Kentucky Summative Assessments

Grade 4 Science
Released Items
2025

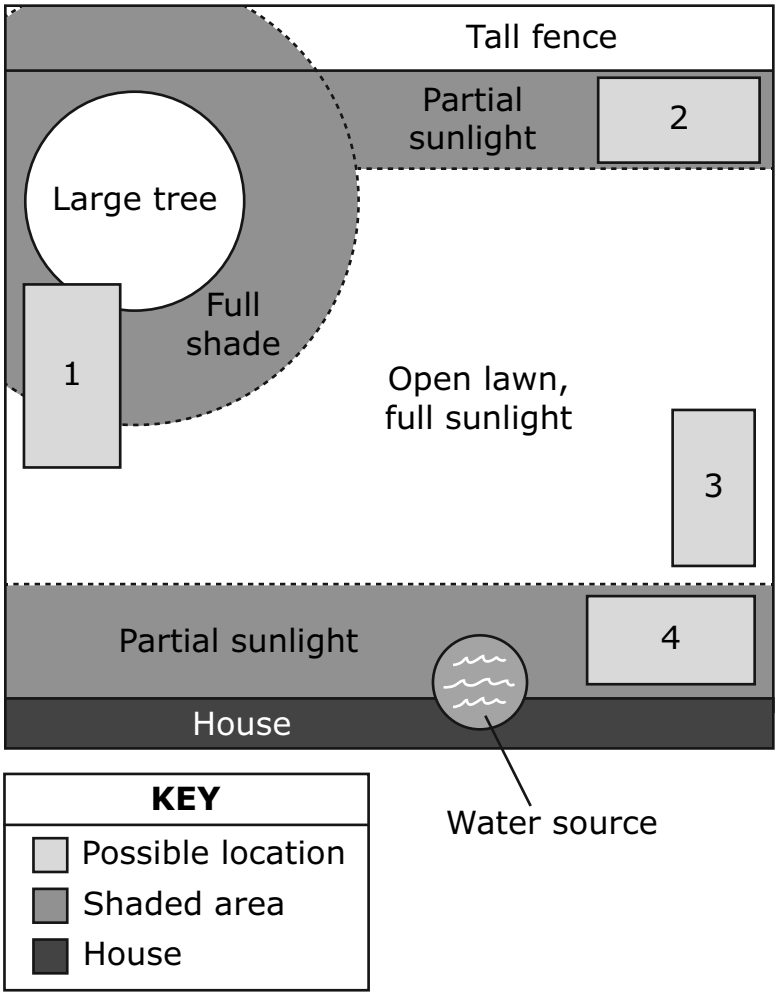
A student wants to create a garden of tomatoes, carrots, lettuce, and cucumbers in his backyard. He plans to water the garden using water from the house. He reads a book to learn how to grow these plants. Figure 1 shows what the book says about what these plants need.

Figure 1. Amount of Sunlight Some Plants Need

Tomato	Full sunlight
Carrot	Partial sunlight
Lettuce	Partial sunlight
Cucumber	Full sunlight to partial sunlight

The student identifies four possible places in his backyard to use for the garden, as shown in Figure 2.

Figure 2. Possible Garden Locations



In addition to creating an outdoor garden, the student plans to investigate plant growth. Figure 3 shows details of two investigations the student is planning to conduct.

Figure 3. Two Investigations on Plant Growth

Investigation 1	Investigation 2
• Equal amounts of water • Some containers in front of a window and some in a cabinet	• Different amounts of water • All containers in front of a window

SC042020461604

1 The student decides to use tomato plants for Investigation 2. The steps are shown in the boxes.

Put the steps in the order the student should do them to conduct Investigation 2.

Move the correct answer to each box. Not all answers will be used.

Record the height of the plants after two weeks.

Place the two plants in a sunny place.

Place one plant in sunlight and one plant in darkness.

Water one of the plants when the soil is dry.

Pick two plants of the same size.

Water both plants when the soil is dry.

Step 1	Step 2	Step 3	Step 4

Released Item Performance

Kentucky Summative Assessments

Spring 2025
Grade 4
Science

Item: SC042020461604
Book Question Number: 1

Standard: 2-LS2-1

Item Type: TE
Key: see below

Student Group	Number of Students	Percent Correct	Average Item Score	Item Breakout Statistics - Score Percentages	
				Score 0 (%)	Score 1 (%)
All Students	**5,850**	12.9%	0.13	87%	13%
Gender					
Female	**2,843**	11.7%	0.12	88%	12%
Male	**3,007**	14.1%	0.14	86%	14%
Ethnicity					
African American	**564**	5.5%	0.05	95%	5%
American Indian or Alaska Native	**<10**	****	****	****	****
Asian	**120**	24.2%	0.24	76%	24%
Hispanic or Latino	**513**	7.6%	0.08	92%	8%
Native Hawaiian or Pacific Islander	**12**	16.7%	0.17	83%	17%
White (non-Hispanic)	**4,315**	14.5%	0.15	85%	15%
Two or more races	**319**	9.1%	0.09	91%	9%
Migrant	**29**	10.3%	0.10	90%	10%
English Learner	**410**	3.9%	0.04	96%	4%
Economically Disadvantaged	**3,619**	9.6%	0.10	90%	10%
Students with Disabilities	**878**	11.2%	0.11	89%	11%

Key: Step 1 should contain Pick two plants of the same size, Step 2 should contain Place the two plants in a sunny place, Step 3 should contain Water one of the plants when the soil is dry, Step 4 should contain Record the height of the plants after two weeks.

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SC042020461604

2 What will the results of Investigations 1 and 2 most likely show?

Complete the sentence by selecting the correct answers from the drop-down menus.

The results will most likely show that plants need Choose.. and Choose.. to grow.

Item Drop Down Options:

What will the results of Investigations 1 and 2 most likely show?

Complete the sentence by selecting the correct answers from the drop-down menus.

The results will most likely show that plants need

✓ Choose...	and	✓ Choose...	o grow.
air		food	
shade		water	
light		soil	

Correct Answer:

What will the results of Investigations 1 and 2 most likely show?

Complete the sentence by selecting the correct answers from the drop-down menus.

The results will most likely show that plants need light and water to grow.

Released Item Performance

Kentucky Summative Assessments

Spring 2025
Grade 4
Science

Item: SC042020461602
Book Question Number: 2

Standard: 2-LS2-1

Item Type: TE
Key: see below

Student Group	Number of Students	Percent Correct	Average Item Score	Item Breakout Statistics - Score Percentages	
				Score 0 (%)	Score 1 (%)
All Students	**5,850**	83.6%	0.84	16%	84%
Gender					
Female	**2,844**	83.6%	0.84	16%	84%
Male	**3,006**	83.5%	0.83	17%	83%
Ethnicity					
African American	**564**	74.6%	0.75	25%	75%
American Indian or Alaska Native	**<10**	****	****	****	****
Asian	**120**	81.7%	0.82	18%	82%
Hispanic or Latino	**513**	76.0%	0.76	24%	76%
Native Hawaiian or Pacific Islander	**12**	91.7%	0.92	8%	92%
White (non-Hispanic)	**4,315**	85.9%	0.86	14%	86%
Two or more races	**319**	80.6%	0.81	19%	81%
Migrant	**29**	69.0%	0.69	31%	69%
English Learner	**410**	73.7%	0.74	26%	74%
Economically Disadvantaged	**3,619**	81.0%	0.81	19%	81%
Students with Disabilities	**879**	73.9%	0.74	26%	74%

Key: Drop Down 1 should have option 3 chosen. Drop Down 2: should have option 2 chosen.

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3

SC042020461606_3,1

The student wants to grow the healthiest plants that he can. Based on Figures 1 and 2, which two factors are most important for the student to consider when deciding where to put the garden?

Select **two** correct answers.

A Where it will get the right amount of sunlight

B Where it will receive the least rain

C Where it will be easiest to water

D Where it will look best in the yard

E Where it will get the most shade

Released Item Performance

Kentucky Summative Assessments

Spring 2025
Grade 4
Science

Item: SC042020461606
Book Question Number: 3

Standard: 2-LS2-1

Item Type: MS
Key: A,C

Student Group	Number of Students	Percent Correct	Average Item Score	Item Breakout Statistics - Score Percentages		
				Score 0 (%)	Score 1 (%)	Score 2 (%)
All Students	**5,835**	79.7%	1.59	5%	32%	64%
Gender						
Female	**2,838**	79.1%	1.58	4%	33%	63%
Male	**2,997**	80.2%	1.60	5%	30%	65%
Ethnicity						
African American	**558**	71.7%	1.43	8%	40%	52%
American Indian or Alaska Native	**<10**	****	****	****	****	****
Asian	**119**	82.4%	1.65	0%	35%	65%
Hispanic or Latino	**511**	75.9%	1.52	7%	34%	59%
Native Hawaiian or Pacific Islander	**12**	70.8%	1.42	8%	42%	50%
White (non-Hispanic)	**4,310**	81.2%	1.62	4%	30%	66%
Two or more races	**318**	78.3%	1.57	5%	34%	61%
Migrant	**28**	69.6%	1.39	14%	32%	54%
English Learner	**406**	73.4%	1.47	7%	39%	54%
Economically Disadvantaged	**3,606**	77.3%	1.55	6%	34%	60%
Students with Disabilities	**874**	70.5%	1.41	9%	42%	50%

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4

SC042020461610

Short Answer Directions: Read the question carefully. Then enter your answer in the space provided.

The student can choose only one location for his garden, where tomatoes and cucumbers will be grown together. Based on Figure 1, Figure 2, and the student's plans, which numbered location in Figure 2 would be **best** for the garden? Explain your reasoning.

Released Item Performance

Kentucky Summative Assessments

Spring 2025
Grade 4
Science

Item: SC042020461610
Book Question Number: 4

Standard: 2-LS2-1

Item Type: SA
Key: Rubric

Student Group	Number of Students	Percent Correct	Average Item Score	Item Breakout Statistics - Score Percentages		
				Score 0 (%)	Score 1 (%)	Score 2 (%)
All Students	**5,760**	21.6%	0.43	66%	25%	9%
Gender						
Female	**2,815**	21.7%	0.43	67%	23%	10%
Male	**2,945**	21.5%	0.43	65%	26%	8%
Ethnicity						
African American	**550**	11.5%	0.23	81%	14%	5%
American Indian or Alaska Native	**<10**	****	****	****	****	****
Asian	**115**	35.7%	0.71	45%	38%	17%
Hispanic or Latino	**500**	17.1%	0.34	72%	23%	6%
Native Hawaiian or Pacific Islander	**12**	20.8%	0.42	67%	25%	8%
White (non-Hispanic)	**4,261**	23.3%	0.47	64%	26%	10%
Two or more races	**316**	18.2%	0.36	71%	22%	7%
Migrant	**29**	13.8%	0.28	72%	28%	0%
English Learner	**396**	15.3%	0.31	74%	21%	5%
Economically Disadvantaged	**3,552**	18.0%	0.36	70%	23%	6%
Students with Disabilities	**854**	18.4%	0.37	69%	26%	6%

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Rubric

Score	Description
2	There is evidence in this response that the student has a complete and thorough understanding of the multi-dimensional question as evidenced by their explanation of the phenomenon and/or solution to the problem. The response is complete, thorough and correct and based on appropriate knowledge and skills. The response does not contain errors or flaws in logical thinking or those flaws are irrelevant to the accuracy of the answer. The response reflects complete synthesis and understanding of complex ideas. The response is completely coherent and based on effective application of relevant dimensions (SEP and/or DCI and/or CC). The response integrates a solution that is completely correct and based on the principles of engineering design (if applicable).
1	There is evidence in this response that the student has a minimal understanding of the multi-dimensional question as evidenced by their explanation of the phenomenon and/or solution to the problem. The response is minimal and/or the question is answered using minimal understanding of knowledge and skills. The response may contain major significant errors or flaws in logical thinking. The response reflects a minimal synthesis and understanding of complex ideas. The response is not coherent or is not based on application of relevant dimensions (SEP and/or DCI and/or CC). The response integrates a solution that is minimally correct and may or may not be based on the principles of engineering design (if applicable).
0	There is no evidence that the student has an understanding of the material related to the question being asked in terms of science content and logical thinking skills. The response is blank, entirely incorrect and/or irrelevant.

Anchor Set

A1

The best place to put his garden is where alot of sun light is and lots of water to so your garden can be perfect.

Anchor Annotation, Paper 1
Score Point 0

There is no evidence that the student has an understanding of the material related to the question. The response does not identify which numbered location in Figure 2 would be the best location for the garden. This response demonstrates no understanding of the prompt.

A2

I think the best place for the garden is next to the east side of the property.

Anchor Annotation, Paper 2
Score Point 0

There is no evidence that the student has an understanding of the material related to the question. There is no compass on the figure, so identifying a cardinal direction (north, south, east, west) does not satisfy the prompt. A numbered location must be chosen. This response is entirely irrelevant.

A3

4 because it has the sunlight it needs and the closest water to water the plant. This is why I pick 4.

Anchor Annotation, Paper 3
Score Point 0

There is no evidence that the student has an understanding of the material related to the question. The location is incorrect (*4*) and there is no evidence that data from Figure 1 was used. This response demonstrates no understanding of the prompt.

A4

The **best** location would be 3 because the cucumber and the tomato needs sunlight to grow and it will be rained on and it says "Open lawn,full sunlight."

Anchor Annotation, Paper 4
Score Point 1

There is evidence that the student has a minimal understanding of the material related to the question. The correct location is provided (*3*) along with a valid reason based on the information provided (*it says "Open lawn,full sunlight"*). Including specific evidence from Figure 1 could have strengthened this response.

A5

open lawn becuase the tomato requires full sunlight and the cucumber can take full or partial sunlight

Anchor Annotation, Paper 5
Score Point 1

There is evidence that the student has a minimal understanding of the material related to the question. The reasoning provided is correct (*open lawn because the tomato requires full sunlight and the cucumber can take full or partial sunlight*), but a numbered location for the garden plot is not provided.

A6

garden place 3 Because the cucumbers and tomatos both need full sunlight, so figure 3 is the perfect one.

Anchor Annotation, Paper 6
Score Point 1

There is evidence that the student has a minimal understanding of the material related to the question. A numbered location for the garden plot is provided (*3*) along with minimal synthesis of the condition in which both plants can thrive (*both need full sunlight*). A significant flaw is demonstrated by the misunderstanding that cucumbers require full sunlight since they can also be grown in partial sunlight.

A7

The best place to grow a tomato and a cucumber will be number 3 because a tomato needs full sunlight and it needs to be near water and it's near water. A cucumber need full sunlight to partial sunlight and it's at full sunlight and next to it is partial sunlight and it needs to be near water and it is next to water.

Anchor Annotation, Paper 7
Score Point 2

There is evidence that the student has a complete understanding of the material related to the question. The correct location is provided (*number 3*) and correct reasoning is included (*a tomato needs full sunlight and it needs to be near water and it's near water. A cucumber need full sunlight to partial sunlight and it's at full sunlight... and it needs to be near water and it is next to water*). The references to water do not add or detract from the strength of the response.

A8

The best place for a garden with only tomatoes and cucumbers would be location 3 of figure 2. It should be in location 3 because tomatoes need full sunlight and cucumbers need partial or full sunlight acording to figure one and location 3 is the only one that has full sunlight.

Anchor Annotation, Paper 8
Score Point 2

There is evidence that the student has a complete understanding of the material related to the question. The correct location is provided (*location 3*) and reasoning is included (*tomatoes need full sunlight and cucumbers need partial or full sunlight ... location 3 is the only one that has full sunlight*).

I think spot number 3 would be the best based on figure 1 and 2 I think this because from figure 1 we know that tomatos grow best full sunlight and cucmbers grow best with partial to full sunlight. Since tomatos grow best with full sunlight and cucumbers grow best with partial to full we can plant the plants in full sunlight because both grow best with full sunlight. In figure 2 we see spot 3 is the best for full sunlight and its also pretty close to the water source, and plants need water to survive and grow just like us. That is how I know 3 is the based spot based of figures 1 and 2.

Anchor Annotation, Paper 9
Score Point 2

There is evidence that the student has a complete understanding of the material related to the question. The correct location is provided (*spot number 3*) and reasoning is included (*Since tomatos grow best with full sunlight and cucumbers grow best with partial to full we can plant the plants in full sunlight because both grow best with full sunlight. In figure 2 we see spot 3 is the best for full sunlight*). The references to water (*its also pretty close to the water source, and plants need water to survive and grow just like us*) do not add or detract from the strength of the response.

SC042400704

5 Two friends are on a camping trip with their families. The families are sleeping in separate tents. The friends want to be able to send messages to each other at night when their families are sleeping. They need to be quiet so they do not wake their parents or siblings. Since it will not be light outside, they need to be able to send their messages in the dark.

They come up with a list of ideas for ways to send messages:

- calling each other using phones
- flashing a light on and off
- writing on paper with markers

Does each method meet the criteria and constraints, and why?

Move each answer into the correct box in the table. Each answer may be used more than once.

Yes. It is quiet and can be used in the dark. **No. It cannot be used in the dark.**

No. It makes too much sound.

Method	Does It Meet the Criteria and Constraints?
Calling on a phone	
Flashing a light	
Writing on paper	

Released Item Performance

Kentucky Summative Assessments

Spring 2025
Grade 4
Science

Item: SC042400704
Book Question Number: 5

Standard: 4-PS4-3

Item Type: TE
Key: see below

Student Group	Number of Students	Percent Correct	Average Item Score	Item Breakout Statistics - Score Percentages	
				Score 0 (%)	Score 1 (%)
All Students	**5,632**	70.5%	0.70	30%	70%
Gender					
Female	**2,765**	71.3%	0.71	29%	71%
Male	**2,867**	69.7%	0.70	30%	70%
Ethnicity					
African American	**604**	64.6%	0.65	35%	65%
American Indian or Alaska Native	**<10**	****	****	****	****
Asian	**138**	68.1%	0.68	32%	68%
Hispanic or Latino	**532**	65.8%	0.66	34%	66%
Native Hawaiian or Pacific Islander	**<10**	****	****	****	****
White (non-Hispanic)	**4,007**	72.0%	0.72	28%	72%
Two or more races	**339**	72.3%	0.72	28%	72%
Migrant	**20**	75.0%	0.75	25%	75%
English Learner	**417**	59.7%	0.60	40%	60%
Economically Disadvantaged	**3,471**	68.7%	0.69	31%	69%
Students with Disabilities	**840**	62.9%	0.63	37%	63%

Key: Top Table position should be No. It makes too much sound. Middle Table position should be Yes. It is quiet and can be used in the dark. Lower Table position should be No. It cannot be used in the dark.

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6

SC042400502_4

A student likes to go for a walk when she gets home from school. She walks at the same time each day. She notices that some days it is light out when she walks and some days it is dark.

She wants to learn more about how the amount of daylight changes throughout the year. Which data should the student collect to determine whether there is a pattern?

A The sun's position in the sky each day

B The distance she walks each day

C The temperature during her walk each day

D The times the sun rises and sets each day

Released Item Performance

Kentucky Summative Assessments

Spring 2025
Grade 4
Science

Item: SC042400502
Book Question Number: 6

Standard: 1-ESS1-2

Item Type: MC
Key: D

Student Group	Number of Students	Percent Correct	Average Item Score	Item Breakout Statistics - Answer Choice Options			
				A (%)	B (%)	C (%)	D (%)
All Students	**5,889**	42%	0.42	35%	10%	13%	42%
Gender							
Female	**2,949**	44%	0.44	33%	9%	13%	44%
Male	**2,940**	40%	0.40	37%	11%	12%	40%
Ethnicity							
African American	**621**	32%	0.32	33%	18%	18%	32%
American Indian or Alaska Native	**<10**	****	****	****	****	****	****
Asian	**125**	46%	0.46	42%	4%	8%	46%
Hispanic or Latino	**524**	34%	0.34	35%	13%	18%	34%
Native Hawaiian or Pacific Islander	**<10**	****	****	****	****	****	****
White (non-Hispanic)	**4,257**	45%	0.45	35%	9%	11%	45%
Two or more races	**348**	33%	0.33	40%	12%	14%	33%
Migrant	**18**	28%	0.28	28%	22%	22%	28%
English Learner	**418**	35%	0.35	30%	14%	20%	35%
Economically Disadvantaged	**3,618**	40%	0.40	33%	12%	15%	40%
Students with Disabilities	**882**	43%	0.43	31%	13%	12%	43%

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SC042020461604

7 A student wearing a black shirt is playing outside on a hot day. He wonders why his shirt feels so warm.

To investigate, the student stands in direct sunlight and records how the shirt feels over a period of 10 minutes. His observations are shown in the table.

Time (minutes)	Temperature
1	Cool to the touch
5	Warm to the touch
10	Hot to the touch

Using the observations as evidence, explain the change in the temperature of the shirt.

Complete the sentence by selecting the correct answers from the drop-down menus.

The temperature of the shirt increases because [Choose...] transfers from the [Choose...] to the shirt in the form of [Choose...].

Item Drop Down Options:

A student wearing a black shirt is playing outside on a hot day. He wonders why his shirt feels so warm.

To investigate, the student stands in direct sunlight and records how the shirt feels over a period of 10 minutes. His observations are shown in the table.

Time (minutes)	Temperature
1	Cool to the touch
5	Warm to the touch
10	Hot to the touch

Using the observations as evidence, explain the change in the temperature of the shirt.

Complete the sentence by selecting the correct answers from the drop-down menus.

The temperature of the shirt increases because [✓ Choose... / energy / temperature] transfers from the [✓ Choose... / air / sun] to the shirt in the form [✓ Choose... / heat / motion].

Correct Answer:

A student wearing a black shirt is playing outside on a hot day. He wonders why his shirt feels so warm.

To investigate, the student stands in direct sunlight and records how the shirt feels over a period of 10 minutes. His observations are shown in the table.

Time (minutes)	Temperature
1	Cool to the touch
5	Warm to the touch
10	Hot to the touch

Using the observations as evidence, explain the change in the temperature of the shirt.

Complete the sentence by selecting the correct answers from the drop-down menus.

The temperature of the shirt increases because [energy] transfers from the [sun] to the shirt in the form of [heat].

Released Item Performance

Kentucky Summative Assessments

Spring 2025
Grade 4
Science

Item: SC042400503
Book Question Number: 7

Standard: 4-PS3-2

Item Type: TE
Key: see below

Student Group	Number of Students	Percent Correct	Average Item Score	Item Breakout Statistics - Score Percentages	
				Score 0 (%)	Score 1 (%)
All Students	**5,809**	46.0%	0.46	54%	46%
Gender					
Female	**2,851**	44.6%	0.45	55%	45%
Male	**2,958**	47.4%	0.47	53%	47%
Ethnicity					
African American	**612**	37.9%	0.38	62%	38%
American Indian or Alaska Native	**<10**	****	****	****	****
Asian	**134**	55.2%	0.55	45%	55%
Hispanic or Latino	**475**	40.0%	0.40	60%	40%
Native Hawaiian or Pacific Islander	**10**	40.0%	0.40	60%	40%
White (non-Hispanic)	**4,222**	47.4%	0.47	53%	47%
Two or more races	**353**	48.2%	0.48	52%	48%
Migrant	**24**	25.0%	0.25	75%	25%
English Learner	**390**	35.1%	0.35	65%	35%
Economically Disadvantaged	**3,560**	41.9%	0.42	58%	42%
Students with Disabilities	**858**	39.5%	0.40	60%	40%

Key: Drop Down 1: should have option 1 chosen. Drop Down 2: should have option 2 chosen. Drop Down 3: should have option 1 chosen.

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8

SC042400909_4

The rock that makes up the area of the Red River Gorge in east-central Kentucky contains layers of sediment, such as sand, gravel, and clay, that hardened over 400 million years. The gorge began to form as the river that runs through it deepened the canyon by eroding the rock. The gorge as it looks today is shown.

Which statement describes evidence from the Red River Gorge that supports the statement that this landscape has changed over time?

A Giant chunks of rock have been cut away as a result of ocean waves.

B Breaks in the rock formations are from earthquakes that created fractures.

C The gorge is made entirely of clay, so the whole area must have been underwater.

D The rock layers have different colors and textures because they were formed under different conditions.

Released Item Performance

Kentucky Summative Assessments

Spring 2025
Grade 4
Science

Item: SC042400909
Book Question Number: 8

Standard: 4-ESS1-1

Item Type: MC
Key: D

Student Group	Number of Students	Percent Correct	Average Item Score	Item Breakout Statistics - Answer Choice Options			
				A (%)	B (%)	C (%)	D (%)
All Students	**5,738**	56%	0.56	21%	12%	11%	56%
Gender							
Female	**2,818**	59%	0.59	19%	12%	11%	59%
Male	**2,919**	53%	0.53	23%	12%	12%	53%
Ethnicity							
African American	**589**	42%	0.42	24%	18%	17%	42%
American Indian or Alaska Native	**<10**	****	****	****	****	****	****
Asian	**140**	66%	0.66	14%	11%	9%	66%
Hispanic or Latino	**483**	55%	0.55	19%	12%	14%	55%
Native Hawaiian or Pacific Islander	**10**	70%	0.70	10%	0%	20%	70%
White (non-Hispanic)	**4,169**	57%	0.57	21%	11%	10%	57%
Two or more races	**340**	56%	0.56	20%	11%	12%	56%
Migrant	**21**	38%	0.38	29%	14%	19%	38%
English Learner	**402**	50%	0.50	20%	16%	14%	50%
Economically Disadvantaged	**3,523**	52%	0.52	23%	13%	12%	52%
Students with Disabilities	**859**	55%	0.55	20%	13%	13%	55%

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Investing in Kentucky's Future, One Student at a Time