaries for the litter search. Caution students on cuts from glass, etc. Litter should be collected in their bags. Set a 10 to 15 minute limit for the hunt.
3. Return to the classroom and divide the class into groups of five or so. Combine the group's litter into piles and sort according to categories: (1) glass (2) metal (3) paper (4) plastic, rubber and textiles (5) food and miscellaneous waste. What is the total number of objects found?
4. Count the number of items in each category. Then determine the fraction of the total items for each category (e.g. total items = 25; glass items = 5; glass fraction = $\frac{5}{25}$).
5. Create a line plot showing the results of each category. Visually compare the items with the highest count to the items with the lowest count using the plot.
6. Discuss the results. Where was most of the litter found? How did it get there (careless people, blown out of trash truck)? Why don't people dispose of waste properly? Which were the fewest items found? What percentage can be reused or recycled? Create a bar graph showing three bars; one for the total items found, one for the items that can be recycled and one for the items that need to be thrown in the trash. This can be repeated for different locations where trash was found (e.g. along the street vs. a playground location).

Option: Half the class could do this using litter, the other half using trash from the trash can. Compare the two.

Evaluation

Were the students able to correctly classify the litter items they collected?

Common Core Alignments

GRADE 4

CC.L.4.6

Language:
Vocabulary Acquisition & Use

CC.SL.4.1

Speaking & Listening:
Comprehension & Collaboration

CC.4.MD.4

Mathematics:
Measurement & Data

GRADE 5

CC.L.5.6

Language:
Vocabulary Acquisition & Use

CC.SL.5.1

Speaking & Listening:
Comprehension & Collaboration

CC.5.MD.2

Mathematics:
Measurement & Data

GRADE 6

CC.L.6.6

Language:
Vocabulary Acquisition & Usage

CC.SL.6.1

Speaking & Listening:
Comprehension & Collaboration

CC.6.SP.4

Mathematics:
Statistics & Probability

Classroom Activities

- A. Make displays of the different kinds of litter. Separate the litter into renewable and non-renewable resources, natural and human-made objects, bio- and non-biodegradable objects, etc.
- B. Make a timeline poster of the biodegradability of trash found, using the Enduring Litter chart (see Waste Walk 7-8 II.A.1) and pasting pieces of collected trash on the poster.
- C. Make litter collages or posters to discourage littering.
- D. Design and carry out a behavioral experiment to determine why people litter. Have students offer individually wrapped treats to other students outside of the class and document in what way the subjects dispose of the wrapping:
 1. Putting the wrappers in their pocket
 2. Putting the wrappers in a nearby trash receptacle
 3. Throwing the wrappers on the ground
- E. How would the litter search results differ if students examined a different trash can (e.g.: one from the school kitchen, one from home, one from a factory)? Compare the results.
- F. Assess the amount of waste produced in other classrooms and the lunchroom. How many classrooms recycle? Do the classrooms use both sides of the paper before recycling? How many trash barrels are in each room? Is there a recycle bin? Are the bins clearly labeled with acceptable waste or recyclables?
- G. Do a classroom trash can sort. Try the same activity one month later to see if students have changed any of their behaviors regarding recycling and the consumption of natural resources.
- H. Broaden activity to coordinate with community Green-Up Day activities. What areas in the school need the most help? Conduct a waste audit of classrooms, cafeteria, conference rooms, main office, etc. (see Information Section for how to conduct a school waste audit). Work together to think of activities that would help raise awareness at the school and increase recycling. Start a school Green Team to tackle large tasks and to coordinate environmental education activities

ACTIVITY (From February, 2015 – *School News You Can Use*)

Getting Organized with Recycled Products

Here are some great tips to get yourself organized without spending a lot of money and by re-purposing some of your recycling:

Cords:

Use leftover paper tubes to label and organize your loose cords.



Shelves & Drawers:

Cereal boxes and checkbook boxes are an easy way to organize magazines, bookshelves and even that catch-all, the utility drawer.



Tubes and boxes can be decorated with washi tape, leftover gift wrap and/or ribbon.



Desktop:

Soup cans make great organizers for art supplies.



Trash and Climate Change



Planet Protectors Discover
the Hidden Reasons To
Reduce, Reuse, and Recycle



United States
Environmental Protection
Agency

Solid Waste
and Emergency
Response (5306W)

EPA530-K-00-001
July 2000
www.epa.gov/osw/kids.htm

In this first activity, use the **Answer Bank** below to fill in the blanks with the correct key words. Remember, the words in the **Answer Bank** can only be used once, and they are mixed up, so you have to hunt to find the right one for each blank.



1 Why We **Already Reduce, Reuse, and Recycle**

Many of you might already know that the “three Rs”—reduce, reuse, and _____— are the most important ways for kids like us to prevent our trash from harming the Earth. When we think of ways to reuse our stuff or when we collect it for the recycling bin instead of throwing it in the garbage can, we help keep our _____ (including the air, water, and soil) healthy. For example, when we recycle, less garbage will pile up in those big holes in the ground, called _____.

In addition, when we reuse our old things instead of buying new products, like reusing an old jelly jar as a pencil holder, we help keep the air clean. In other words, because we’re reusing our old products, factories don’t have to *make* as many new products, which will save energy and reduce the amount of _____ that factories release into the air.



2 Trash and the Earth's Climate

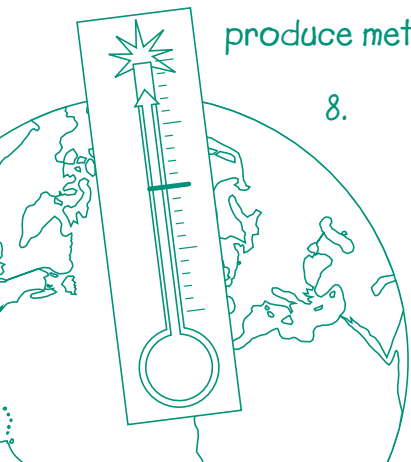


Ok, so we know a few reasons why practicing the “three R’s” is good for the environment, but there is another important reason. Did you ever think about your garbage affecting the weather? Match the descriptions below with the correct word in the **Answer Bank** to see if you can make the connection!

1. The average weather we experience over a long period of time. It is affected by the way we treat our trash.
2. The air above the Earth’s surface, which naturally contains “greenhouse gases.”
3. Two common greenhouse gases that warm the Earth enough for us to live comfortably. When too many of these gases are released into the air, however, they become pollution.
4. A measurable degree of heat. When too many greenhouse gases escape into the air as pollution, they trap the sun’s heat and cause this to rise all over the planet.
5. A word describing sunny skies, rainfall, snowfall, and drought. Scientists say that if the Earth’s temperature rises, its overall climate could change, disrupting these patterns.
6. The chemical deterioration that our garbage undergoes after it’s dumped in a landfill. This process releases methane, a greenhouse gas.
7. An animal that releases greenhouse gas—when it burps! As this animal digests its food, bacteria in its stomach produce methane.

Answer Bank

- ___ COW
- ___ weather
- ___ climate
- ___ truck
- ___ decomposition
- ___ carbon dioxide and methane
- ___ atmosphere
- ___ products
- ___ humans
- ___ temperature
- ___ reduce



8. What we want to do to greenhouse gas releases. To do this, we have to think about the products we use everyday, find out how they are made, and examine whether we reuse and recycle them as much as possible.

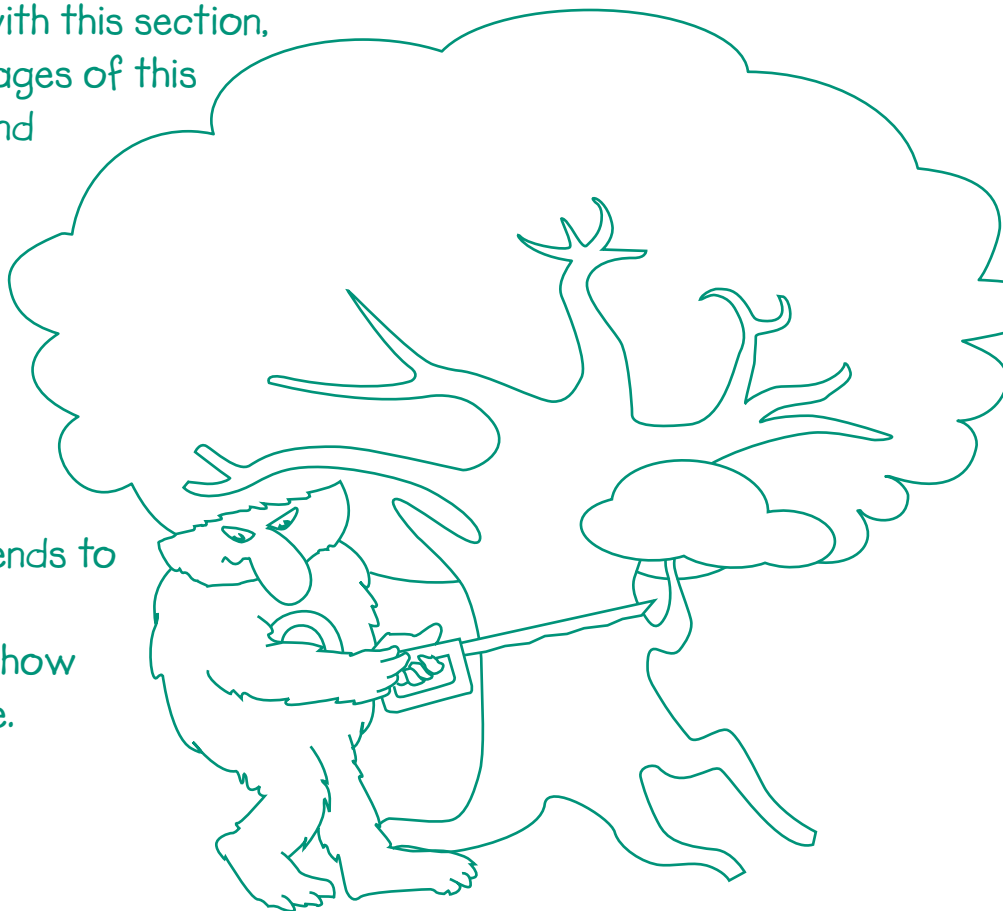


3 A New Reason to Reduce, Reuse, and Recycle

On page 5, read about the products or materials you might use every day and unscramble the missing words to learn about how reusing or recycling these products can help reduce greenhouse gases and prevent global climate change.

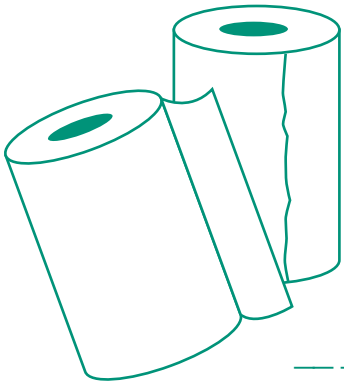
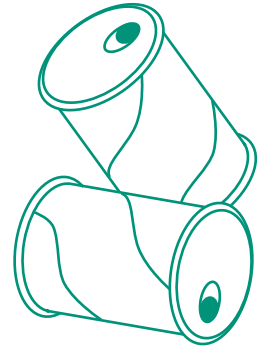
After you have correctly unscrambled the words, you can use the circled letters to fill in the corresponding blanks (by number) and decode the Planet Protector's secret saying at the bottom of the page.

After you're finished with this section, go to the last three pages of this activity where you'll find the Trash and Climate Change fortune teller game. Print out the last two pages and follow the directions for making a "fortune teller" game that you can play with your friends to learn more about the products you use and how they affect the climate.



Plastic, Metal, and Glass Products

Do you drink milk from plastic containers, soda from metal cans, or eat peanut butter from glass jars? These containers are made from natural resources _____¹ _____, which are mined, transported, and then made into plastic, metal, or glass at a factory _____². This entire manufacturing _____³ _____ process releases greenhouse gases and causes climate change. By recycling or reusing plastic, metal, or glass items, you can reduce the need to mine, transport, and manufacture natural resources to make new products. In other words, you reduce the amount of greenhouse _____⁴ _____ gas released and help prevent climate change.

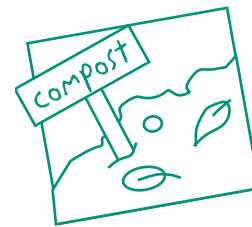


Paper Products

Do you use paper products such as paper napkins, paper towels, or wrapping paper? To make these items, trees _____ must be cut down, transported by truck, and processed into paper at paper mills. This procedure releases _____⁵ _____ greenhouse gases and adds to climate change. By reducing the amount _____ of paper you use _____⁶ _____ everyday or by recycling paper, you help reduce greenhouse gases from being released during the manufacture of paper. You also help preserve trees, which naturally absorb a greenhouse gas called carbon dioxide _____⁷ _____ from the air, helping to prevent climate change.

Yard Trimmings and Food Scraps

Are there ever bits of food left over after your dinner? Or grass clippings left after your lawn has been mowed? By collecting these materials, piling them in a spot in your garden at home, and stirring them regularly to allow air penetration, you can create a compost _____⁸ _____ pile. This activity keeps these materials out of a landfill, where they decay and release greenhouse gases. Composting also helps plants to grow. Plants, just like trees, absorb _____ carbon dioxide, removing it from the air and helping to prevent climate change.



Planet Protectors' Secret Saying:

Who can help protect the Earth from climate change?

2 1 6 5 3 7 8 4



4 Planet Protectors Math Challenge

The following box shows just how much greenhouse gas is reduced by recycling certain materials:

1 ton of aluminum recycled = 13 tons of carbon dioxide prevented
1 ton of newspaper = 2.5 tons of carbon dioxide prevented

Can you use the information in the box above to fill in the following answer blanks?

If you prevented 91 tons of carbon dioxide, you recycled _____ tons of aluminum cans.

If you and your friend each recycled 4 tons of newspaper, together you would prevent _____ tons of carbon dioxide.



Answers

Activity 1:
 recycle environment landfills pollution
 1. Climate
 2. Atmosphere

Activity 2:
 3. Carbon dioxide and methane
 4. Temperature
 5. Weather
 6. Decomposition
 7. Cow
 8. Reduce

Activity 3:
 3. Carbon dioxide and methane
 SEFOUCSER = Resources
 ORTACYF = Factory

Activity 4:
 TOMPSOC = COMPOST
 ROBSAB = ABSORB
 LEMAT = METAL
 SHOUERNEEG = GREENHOUSE
 RUNTGAFNICAMU = Manufacturing
 SRETE = TREES
 ALFEERSES = RELEASES
 NATMUO = AMOUNT
 EUS = USE
 RBAONC = CARBON
 DIEXIDO = DIOXIDE

7 tons of aluminum
 10 tons of carbon dioxide

5

What Can We Do at Home and at School To Help Stop Climate Change?

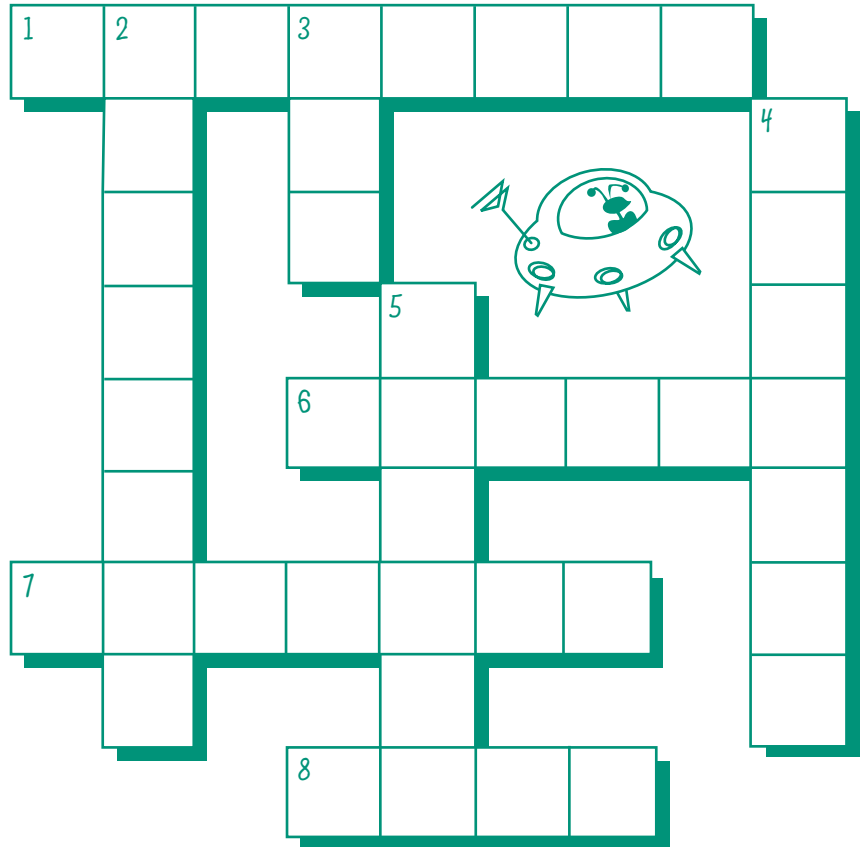
Below are some hints, but you have to figure out what words go in each blank, then fill them into the corresponding boxes in the crossword puzzle.

ACROSS

1. Make your own _____ paper for gifts from old newspaper comics or decorate grocery bags instead of buying new gift wrap paper.
6. Plant a tree. A tree can absorb up to 50 _____ of carbon dioxide each year.
7. Go to the library to learn more about the connection between reducing, reusing, recycling and _____ change.
8. No matter what product or material you use, take only what you _____.

DOWN

2. Use cloth bags and napkins because they are _____ and will not have to be thrown away after one use.
3. Reuse a yogurt container as a flower _____.
4. Pack your lunch in a reusable container instead of a paper or _____ bag.
5. Reuse or _____ old clothes and toys.



ANSWER
 Across: 1. wrapping 6. pounds 7. climate 8. need
 Down: 2. reusable 3. pot 4. plastic 5. donate



In the space below, write your own ideas on how to reduce, reuse, and recycle your trash so that you can be a Planet Protector and help prevent climate change!

A large, spiral-bound notebook with a green metal spiral binding on the left side. The pages are white with light blue horizontal ruling. A yellow pencil with a green eraser and a sharpened lead tip is positioned diagonally across the right side of the notebook, pointing towards the bottom left. The notebook is set against a solid yellow background.

Trash and Climate Change

PLAY THE GAME AND MAKE THE CONNECTION

The Earth's atmosphere contains naturally occurring greenhouse gases that hold the sun's warmth and control global temperatures. Plants and animals are part of this natural cycle.

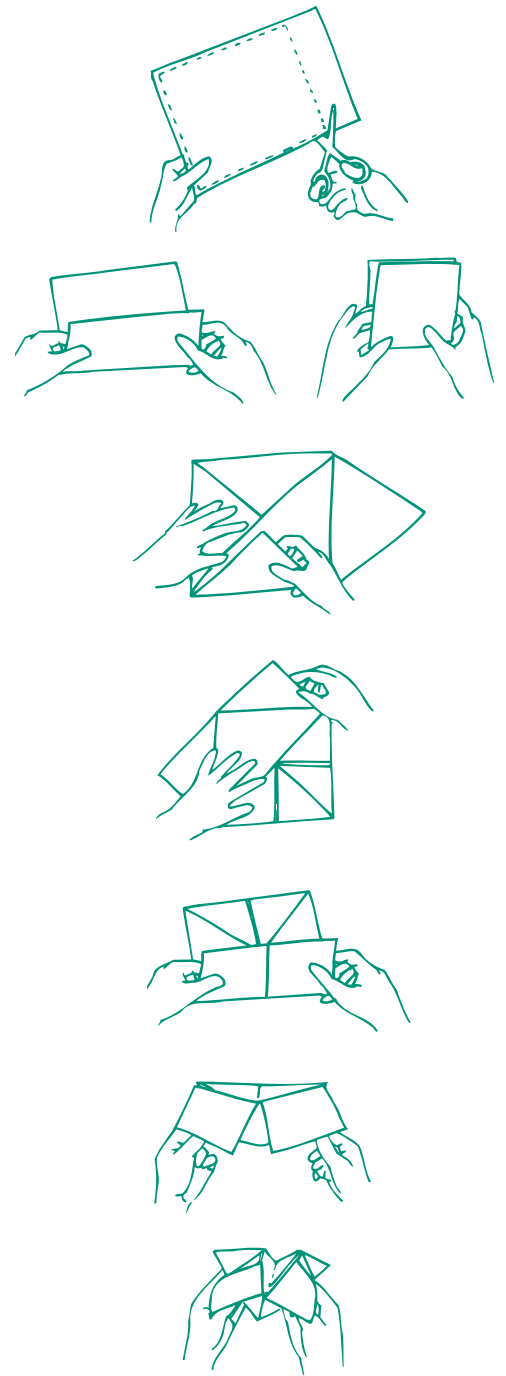


Cars, trucks, factories, and power plants release large amounts of greenhouse gas can raise global temperatures and cause environmental harm. Too much extra greenhouse gas can upset the natural atmospheric balance.

Folding Instructions:

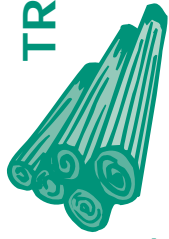
Make all folds neatly and squarely

1. Carefully cut along the dotted lines to make a square.
2. With the picture of the globe facing upward, fold the paper neatly in half and then in half again.
3. Undo the folds and flatten out the paper. Keeping the globe facing upwards, fold in each corner so the four points meet in the center.
4. Flip the paper over. Again, fold in each corner so the four points meet in the center.
5. Fold the square in half, making a rectangle, with the open flaps facing down. The writing should be right-side up.
6. Slide both index fingers and thumbs under each of the four outer flaps.
7. Pinching your fingers together, push the top corners of the flaps toward the center. Poke down into the center to help form the shape.



To play the game:

1. Answer one of the questions on any of the outer flaps.
2. Choose one of the possible answers on the inside. By opening it either of two ways, four possible answers are revealed.
3. Look under the selected answer to learn more.



PAPER is made from trees that must be cut down, trucked, and processed at paper mills. These activities contribute to global climate change by releasing greenhouse gases to the atmosphere.



AND FOOD SCRAPS



COMPOST

COMPOST is a crumbly material, like soil, made of yard trimmings and food scraps. If you send these items to a landfill instead of composting them, they decay and release greenhouse gases, which contribute to global climate change.

YARD TRIMMINGS

You can help slow global climate change by making less waste in the first place. Don't throw away grass clippings and food scraps from your kitchen. Compost them to make mulch for your garden. Your town may collect yard trimmings to make compost, too.

You can help stop global climate change by using less paper. Recycle used paper and buy paper made from recycled materials. Bring cloth bags to the grocery store and use both sides of a sheet of paper as often as possible.

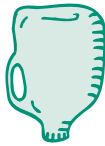
You can help slow global climate change by recycling plastic containers and buying things made from recycled plastic. Look for ways to reuse plastic containers or to use economy-size containers.

and reuse cans and jars as pencil, crayon, or toy holders.

use economy-size containers.

PLASTIC is made from oil that is pumped from the earth, trucked, and then processed at factories. These activities contribute to global climate change by releasing greenhouse gases into the atmosphere.

PLASTIC



OIL



MINE



METAL & GLASS

METAL and GLASS are made from minerals that are mined from the earth, trucked, and then processed at factories. These activities contribute to global climate change by adding greenhouse gases to the atmosphere.



RALS



METAL & GLASS