

NAME: _____



Activity One



Writing a Short Essay How Carbon Goes Around and Around

Write a short essay about how carbon moves from place to place in our world. Carbon is part of the chemical changes that move energy we get from sunlight from one living thing to another. Carbon is also part of the chemical changes we use to get energy from fuels.

Study these chemical changes to get ready to write your essay:

1. Plants use carbon in carbon dioxide from the air to make food.
2. The carbon in food molecules becomes carbon dioxide again during the chemical reactions in our body that give us energy.
3. Burning wood is another chemical change that releases energy stored by plants. This reaction also makes carbon dioxide.
4. Coal, oil, and natural gas are called "fossil fuels" because they are the remains of plants that lived millions of years ago. These plants also put energy from the sun into the materials we now use as fuel. Burning these fuels is another chemical change that puts carbon back into the air as carbon dioxide.

Explain in your essay that carbon is never lost, but circles around and around in different forms.

A large rectangular area enclosed by a dotted border, containing seven horizontal lines for writing an essay.

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Activity Two



Make Models of the States of Matter and of Kinds of Mixtures

Make models using small balls of plastic foam or other small, round objects, like dry peas. Use balls that are all the same size.

Show the difference between particles in a liquid and particles in a solid.

1. To show a liquid, just pour some of the balls into a glass.
2. To show a solid, glue some of the balls together to form a block.
3. It would be hard to use the balls to show a gas. Describe how the balls would be arranged to show a gas, if the balls could be made to float around in the air.
4. Make half of the balls a different color with a marking pen. Mix the two colors of balls together to show how they would be arranged in a solution. This is called a **“homogeneous mixture.”**
5. Show how particles are arranged in a mixture like salt and sand. Glue small groups of each colored ball together. Mix the balls together to show a mixture like salt and sand. This is called a **“heterogeneous mixture.”**

A large rectangular area with a decorative scalloped border, containing ten horizontal lines for writing.

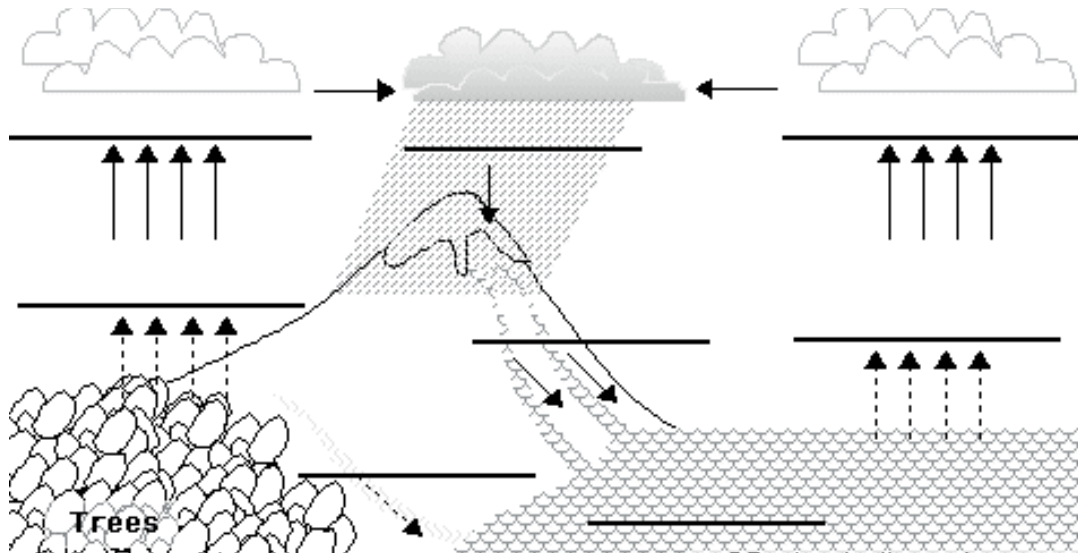


Activity Three



Make a Diorama of the Water Cycle

The **WATER CYCLE** is the way water moves from oceans and lakes to the air to clouds to rain and snow and back to the ocean. Make a diorama of the water cycle like the picture shown below.



You can use a mirror or piece of glass for the ocean surface. Use cotton balls for the clouds. Make the mountain from soil or modeling clay. Make the tops of the mountains white to show they have snow on top.

There are changes of state in the water cycle. Tell what the different changes of state are called. Tell what state the water is in before and after the change. Do this for the following changes:

- 1. Water going out of the ocean and into the air.**
- 2. Water in the air forming clouds.**
- 3. Water in the clouds becoming snowflakes.**
- 4. Water in the snow on the mountaintop changing to a form that lets it run back to the ocean.**

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Activity Four

Designing a Game

Identify Materials From Their Properties



Design a game about materials and their properties. All you need are some small cards all the same size. Work in pairs.

1. Write all these properties on cards, one on each card:
Solid at room temperature, Liquid at room temperature, Gas at room temperature, Freezes at 32°F, Boils at 212°F, Transparent, Opaque, Translucent, hard, soft, rough, smooth, white, black, red, purple, blue, green, yellow, orange, brown, round, square, has a smell, has no smell, flammable, will not burn, rots, will not rot, rusts, will not rust, attracted to a magnet.
2. Choose some objects and materials that could be described with some of the properties above (for example: a rock, a nail, oil, water, a wood block). Think of some more yourself. Write each object or material on another set of cards.
3. To play the game, separate the cards into a stack of objects and materials and a stack of properties.
4. The first person chooses a card from the materials stack and reads it. The person then looks through the properties stack to find the properties that match the material. The person turns the material card and the property card face down.
5. The second person turns the property cards up one at a time. After each card is turned up the second person tries to guess the material on the material card.
6. When the second person guesses the material, he or she writes down the number of guesses it took as his or her score.
7. The two people change places as card chooser and guesser, and the new guesser writes down his or her score.
8. Each takes the same number of turns. Add up the total number guesses for each person. Low score wins.



Activity Five



Designing a Game Separating Mixtures

This game tests your skill at thinking of ways to separate mixtures. You will need some small cards, all the same size.

1. On one set of cards write the names of materials that could be part of a mixture that could be separated with ordinary tools. These could be sand, salt, tooth picks, iron filings, small iron nails, pennies, sawdust, water, and oil. You may be able to think of others, but be careful not to choose any that would be too hard to separate, like salt and sugar.
2. On another set of cards write the names of tools that would be useful in separating mixtures. These could be a bucket, water, a hot plate, a screen, a magnet, and a filter.
3. Divide the materials cards equally between the two players.
4. Take turns drawing from the face-down stack of tool cards. If the tool you draw makes it possible to completely separate one of the materials from your mixture, give the material card to the other player. Now it is part of his mixture, and separating it is his problem.
5. Play until one person has completely separated his mixture or until you have taken an agreed on number of turns. Then the person with the fewest materials in his or her mixture wins.

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Activity Six

Moon Games



You have learned that some things are different on the moon than they are on Earth and some things are not.

Everything weighs about **one-sixth** as much on the moon as it does on Earth. This means you can throw something six times as high. There is **no air** on the moon. This means you can throw things farther, because there is no air resistance. But you can't throw them six times as far, only a little farther.

Everything has the **same mass** on the moon as it does on Earth. This means it is just as hard to stop something that is moving and just as hard to get something moving that is sitting still. This is because the more mass something has, the harder it is to change its motion.

Now, what does all this have to do with games?

Some things about games will be different and some will be the same. **Choose your favorite game and describe how it would be different on the moon.** Be sure it is an active game that involves moving people and objects. Some games you might want to choose from are baseball, hockey, tennis, bowling, cycling, rock climbing, basketball, volleyball, football, or track events. There are many more. But definitely not hang gliding. Also remember there is no water on the moon.

- Tell which parts of the game would be about the same and which would be different. Explain why.
- Describe any rule changes you think you would have to make.
- Don't worry about the space suits slowing you down.