

Answer Key with Questions

Lesson Check: Effects of the Biosphere

1) Soil is a resource. Which **best** describes how humans use soil?

- ☐ Humans use soil for water.
- ☐ Humans use soil for shelter.
- ☐ Humans use soil for breathing.
- ☐ Humans use soil to grow crops.

Correct Answer

Humans use soil to grow crops.

2) Monica is making a pamphlet to hand out to her neighbors with ideas for how to prevent accidental wildfires while camping in the forest. Which of these should Monica include in her pamphlet? Select **all** that apply.

- ☐ Never leave your campfire unattended.
- ☐ Do not start a campfire during dry or windy conditions.
- ☐ Always put out your campfire before you leave your campsite.
- ☐ Use a lot of lighter fluid to make your campfire as big as possible.
- ☐ Throw your matches into the forest once you have lit your campfire.

Correct Answer

Never leave your campfire unattended.

Do not start a campfire during dry or windy conditions.

Always put out your campfire before you leave your campsite.

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3) Name 3 things that you would find in Earth's biosphere.

Correct Answer

Answers may vary.

Explanation

Sample answer: flowers, birds, and humans

4) Ecosystems can be changed by natural events or by human actions. Which is **not** a natural event?

- ☐ a forest fire started by lightning
- ☐ pollution from a factory entering a river
- ☐ a beaver building a dam in a river
- ☐ an earthquake

Correct Answer

pollution from a factory entering a river

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5) Which of the following is a way that the biosphere and the atmosphere interact?

- ☐ Plants release oxygen into the air.
- ☐ Animals live at the bottom of the ocean.
- ☐ Plants use their roots to anchor into the soil.
- ☐ Animals use caves as shelters.

Correct Answer

Plants release oxygen into the air.

6) Fill in the blanks using the available answer choices.

The biosphere includes all of the _____ things on Earth.
(Blank 1)

Blank 1 options

- living
- nonliving

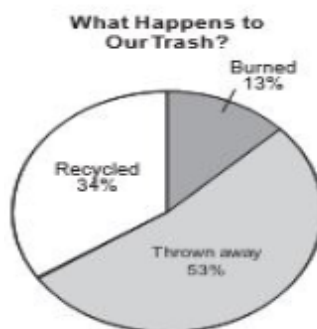
Correct Answer

living

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- 7) Edward learns that the landfill (dump) for his town is almost full. He wonders if students in his school can do something to help solve this problem. First, he studies this pie chart about trash in many towns across the United States.



—adapted from “Municipal Solid Waste Generation, Recycling, and Disposal in the United States: Facts and Figures for 2012,” Environmental Protection Agency website

Edward learns that many schools have recycling programs. He thinks a recycling program at his school could help solve the landfill problem. Edward finds this information about how to start a recycling program in his school.

How to Start a Recycling Program at a School

- Organize a team of teachers, students, staff, and parents who will help get the program started.
- Find out how much trash and what kind of trash comes from every part of the school: classrooms, cafeteria, kitchen, and school grounds.
- Think of ways some of the trash can be reused and ways to reduce trash.
- Set up ways to collect trash that can be recycled and sent to a recycling center.

—adapted from “Greening at the Grass Roots: School Recycling,”
American Federation of Teachers website

- a. Explain why starting a recycling program at Edward’s school could help solve the landfill problem, based on information in the pie chart.

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In addition to helping solve the landfill problem, Edward claims that a recycling program at the school will also help protect Earth's resources.

b. Describe two ways a recycling program, like the one described, will also help protect Earth's resources. Explain your thinking for each way.

Correct Answer

Answers may vary.

Extended-Response Rubric

PE: 5-ESS3-1: Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.		
	Level of Understanding	Evidence of Understanding
3	Demonstrating Expected Understanding	<p>Student response provides clear evidence of using the dimensions* to make sense of scientific phenomena and/or to design solutions to problems. Student is able to:</p> <p>explain why starting a recycling program at Edward's school could help solve the landfill problem, based on information in the pie chart;</p> <p>AND</p> <p>describe two ways a recycling program, like the one described, will also help to protect Earth's resources and explain their thinking for each way.</p>
2	Progressing toward Understanding	<p>Student response provides partial evidence of using the dimensions* to make sense of scientific phenomena and/or to design solutions to problems. The response lacks some critical information and details or contains some errors. Student is able to:</p> <ul style="list-style-type: none"> explain why starting a recycling program at Edward's school could help solve the landfill problem, based on information in the pie chart AND describe two ways a recycling program, like the one described, will also help to protect Earth's resources BUT one or both explanations of their thinking contains errors or is not provided; OR describe two ways a recycling program, like the one described, will also help to protect Earth's resources and explain their thinking for each way BUT an explanation of why starting a recycling program at Edward's school could help solve the landfill problem, based on information in the pie chart, contains errors or is not provided; OR explain why starting a recycling program at Edward's school could help solve the landfill problem, based on information in the pie chart AND describe one way a recycling program, like the one described, will also help to protect Earth's resources and explain their thinking BUT a description of a second way a recycling program, like the one described, will also help to protect Earth's resources and/or the explanation of their thinking contains errors or is not provided.
1	Beginning to Develop Understanding	Student response is incomplete or provides minimal evidence of using the dimensions* to make sense of scientific phenomena and/or to design solutions to problems.
0	Not Showing Understanding	Student does not respond or student response is inaccurate, irrelevant, or contains insufficient evidence of using the dimensions* to make sense of scientific phenomena and/or to design solutions to problems.
<p><i>*As outlined in the Performance Expectations (PE) of the NGSS, the three dimensions are the disciplinary core ideas (DCI), science and engineering practices (SEP), and crosscutting concepts (CCC). Note that due to the complexity of the PEs, individual assessment items may not address all three dimensions.</i></p>		

See the scoring notes on the next page.

Scoring Notes

Possible answers include:

- a. The pie chart shows that most trash from towns is thrown away. A recycling program at Edward's school could help solve the landfill problem because less of the trash from the school would be thrown away. If more trash is recycled instead of being thrown away, it would take longer to fill up the landfill.
- b. [Descriptions of ways a recycling program helps protect Earth's resources and explanations may include:]
 - The recycling program will protect Earth's resources by providing materials to make cans, bottles, and paper from recycled objects, not from natural resources. This will help slow down the use of natural resources to make things.
 - The recycling program will protect Earth's resources by reusing things for as long as possible instead of throwing them away, such as clothing and paper. This will help slow down the use of natural resources to make new things.
 - The recycling program will protect Earth's resources by students using things that are not thrown away, such as using a lunch box instead of a paper bag. This will help slow down the use of natural resources to make new things.