Content Domain	Main Topic	Cognitive Domain
BIOLOGY	Ecosystems	Reasoning

Population in countries: predict

There are more than 6 billion people in the world who share the world's natural resources. Look at the table below. It shows some information for two fictitious countries (1 and 2).

	Country 1	Country 2
Population (millions)	200	500
Annual birth rate (births per 1000 people)	10	40
Annual death rate (deaths per 1000 people)	10	10
Area in square kilometers	2,000,000	2,000,000
Grain production (percentage of world total)	40%	20%
Oil consumption (percentage of world total)	20%	5%

A. Based on the information given in the table, predict how the population of each country will change over the next ten years.
   (Check one box in each row.)

	Population Will Increase	Population Will Decrease	Population Will Stay the Same
Country 1	☐	☐	☐
Country 2	☐	☐	☐

Item Number: S032665A

SCORING

Correct Response
- Country 1: Population will stay the same.
- Country 2: Population will increase.

Incorrect Response
- Country 1 correct; Country 2 incorrect
- Country 2 correct; Country 1 incorrect
- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Hong Kong-CHN	67 ⬢
Finland	67 ⬢
Chinese Taipei-CHN	57 ⬢
Japan	57 ⬢
Singapore	54 ⬢
Sweden	53 ⬢
Slovenia	53 ⬢
Israel	52 ⬢
Korea, Rep. of	51 ⬢
England-GBR	50 ⬢
Italy	49 ⬢
Lithuania	49 ⬢
Russian Federation	48 ⬢
Australia	48 ⬢
New Zealand	46 ⬢
Norway	43 ⬢
Hungary	41 ⬢
United States	**39** ⬢
Turkey	35
International average	35
Ukraine	33
Iran, Islamic Rep. of	31 ⬢
United Arab Emirates	30 ⬢
Kazakhstan	30
Thailand	29 ⬢
Bahrain	28 ⬢
Chile	28 ⬢
Romania	27 ⬢
Tunisia	26 ⬢
Armenia	24 ⬢
Qatar	24 ⬢
Saudi Arabia	23 ⬢
Lebanon	23 ⬢
Jordan	23 ⬢
Macedonia, Rep. of	21 ⬢
Palestinian Nat'l Auth.	17 ⬢
Malaysia	16 ⬢
Syrian Arab Republic	16 ⬢
Morocco	15 ⬢
Oman	14 ⬢
Georgia	13 ⬢
Indonesia	11 ⬢
Ghana	6 ⬢

Benchmarking education system

	Percent correct
Massachusetts-USA	53 ⬢
Ontario-CAN	53 ⬢
North Carolina-USA	52 ⬢
Minnesota-USA	50 ⬢
Alberta-CAN	49 ⬢
Quebec-CAN	48 ⬢
Colorado-USA	48 ⬢
Connecticut-USA	45 ⬢
Indiana-USA	43 ⬢
Florida-USA	39
Dubai-UAE	37
California-USA	33
Alabama-USA	31
Abu Dhabi-UAE	30 ⬢

⬢ Percent higher than International average
⬢ Percent lower than International average

Population in countries: predict (continued)

S032665A:

Student Responses

Correct Response:

A. Based on the information given in the table, predict how the population of each country will change over the next ten years.
(Check one box in each row.)

	Population Will Increase	Population Will Decrease	Population Will Stay the Same
Country 1	☐	☐	☑
Country 2	☑	☐	☐

Incorrect Response:

A. Based on the information given in the table, predict how the population of each country will change over the next ten years.
(Check one box in each row.)

	Population Will Increase	Population Will Decrease	Population Will Stay the Same
Country 1	☐	☐	☑
Country 2	☐	☑	☐

Content Domain	Main Topic	Cognitive Domain
BIOLOGY	Ecosystems	Reasoning

Population in countries: pollution

There are more than 6 billion people in the world who share the world's natural resources. Look at the table below. It shows some information for two fictitious countries (1 and 2).

	Country 1	Country 2
Population (millions)	200	500
Annual birth rate (births per 1000 people)	10	40
Annual death rate (deaths per 1000 people)	10	10
Area in square kilometers	2,000,000	2,000,000
Grain production (percentage of world total)	40%	20%
Oil consumption (percentage of world total)	20%	5%

B. Predict how the population of the two countries will affect each of the following environmental factors over the next ten years.

   Pollution:

Item Number: S032665C

SCORING

Correct Response

• Predicts that pollution in Country 2 may increase (due to factors related to the growing population).

Example: There will be more pollution in Country 2 as the population increases

• Predicts that pollution will increase with population. [Does not explicitly refer to Country 1 or Country 2.]

Example: Many more people means more pollution.

• Makes a prediction about pollution based on the current population that is supported by data in the table.

Example: Country 1 will pollute more because it consumes more oil than Country 2.

• Other correct

Incorrect Response

• Makes a statement about pollution that is NOT explicitly connected to either population prediction or data in the table.

• Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Singapore	51 ⬡
Chinese Taipei-CHN	40 ⬡
England-GBR	37 ⬡
Australia	37 ⬡
New Zealand	35 ⬡
Japan	35 ⬡
Turkey	34 ⬡
Hungary	34 ⬡
Korea, Rep. of	34 ⬡
Hong Kong-CHN	32 ⬡
Lithuania	32 ⬡
Israel	31 ⬡
United States	**30** ⬡
Slovenia	30 ⬡
Russian Federation	28 ⬡
Finland	26
Jordan	26 ⬡
Iran, Islamic Rep. of	26 ⬡
Kazakhstan	23
International average	22
United Arab Emirates	22
Palestinian Nat'l Auth.	20
Ukraine	20
Chile	20
Sweden	20
Thailand	19 ⬤
Italy	18 ⬤
Bahrain	18 ⬤
Qatar	18 ⬤
Tunisia	17 ⬤
Syrian Arab Republic	14 ⬤
Norway	14 ⬤
Oman	14 ⬤
Romania	13 ⬤
Armenia	10 ⬤
Indonesia	9 ⬤
Malaysia	9 ⬤
Macedonia, Rep. of	9 ⬤
Georgia	9 ⬤
Lebanon	8 ⬤
Morocco	6 ⬤
Ghana	2 ⬤
Saudi Arabia	2 ⬤

Benchmarking education system

Ontario-CAN	46 ⬡
Minnesota-USA	43 ⬡
Massachusetts-USA	41 ⬡
North Carolina-USA	39 ⬡
Alberta-CAN	38 ⬡
Colorado-USA	38 ⬡
Connecticut-USA	37 ⬡
Indiana-USA	36 ⬡
Quebec-CAN	30 ⬡
Florida-USA	29
Dubai-UAE	28 ⬡
California-USA	24
Alabama-USA	21
Abu Dhabi-UAE	21

⬡ Percent higher than International average
⬤ Percent lower than International average

Population in countries: pollution (continued)

S032665C:

Student Responses

Correct Response:

The more people there are the more pollution will be created

Incorrect Response:

Country one will give off more pollution tan 2 will

Content Domain	Main Topic	Cognitive Domain
EARTH SCIENCE	Earth's Processes, Cycles, and History	Applying

Order of steps in the water cycle

The following five statements describe processes involved in the water cycle. Water evaporation from the sea is identified as a first step in the water cycle.

Number the other statements 2 through 5 in the order in which these processes take place.

_____ Water vapor rises in warm air.

_____ Water travels along a river to the sea.

___1___ Water evaporates from the sea.

_____ Water vapor is cooled and forms clouds.

_____ Clouds move and water falls on land as rain.

Item Number: S032060

SCORING

Correct Response

• 2, 5, 1, 3, 4

Incorrect Response

• Incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Finland	92 ⬠
Hong Kong-CHN	85 ⬠
Singapore	83 ⬠
Chinese Taipei-CHN	82 ⬠
Korea, Rep. of	81 ⬠
Russian Federation	79 ⬠
England-GBR	79 ⬠
Israel	79 ⬠
Sweden	78 ⬠
Lithuania	76 ⬠
Slovenia	76 ⬠
Hungary	74 ⬠
New Zealand	72 ⬠
Australia	71 ⬠
Italy	71 ⬠
United States	**71** ⬠
Japan	71 ⬠
Ukraine	69 ⬠
Norway	67
Chile	66
International average	63
Tunisia	62
United Arab Emirates	62
Thailand	61
Oman	60
Bahrain	59 ⬟
Iran, Islamic Rep. of	58 ⬟
Jordan	57 ⬟
Romania	56 ⬟
Saudi Arabia	56 ⬟
Kazakhstan	55 ⬟
Georgia	54 ⬟
Turkey	54 ⬟
Lebanon	50 ⬟
Malaysia	49 ⬟
Armenia	47 ⬟
Syrian Arab Republic	46 ⬟
Palestinian Nat'l Auth.	45 ⬟
Indonesia	45 ⬟
Qatar	45 ⬟
Morocco	44 ⬟
Macedonia, Rep. of	37 ⬟
Ghana	14 ⬟

Benchmarking education system

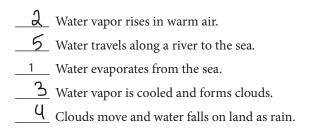|	
Quebec-CAN	80 ⬠
Minnesota-USA	79 ⬠
Alberta-CAN	77 ⬠
Ontario-CAN	76 ⬠
Massachusetts-USA	76 ⬠
North Carolina-USA	76 ⬠
Colorado-USA	75 ⬠
Indiana-USA	74 ⬠
Florida-USA	73 ⬠
Dubai-UAE	68 ⬠
Connecticut-USA	67
California-USA	62
Abu Dhabi-UAE	60
Alabama-USA	58

⬠ Percent higher than International average
⬟ Percent lower than International average

Order of steps in the water cycle (continued)
S032060:

Student Responses

Correct Response:

  2 Water vapor rises in warm air.
  5 Water travels along a river to the sea.
  1 Water evaporates from the sea.
  3 Water vapor is cooled and forms clouds.
  4 Clouds move and water falls on land as rain.

Incorrect Response:

  4 Water vapor rises in warm air.
  2 Water travels along a river to the sea.
  1 Water evaporates from the sea.
  3 Water vapor is cooled and forms clouds.
  5 Clouds move and water falls on land as rain.

Content Domain	Main Topic	Cognitive Domain
EARTH SCIENCE	Earth's Processes, Cycles, and History	Knowing

Volcanic eruption effects

State one way that a volcanic eruption can affect the environment.

Item Number: S032126

SCORING

Correct Response

- States a negative environmental effect due to volcanic eruptions such as pollution (due to release of gases, smoke, ash, etc.) or destruction of habitats or plant/animal life (due to lava flow, burning or similar).

Example: Burns away essential plant life.

- States a positive environmental effect such as making land fertile, creating new habitats, and allowing for different life forms.

Example: It can make the land surrounding the volcano more fertile.

- Other correct

Incorrect Response

- Gives only a general statement of destruction or the nature of volcanic eruptions with inadequate description of how the environment is affected.

Example: It can destroy everything.

- Other incorrect (including crossed out, erased, stray marks, illegible, or off task)

Overall Percent Correct

Education system	Percent correct
Singapore	81 ⌃
Slovenia	78 ⌃
Sweden	76 ⌃
Finland	71 ⌃
New Zealand	70 ⌃
Lithuania	70 ⌃
England-GBR	67 ⌃
Russian Federation	63 ⌃
Japan	63 ⌃
Australia	63 ⌃
United States	**62** ⌃
Chile	62 ⌃
Korea, Rep. of	58 ⌃
Kazakhstan	58 ⌃
Romania	57 ⌃
Chinese Taipei-CHN	55 ⌃
Hong Kong-CHN	54 ⌃
Hungary	54 ⌃
Norway	49
Turkey	49
Israel	49
Ukraine	49
International average	48
Thailand	47
Indonesia	45
Saudi Arabia	45
United Arab Emirates	42 ⌄
Italy	41 ⌄
Iran, Islamic Rep. of	37 ⌄
Georgia	34 ⌄
Armenia	32 ⌄
Bahrain	32 ⌄
Jordan	32 ⌄
Qatar	32 ⌄
Malaysia	32 ⌄
Macedonia, Rep. of	31 ⌄
Palestinian Nat'l Auth.	31 ⌄
Lebanon	28 ⌄
Tunisia	28 ⌄
Syrian Arab Republic	27 ⌄
Oman	26 ⌄
Morocco	19 ⌄
Ghana	9 ⌄

Benchmarking education system

Massachusetts-USA	70 ⌃
Ontario-CAN	67 ⌃
Colorado-USA	67 ⌃
Connecticut-USA	65 ⌃
Minnesota-USA	65 ⌃
Florida-USA	64 ⌃
Alberta-CAN	61 ⌃
Indiana-USA	59 ⌃
California-USA	58 ⌃
North Carolina-USA	57 ⌃
Quebec-CAN	56 ⌃
Dubai-UAE	51
Alabama-USA	46
Abu Dhabi-UAE	39 ⌄

⌃ Percent higher than International average
⌄ Percent lower than International average

Volcanic eruption effects (continued)

S032126:

Student Responses

Correct Response:

the ash can give minirals to the Soil

Incorrect Response:

Smoke/gases