

Maryland School Assessment

**Science**

2008 Public Release

Grade 5

# Part 3



# Part 3

## Directions

Use the information below to answer Numbers 23 through 25.

Many natural resources are found in Maryland and the surrounding area. Some of these natural resources are renewable and some are nonrenewable. People use both kinds of resources in daily activities. Using natural resources often produces waste products.

**23** Which of these natural resources found in Maryland is nonrenewable?

- A** coal
- B** soil
- C** water
- D** wood

- 24** Recycling centers are where people take materials that may be reused to make new products.

How does recycling paper positively affect the environment?

- A** reduces air pollution
- B** increases soil erosion
- C** reduces trees that are cut
- D** increases habitat destruction

- 25** Burning fossil fuels, such as oil, coal, and gasoline produces pollution.

Which type of pollution is most often produced by burning fossil fuels?

- A** air pollution
- B** land pollution
- C** noise pollution
- D** water pollution

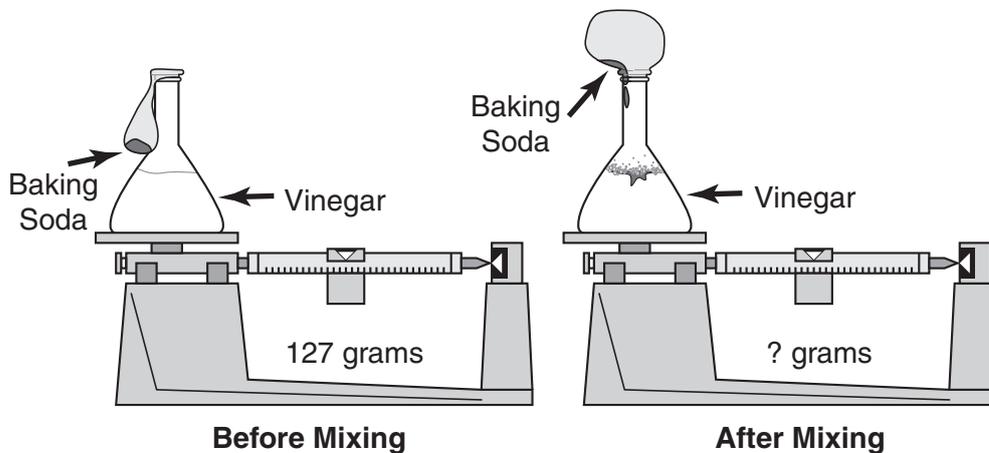


# Part 3

## Directions

Use the information below to answer Numbers 26 and 27.

Students investigated the reaction that occurs when mixing baking soda and vinegar. The procedure for the investigation is shown below. The students recorded their observations in the data tables below the diagram.



Material	Mass (grams)
Baking soda	24
Balloon	3
Vinegar	20
Flask	80

Before Mixing
<ul style="list-style-type: none"><li>Balloon is limp.</li><li>Vinegar is clear.</li><li>Baking soda is a white, powdery solid.</li><li>Flask feels cool.</li></ul>

After Mixing
<ul style="list-style-type: none"><li>Liquid is cloudy at first.</li><li>Bubbles in the liquid.</li><li>Balloon inflates.</li><li>Flask stays cool.</li><li>Liquid becomes clear over time.</li></ul>

**26** Which observation shows that a chemical reaction took place when the baking soda was mixed with the vinegar?

- A** The flask stays cool.
- B** The liquid is cloudy at first.
- C** The bubbles form in the liquid.
- D** The liquid becomes clear over time.

**27** The students conducted the same investigation, but doubled the amount of baking soda and the amount of vinegar used.

What change in the results did the students most likely observe?

- A** The flask became warm.
- B** The balloon inflated more.
- C** The vinegar remained cloudy.
- D** The baking soda did not dissolve.



**28** All living things need energy to survive.

What is the primary source of energy for all living things?

- A** plants
- B** the sun
- C** water
- D** the wind

**29** Rocks and minerals are common materials found on Earth.

Which property do most rocks and minerals share?

- A** They are pure.
- B** They are solid.
- C** They are liquid.
- D** They are magnetic.

**30** On Earth, water can be a solid, a liquid, or a gas.

Which energy source has the greatest influence on the state of matter of water?

- A** the sun
- B** the wind
- C** ocean currents
- D** the metal core



# Part 3

- 31 The data table below compares four characteristics of the inner planets.

Characteristic	Planets			
	Mercury	Venus	Earth	Mars
Temperature	-184°C to 527°C	-450°C to 477°C	-89°C to 58°C	-143°C to 17°C
Mass (kilograms)	$3.30 \times 10^{23}$	$4.87 \times 10^{24}$	$5.97 \times 10^{24}$	$6.42 \times 10^{23}$
Diameter (kilometers)	4,854	12,112	12,751	6,788
Distance from sun (millions of kilometers)	58	108	150	228

Which of these statements best explains why Earth is the only inner planet that supports life?

- A The other planets have too much mass.
- B The other planets are too close to the sun.
- C The other planets are either too hot or too cold.
- D The other planets are either too big or too small.



## Directions

Use the passage and the picture below to answer Numbers 32 through 34.

### Glaciers and People

The frozen majesties of Greenland, Alaska, Switzerland and other areas of the world are popular tourist attractions. They're also important natural resources for drinking water, for irrigation of crops, and for generation of electricity.

#### Drinking Water

Glaciers contain 75 percent of the world's fresh water supply. Arapaho Glacier in the Rocky Mountains, a small glacier with a length and width of about  $\frac{3}{4}$  mile (1.2 km), supplies water for more than 75,000 people who live in the town of Boulder, Colorado. To survive during the dry spells that hit the region of La Paz, Bolivia, the people rely on fresh streams from a nearby mountain glacier.

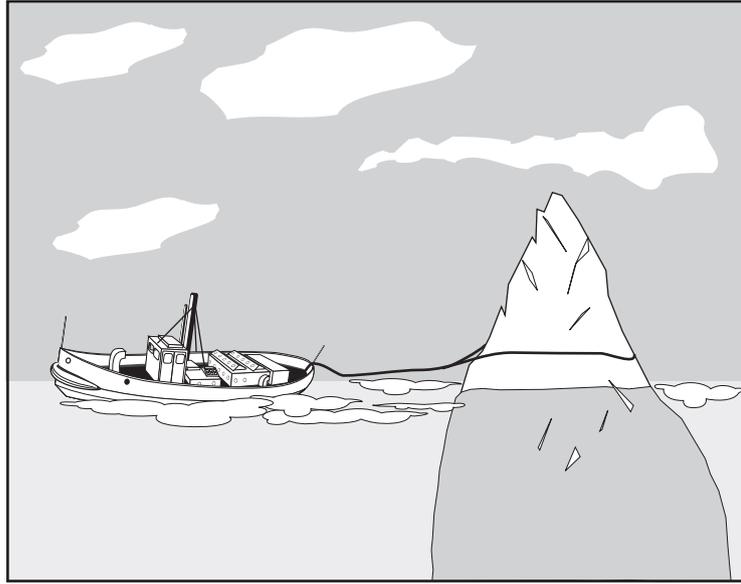
Scientists are studying ways to move icebergs from the cold northern Atlantic Ocean to coastal cities where the icebergs could be used for drinking water. Tugged by boats and helicopters, a berg could be wrapped in plastic to insulate it and prevent it from melting too quickly. Pipes connecting the iceberg to nearby land would allow the fresh water to get to people and crops.

#### Crops Irrigation

For hundreds of years, farmers in Switzerland's Rhône Valley have watered their crops with meltwater from glaciers.

#### Electricity Generation

In Norway, Canada, New Zealand, and the Alps, glaciologists and engineers have produced electrical power from melting glacial ice. By building a dam to control the meltwater, they harness the energy of the water as it moves over the dam and through turbines, to turn the energy into electricity.



**32** Why is plastic a good material to use to insulate icebergs?

- A** Plastic is expensive.
- B** Plastic conducts electricity well.
- C** Plastic does not conduct heat well.
- D** Plastic increases friction with the water.



# Part 3

**33** Increased temperatures from global warming affects the availability of drinking water on Earth by

- A** causing rain to become more acidic
- B** causing all surface water to evaporate
- C** melting frozen reservoirs of fresh water
- D** slowing the entire water cycling process

**34** Some researchers think using icebergs as a source of fresh water is not a good idea.

Why are these researchers most likely against moving the icebergs?

- A** Using boats to haul glaciers is a waste of fuel.
- B** The natural environment of glacier areas is changed.
- C** The water in glaciers is so old it would not taste good.
- D** People should not live in places where there is not enough water.



## Acknowledgements

“Hazy Summer Days and Air Pollution” by Sarah Ives, National Geographic Kids News. July 27, 2004 ([http://news.nationalgeographic.com/kids/2004/07/Hazy summer.html](http://news.nationalgeographic.com/kids/2004/07/Hazy%20summer.html))

“Glaciers and People” by Spencer Christian and Antonia Felix. From WHAT MAKES THE GRAND CANYON GRAND? THE WORLD'S MOST AWE-INSPIRING NATURAL WONDERS by Spencer Christian and Antonia Felix. Copyright © 1998 by Spencer Christian and Antonia Felix. Reprinted with permission of John Wiley & Sons, Inc.