Trash and Climate Change



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

EPA

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Solid Waste and Emergency Response (5306W)

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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.

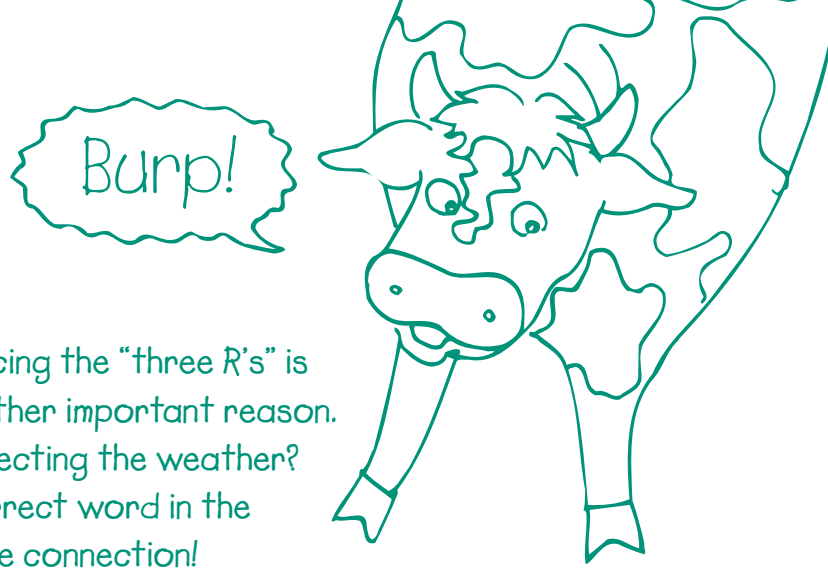


1 Why We Already Reduce, Reuse, and Recycle

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.
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.

Answer Bank

____ cow

____ weather

____ climate

____ truck

____ decomposition

____ carbon dioxide and methane

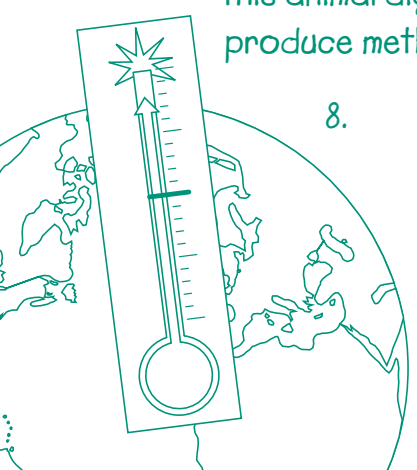
____ atmosphere

____ products

____ humans

____ temperature

____ reduce



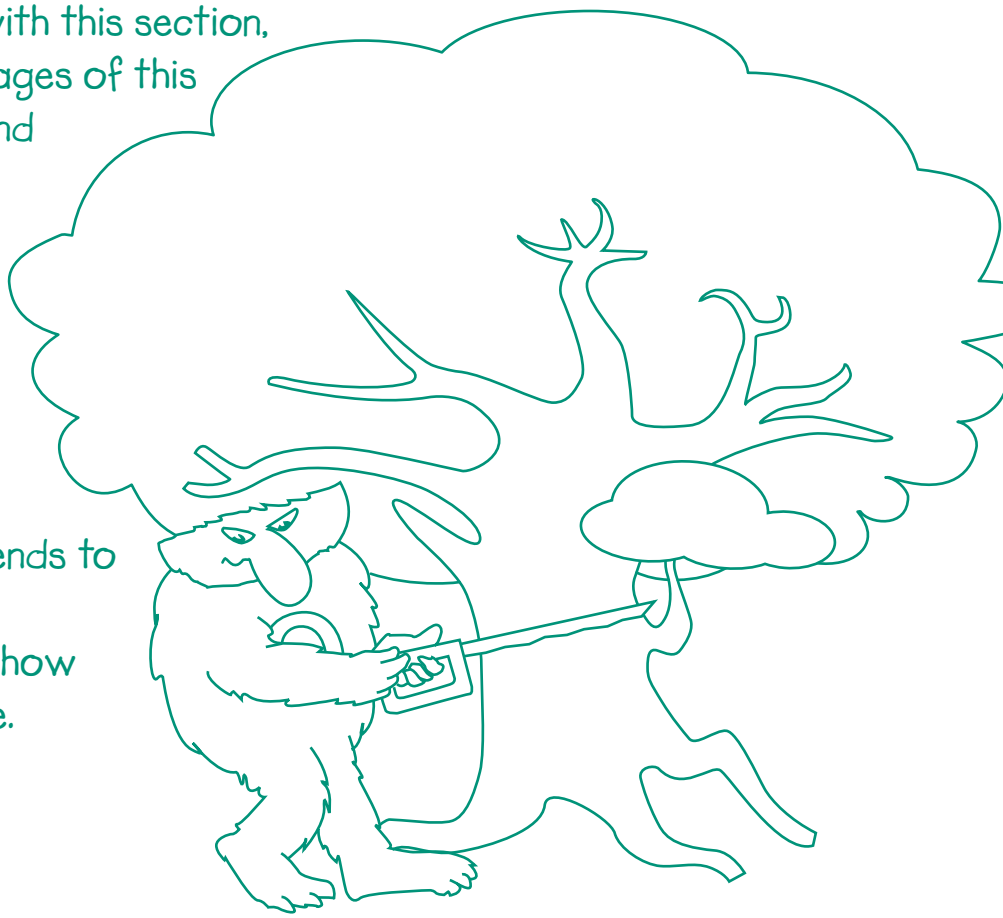


3 A New Reason to Reduce, Reuse, and Recycle

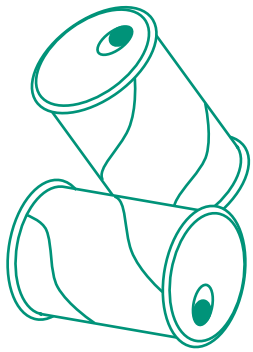
On page 5, read about the products or materials you might use every day and unscramble the missing words to learn about how reusing or recycling these products can help reduce greenhouse gases and prevent global climate change.

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.

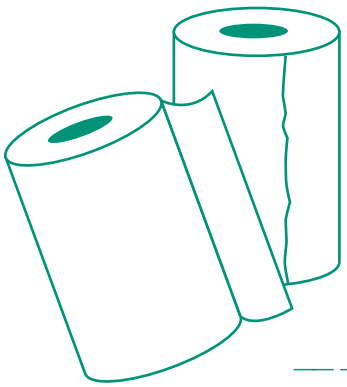
After you're finished with this section, go to the last three pages of this activity where you'll find the Trash and Climate Change fortune teller game. Print out the last two pages and follow the directions for making a "fortune teller" game that you can play with your friends to learn more about the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



Plastic, Metal, and Glass Products



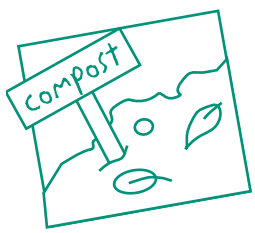
Do you drink milk from plastic containers, soda from metal cans, or eat peanut butter from glass jars? These containers are made from natural SEROUCSER ___ ___ ___ ( )[1] ___ ___ ___ ___ ___, which are mined, transported, and then made into plastic, metal, or glass at a ORTACYF___ ___ ___ ___ ___ ___ ( )[2]. This entire RUNTGAFNICAMU ___ ___ ( )[3] ___ ___ ___ ___ ___ ___ ___ ___ ___ ___ process releases greenhouse gases and causes climate change. By recycling or reusing plastic, LEMAT___ ___ ___ ___ ___, 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 SHOUERNEEG ___ ___ ( )[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, SRETE ___ ___ ___ ___ ___ must be cut down, transported by truck, and processed into paper at paper mills. This procedure ALEERSES ___ ___ ___ ___ ( )[5] ___ ___ ___ greenhouse gases and adds to climate change. By reducing the NATMUO ___ ___ ___ ___ ___ ___ of paper you EUS ( )[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 RBAONC___ ___ ___ ___ ___ ___ DIEXIDO( )[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 TOMPSOC___ ___ ( )[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, ROBSAB ___ ___ ___ ___ ___ ___ 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

Activity 2:

1. Climate
2. Atmosphere
3. Carbon dioxide and methane
4. Temperature
5. Weather
6. Decomposition
7. Cow
8. Reduce

Activity 3:

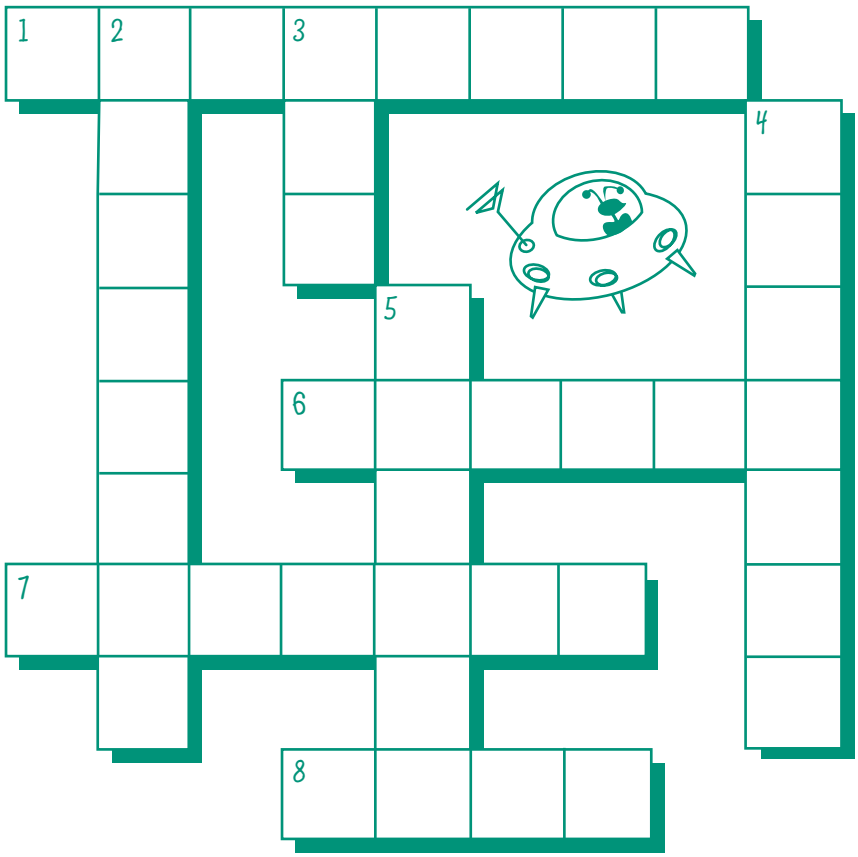
SERDUCSER = Resources
ORTACYF = Factory
RUNTGAFNICAMU = Manufacturing
LEMAT = METAL
SHOUERNEEG = GREENHOUSE
SRETE = TREES
ALEERSES = RELEASES
NATMUO = AMOUNT
EUS = USE
RBAONC = CARBON
DIEXIDO = DIOXIDE
TOMPSOC = COMPOST
ROBSAB = ABSORB

Activity 4:

7 tons of aluminum
20 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!



Trash and Climate Change

PLAY THE GAME AND MAKE THE CONNECTION



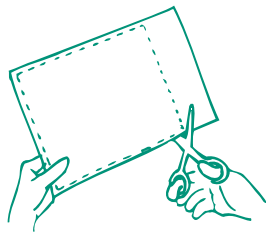
The Earth's atmosphere contains naturally occuring greenhouse gases that hold the sun's warmth and control global temperatures. Plants and animals are part of this natural cycle.

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

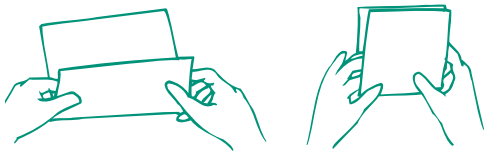
Folding Instructions:

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.



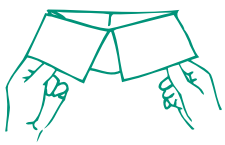
4. Flip the paper over. Again, fold in each corner so the four points meet in the center.



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.

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.

PLASTIC

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.

You can help slow global climate change by using less plastic. One way is to use economy-size containers.

You can help slow global climate change by reusing and recycling used metal and glass. Clean out, decorate, and reuse cans and jars as pencil, crayon, or toy holders.

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

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 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.

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