

For each of the following, indicate whether or not it is a benefit of recycling paper.

(Fill in one circle in each row.)

	Yes	No
reducing deforestation -----	(A) -----	(B) -----
reducing the amount of oxygen in the atmosphere-----	(A) -----	(B) -----
reducing the amount of water needed for farming -----	(A) -----	(B) -----
reducing the amount of carbon dioxide in the atmosphere -----	(A) -----	(B) -----
reducing the amount of garbage going to landfills -----	(A) -----	(B) -----

S062189

Content Domain

Earth Science

Topic Area

Earth's Resources, Their Use
and Conservation

Cognitive Domain

Knowing

Maximum Points

2

Key

A, B, B, A, A

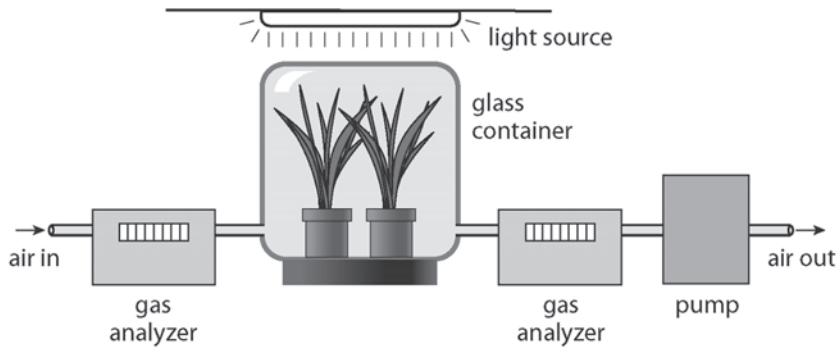
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Option	Rationale	Item: S062189
	(KEY: A) Recycling paper reduces deforestation because paper is made from trees.	
	(KEY: B) Reducing the amount of oxygen in the atmosphere is not a benefit of recycling paper.	
	(KEY: B) Reducing the amount of water needed for farming is not a benefit of recycling.	
	(KEY: A) Recycling paper reduces the amount of carbon dioxide in the atmosphere because trees take carbon dioxide out of the atmosphere.	
	(KEY: A) Recycling paper reduces the amount of garbage going into landfills.	

Sara is studying how the rate of photosynthesis in plants is affected by the intensity of sunlight on the plants.

She grows plants in a clear glass container. Outside air is pulled through the container by a small pump. Gas analyzers measure the amount of carbon dioxide and oxygen in the air before it enters and after it leaves the container.



A. When a light is shining on the plants, how will the amounts of carbon dioxide and oxygen in the air leaving the container compare to the amounts of carbon dioxide and oxygen entering the container?

	Amount of carbon dioxide leaving the chamber	and	Amount of oxygen leaving the chamber
(A)	higher	and	higher
(B)	higher	and	lower
(C)	lower	and	higher
(D)	lower	and	lower

Content Domain

Biology

Topic Area

Cells and Their Functions

Cognitive Domain

Reasoning

Maximum Points

1

Key

C

S062103_1

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Option	Rationale	Item: S062103A
A	Misconception that photosynthesis increases both the amount of carbon dioxide and the amount of oxygen.	
B	Misconception that photosynthesis increases the amount of carbon dioxide and decreases the amount of oxygen.	
C	KEY	
D	Misconception that photosynthesis decreases both the amount of carbon dioxide and the amount of oxygen.	

Sara conducted a test using a low-intensity light source. She then conducted a second test using the same equipment with a high-intensity light source.

B. Sara wants to compare gas analyzer data from both tests.

Write two factors that could affect the rate of photosynthesis that Sara will have to make sure she keeps the same in both tests.

1.

2.

S062103_2

Content Domain

Biology

Topic Area

Cells and Their Functions

Cognitive Domain

Reasoning

Maximum Points

2

Key

See scoring guide

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Code	Response	Item: S062103B
Correct Response		
20	<p>Lists two different factors that could affect the rate of photosynthesis from the list of acceptable responses below. To receive a Code 20, the factors must address two different bullets.</p> <ul style="list-style-type: none"> • Air temperature • Amount of water given to the plants • The humidity in the air • The amount of fertilizer given to the plants • Number of plants • Type of plants (or the same plants) • Time of day of the experiment • Size of the plant (number of leaves) • Amount of carbon dioxide (or carbon dioxide and oxygen) in incoming air • Flow or amount of incoming air • Distance from the light to the plant <p><i>Example:</i></p> <ul style="list-style-type: none"> • 1. Amount of air going in and out. • 2. Make measurements at the same time of day. 	
Partially Correct Response		
10	<p>Lists only one factor from the list of acceptable responses above. The second response may be missing, incorrect, or redundant with the first.</p> <p><i>Example:</i></p> <ul style="list-style-type: none"> • 1. The size of the plants. [correct] • 2. The number of leaves the plant has. [redundant] 	
Incorrect Response		
79	<p>Incorrect (including crossed out, erased, stray marks, illegible, or off task), including the amount of light and the place where the apparatus is set up. Response cannot simply list “plants,” but must include a feature of the plants.</p>	
Nonresponse		
99	Blank	

Many cars that use gasoline as fuel produce a lot of air pollution. Describe two things that car-makers are doing to reduce the amount of air pollution that is produced by cars.

- 1.
- 2.

Content Domain

Earth Science

Topic AreaEarth's Resources, Their Use
and ConservationCognitive Domain

Knowing

Maximum Points

2

Key

See scoring guide

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Code	Response	Item: S062234
Correct Response		
20	<p>Describes two different things that car-makers are doing to reduce the air pollution that is produced by cars from the list of acceptable responses below. To receive a Code 20, the responses must address two different bullets.</p> <ul style="list-style-type: none"> • Car-makers are making cars that use a different, more eco-friendly fuel (or energy source) that produces less air pollution (such as hydrogen, solar power, electricity/battery, or natural gas/biogas). • Car-makers are making cars that require less gasoline to run (are more energy efficient, or have improved engine performance, tire performance, or aerodynamic design) so less pollution is created. • Car-makers are adding devices to cars that remove, filter, or capture the pollution that is produced before it is released into the air. <p><i>Examples:</i></p> <ul style="list-style-type: none"> • 1. Car makers are making cars that use less gasoline. • 2. Car makers are making cars that can run on fuels that don't pollute. • 1. They are making cars that have better gas mileage. • 2. They are making cars that remove pollution before it is released from the exhaust. 	
Partially Correct Response		
10	<p>Describes only one of the acceptable responses listed above. The second response may be missing, incorrect, or redundant with the first.</p> <p><i>Example:</i></p> <ul style="list-style-type: none"> • 1. Car makers are making cars that use less gas. [correct] • 2. Car makers are making cars that are more efficient. [redundant] 	
Incorrect Response		
79	<p>Incorrect (including crossed out, erased, stray marks, illegible, or off task), including responses that simply state that car-makers should make eco-friendly cars or make cars that do not pollute.</p>	
Nonresponse		
99	Blank	

How does being vaccinated help prevent illnesses such as influenza?

- (A) The vaccination improves the absorption of nutrients.
- (B) The vaccination increases blood circulation.
- (C) The vaccination stimulates the production of antibodies.
- (D) The vaccination allows medicines to work more effectively.

S042053

Content Domain

Biology

Topic Area

Human Health

Cognitive Domain

Applying

Maximum Points

1

Key

C

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Option	Rationale	Item: S042053
A	Vaccinations do not prevent illnesses by improving absorption of nutrients.	
B	Vaccinations do not prevent illnesses by increasing blood circulation.	
C	KEY	
D	Vaccinations do not prevent illnesses by allowing medicines to work more effectively.	

Which energy source is non-renewable?

- (A) oil
- (B) water
- (C) wind
- (D) solar

S052096

Content Domain

Earth Science

Topic Area

Earth's Resources, Their Use
and Conservation

Cognitive Domain

Knowing

Maximum Points

1

Key

A

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Option	Rationale	Item: S052096
A	KEY	
B	Water is a renewable energy source.	
C	Wind is a renewable energy source.	
D	Solar energy is a renewable energy source.	