

Reporting Category	Questioning and Modeling
Content Connector	<b>6.ESS.1.a.1:</b> Describe the role of gravity and inertia in maintaining the regular and predictable motion of celestial bodies.
IAS Standard	<b>6.ESS.1:</b> Describe the role of gravity and inertia in maintaining the regular and predictable motion of celestial bodies.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>For Tier 1, limit to tangible objects within Earth.</p> <p>For Tier 2 and 3, limit items to the Sun-Earth-Moon system.</p>
Allowable Stimulus Material	diagrams of the Sun-Earth-Moon system
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC) Multiple Select (MS) Table Match (TM)
Construct-Relevant Vocabulary	gravity, inertia, motion, predictable, celestial, body (objects in space)
Cognitive Complexity	4

Evidence Statements	
Evidence Statements	<p><b>Tier 1</b>            Students identify the impact of gravity on an object.            Students recognize the impact of gravity on the motion of object.</p>
	<p><b>Tier 2</b>            Students identify the impact of the pull of gravity on the Sun-Earth-Moon system.            Students identify the outcome of inertia on the predictable motion of an object.            Students identify the property of inertia in relationship to the Sun-Earth-Moon system.</p>
	<p><b>Tier 3</b>            Students describe or predict the effects of gravity on an object.            Students describe or predict the effects of inertia on an object.</p>
Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

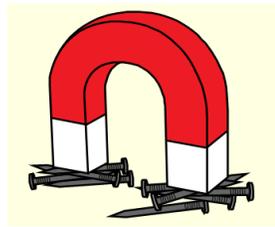
Sample Item

Here is a picture of an apple tree. When the apples are ripe, they fall to the ground.

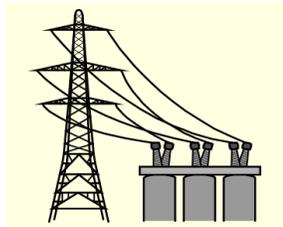


What force causes the apples to fall to the ground?

Tier 1



- A. magnetic  
(audio: a magnetic force)



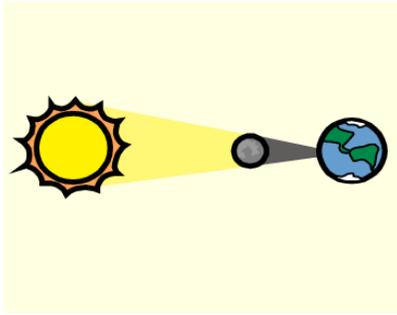
- B. electricity  
(audio: an electrical force)



- C. gravity  
(audio: the force of gravity)

Reporting Category	Analyzing, Interpreting, and Computational Thinking
Content Connector	<b>6.ESS.2.a.1:</b> Demonstrate how Earth's rotation, revolution, tilt, and interaction with the sun and moon cause seasons, tides, changes in daylight hours, eclipses, and phases of the moon.
IAS Standard	<b>6.ESS.2:</b> Design models to describe how Earth's rotation, revolution, tilt, and interaction with the sun and moon cause seasons, tides, changes in daylight hours, eclipses, and phases of the moon.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p>
Allowable Stimulus Material	graphics
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC)
Construct-Relevant Vocabulary	rotation, revolution, tilt, seasons, tides, eclipses (lunar/solar), phases, interaction
Cognitive Complexity	3

Evidence Statements	
Evidence Statements	<p><b>Tier 1</b> Students identify each term in standard (rotation, revolution, tilt, tides, eclipses, and phases of the moon). Students identify a partial eclipse or a full eclipse.</p>
	<p><b>Tier 2</b> Students identify the difference between rotation and revolution. Students identify how the tilt and revolution of Earth causes seasonal changes. Given a graphic of an eclipse, students identify the type of eclipse.</p>
	<p><b>Tier 3</b> Students describe the cause of the day-night cycle. Students identify the correct pattern in the phases of the moon.</p>
Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item	
Tier 2	<p>Here is a picture of the sun, the moon, and Earth.</p>  <p>What event is occurring?</p> <p>A. low tide B. <b>solar eclipse</b> C. seasonal change</p>

Reporting Category	Questioning and Modeling
Content Connector	<b>6.ESS.3.a.1:</b> Compare and contrast the Earth, its moon, and other planets in the solar system, including comets and asteroids. (Comparisons should be made in regard to size, surface features, atmospheric characteristics, and the ability to support life.)
IAS Standard	<b>S6.ESS.3:</b> Compare and contrast the Earth, its moon, and other planets in the solar system, including comets and asteroids. (Comparisons should be made in regard to size, surface features, atmospheric characteristics, and the ability to support life.)
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Limit to size, surface features, atmospheric characteristics, and the ability to support life.</p> <p>Limit to inner planets.</p> <p>Pictures of comets must have a recognizable tail.</p> <p>Do not assess names of planets or asteroids.</p>
Allowable Stimulus Material	diagrams; graphics of celestial bodies and/or solar system
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC) Multiple Select (MS) Table Match (TM)
Construct-Relevant Vocabulary	sun, planets, comets (with tail), solar system, earth, moon, features, characteristics of life, compare and contrast
Cognitive Complexity	4

Evidence Statements	
Evidence Statements	<p><b>Tier 1</b> Students identify the sun, a planet, and a comet in a diagram of the solar system.</p>
	<p><b>Tier 2</b> Students identify features that support life.</p>
	<p><b>Tier 3</b> Students identify objects in the solar system that support life.</p>
Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

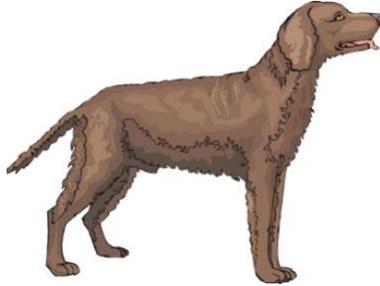
Sample Item	
<b>Tier 3</b>	<p>Which object in the solar system supports life?</p> <p>A. moon</p> <p>B. comet</p> <p>C. <b>Earth</b></p>

Reporting Category	Analyzing, Interpreting, and Computational Thinking
Content Connector	<b>6.LS.1.a.1:</b> Investigate and describe how homeostasis is maintained as living things seek out their basic needs of food, water, shelter, space, and air.
IAS Standard	<b>6.LS.1:</b> Investigate and describe how homeostasis is maintained as living things seek out their basic needs of food, water, shelter, space, and air.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Limit to macroscopic organisms.</p>
Allowable Stimulus Material	graphics
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC)
Construct-Relevant Vocabulary	homeostasis, basic needs (food, water, shelter, space, and air)
Cognitive Complexity	2
<b>Evidence Statements</b>	
Evidence Statements	<b>Tier 1</b> Students identify the basic needs organisms require to survive.
	<b>Tier 2</b> Students describe how living things obtain basic needs to maintain homeostasis.
	<b>Tier 3</b> Students recognize the components (living and nonliving) of an ecosystem necessary for maintaining homeostasis.

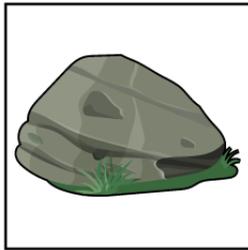
Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item

Here is a picture of a dog.



What does the dog need to survive?



A.

rock



B.

water



C.

moon

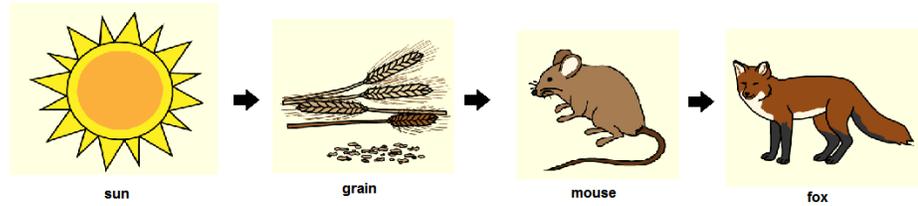
Tier 1

Reporting Category	Questioning and Modeling
Content Connector	<b>6.LS.2.a.1:</b> Describe the role of photosynthesis in the flow of energy in food chains, energy pyramids, and food webs.
IAS Standard	<b>6.LS.2:</b> Describe the role of photosynthesis in the flow of energy in food chains, energy pyramids, and food webs. Create diagrams to show how the energy in animals' food used for bodily processes was once energy from the sun.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p>
Allowable Stimulus Material	diagrams of photosynthesis; food chains; energy pyramids; food webs
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC)
Construct-Relevant Vocabulary	photosynthesis, food chains, energy pyramids, food webs, flow of energy, consumers, producers, predator/prey, decomposers, transfer of energy
Cognitive Complexity	5

Evidence Statements	
Evidence Statements	<p><b>Tier 1</b></p> <p>Students identify components of a food chain.</p> <p>Students identify that plants make their own food through the process of photosynthesis.</p>
	<p><b>Tier 2</b></p> <p>Students identify the steps of photosynthesis.</p> <p>Students identify the missing element of a food chain, energy pyramid, or food web.</p>
	<p><b>Tier 3</b></p> <p>Students identify the correct direction of the flow of energy through a food chain, energy pyramid, or food web.</p> <p>Given a stimulus, students classify organisms (producers, consumers, or decomposers).</p> <p>Students recognize the impact on a plant if a step in the process of photosynthesis is missing.</p>
Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item

The diagram shows a food chain.



Which organism is the producer in the food chain?

Tier 1



sun

- A. (audio: the sun)



grain

- B. (audio: the grain)

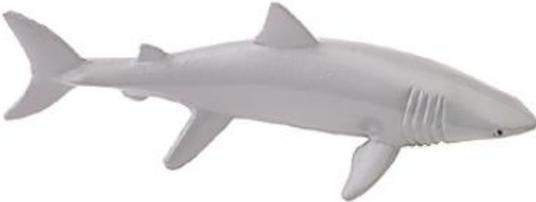


mouse

- C. (audio: the mouse)

Reporting Category	Questioning and Modeling
Content Connector	<b>6.LS.3.a.1:</b> Describe specific relationships (predator/prey, consumer/producer, parasite/host) and symbiotic relationships between organisms.
IAS Standard	<b>6.LS.3:</b> Describe specific relationships (predator/prey, consumer/producer, parasite/host) and symbiotic relationships between organisms. Construct an explanation that predicts why patterns of interactions develop between organisms in an ecosystem.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Do not address symbiotic relationships between organisms.</p> <p>Limit to one pair.</p> <p>Limit parasitic relationships to humans and domestic animals as hosts.</p>
Allowable Stimulus Material	N/A
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC)
Construct-Relevant Vocabulary	predator/prey, consumer/producer, parasite/host, domestic animal, interaction, relationship, organism
Cognitive Complexity	3

Evidence Statements	
Evidence Statements	<p><b>Tier 1</b> Students identify that organisms must interact to survive.</p>
	<p><b>Tier 2</b> Students identify predator/prey or consumer/producer relationships.</p>
	<p><b>Tier 3</b> Students identify the relationship between parasite/host.</p>
Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item	
<p><b>Tier 2</b></p>	<p>Sharks like to eat fish.</p>  <p>Which statement describes the relationship between the shark and the fish?</p> <p>A. The fish is a predator.            B. <b>The shark is a predator.</b>            C. The shark and fish are prey.</p>

Reporting Category	Questioning and Modeling
Content Connector	<b>6.LS.4.a.1:</b> Investigate how changes in biotic and abiotic components in a given habitat can be beneficial or detrimental to native plants and animals.
IAS Standard	<b>6.LS.4:</b> Investigate and use data to explain how changes in biotic and abiotic components in a given habitat can be beneficial or detrimental to native plants and animals.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Give context of invasive species.</p> <p>Limit to Indiana habitats.</p>
Allowable Stimulus Material	graphics
Context	Required
Recommended Response Mechanisms	Multiple Choice (MC)
Construct-Relevant Vocabulary	abiotic, biotic, organism, climate, characteristic, native, invasive, species, plant, animal, habitat, ecosystem, beneficial, detrimental
Cognitive Complexity	4
<b>Evidence Statements</b>	
Evidence Statements	<p><b>Tier 1</b></p> <p>Students identify biotic and abiotic characteristics.</p> <p>Students identify native and invasive species.</p>
	<p><b>Tier 2</b></p> <p>Students identify which abiotic characteristics affect an organism.</p>
	<p><b>Tier 3</b></p> <p>Students identify how changes affect plants and animals.</p>

Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

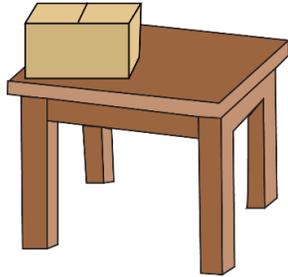
Sample Item	
<b>Tier 2</b>	<p>Which of the following abiotic characteristics would negatively affect a native organism?</p> <p>A. nutrient-rich soil            B. unpolluted atmosphere            C. <b>extreme temperatures</b></p>

Reporting Category	Questioning and Modeling
Content Connector	<b>6.PS.1.a.1:</b> Distinguish between the terms position, distance, and displacement, as well as the terms speed and velocity.
IAS Standard	<b>6.PS.1:</b> Distinguish between the terms position, distance, and displacement, as well as the terms speed and velocity.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Use real-life examples.</p> <p>Limit examples of displacement to everyday experiences with concrete examples (e.g., walking/hiking, traveling in a car).</p>
Allowable Stimulus Material	N/A
Context	N/A
Recommended Response Mechanisms	Multiple Choice (MC) Multiple Select (MS) Table Match (TM)
Construct-Relevant Vocabulary	position, distance, displacement, speed, velocity, distinguish, difference, relationship, compare, mass
Cognitive Complexity	4

Evidence Statements	
Evidence Statements	<p><b>Tier 1</b>            Students identify examples of displacement.            Students identify the relationship of distance between two objects.            Students identify the object that is moving faster or slower.</p>
	<p><b>Tier 2</b>            Students identify the effects of mass on speed or distance.            Students compare the velocity of two given objects.</p>
	<p><b>Tier 3</b>            Students measure the amount of displacement of an object.            Students predict the effects of mass on speed or distance.</p>
Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	Calculator, if necessary

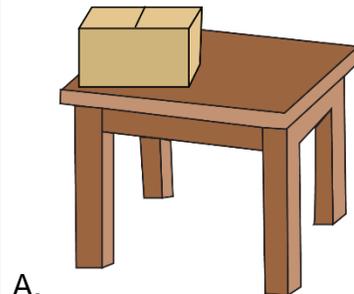
Sample Item

Here is a box on a table.

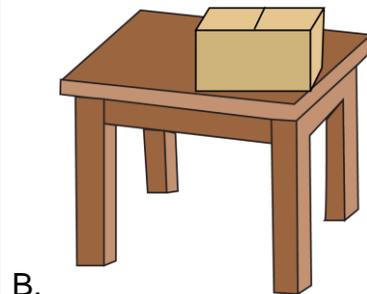


Which picture shows the displacement of the box?

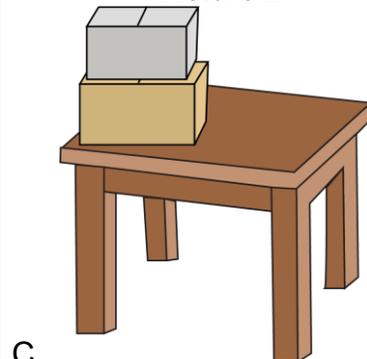
Tier 1



Picture 1



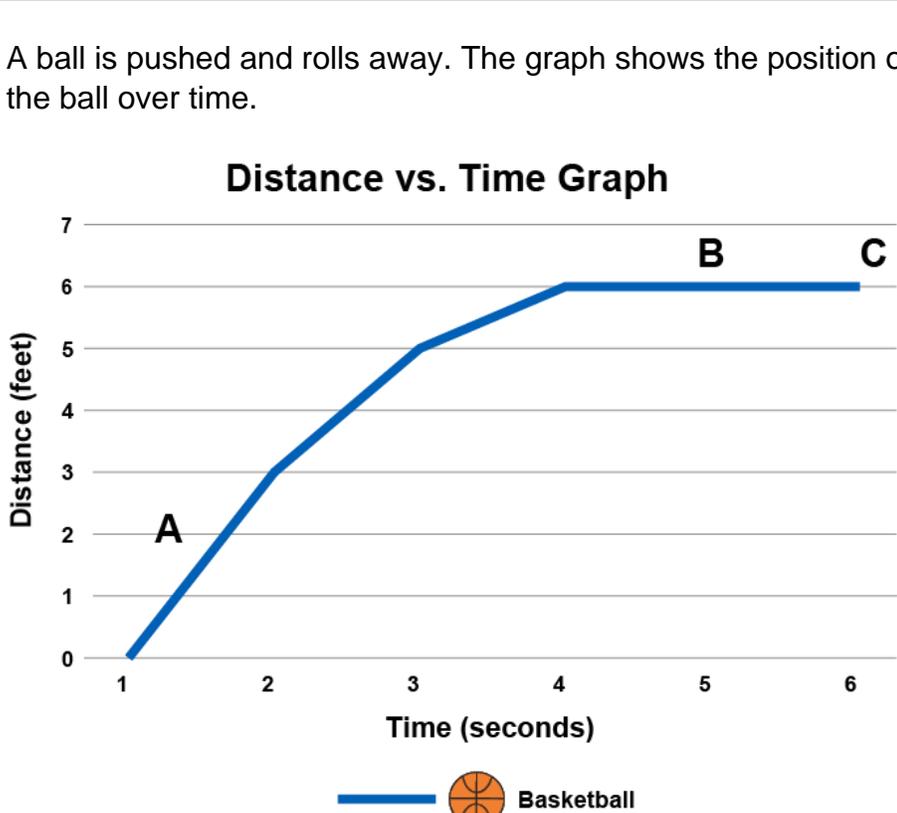
Picture 2

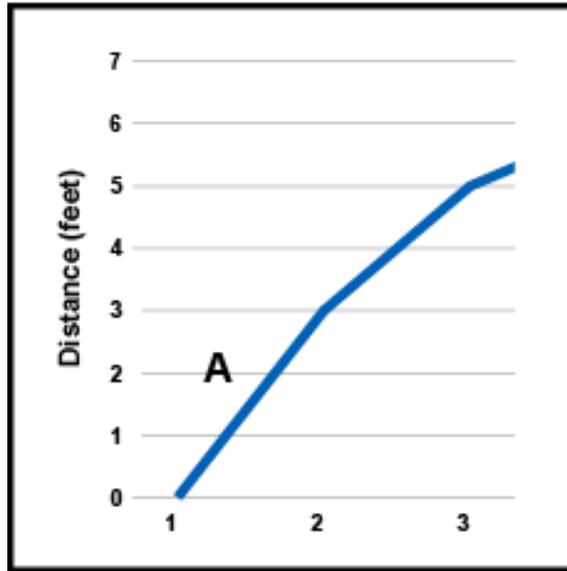


Picture 3

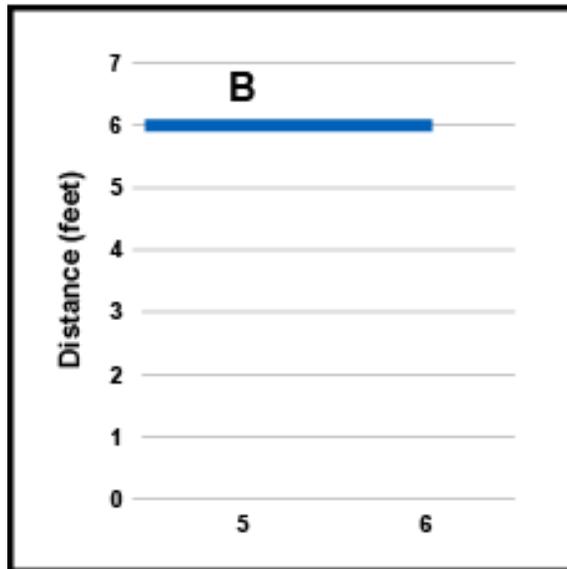
Reporting Category	Questioning and Modeling
Content Connector	<b>6.PS.2.a.1:</b> Describe the motion of an object graphically showing the relationship between time and position.
IAS Standard	<b>6.PS.2:</b> Describe the motion of an object graphically showing the relationship between time and position.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Limit to one object per graph.</p> <p>Limit to two motion changes.</p> <p>Limit to whole numbers (if numbers are used).</p> <p>For Tier 1, include picture of object on motion graph.</p>
Allowable Stimulus Material	motion graph
Context	Required
Recommended Response Mechanisms	Multiple Choice (MC) Multiple Select (MS) Table Match (TM)
Construct-Relevant Vocabulary	origin, slope, x-axis, y-axis, relative speed, motion, object, motion graph, title, units,
Cognitive Complexity	5
<b>Evidence Statements</b>	
Evidence Statements	<p><b>Tier 1</b></p> <p>Students identify which part of the graph shows motion.</p>
	<p><b>Tier 2</b></p> <p>Students identify the relative speed of the object (fast, slow, stop).</p>
	<p><b>Tier 3</b></p> <p>Students identify whether object goes back to origin.</p> <p>Students identify how much time has passed between points on the graph.</p>

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Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

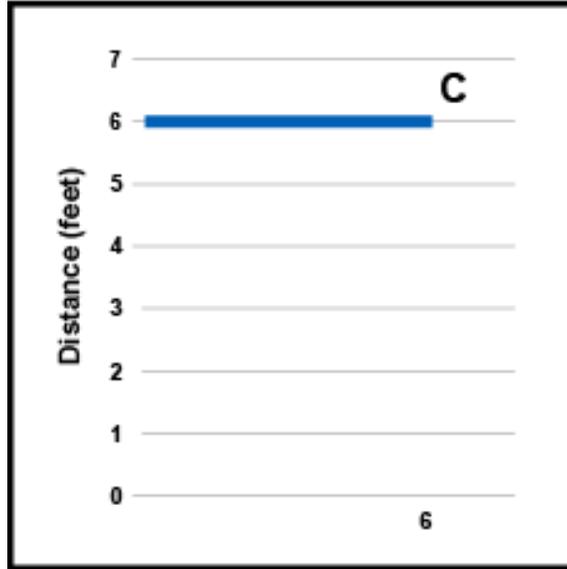
Sample Item	
Tier 1	<p>A ball is pushed and rolls away. The graph shows the position of the ball over time.</p> <p style="text-align: center;"><b>Distance vs. Time Graph</b></p>  <p style="text-align: center;"> <span style="color: blue; font-weight: bold;">—</span>  Basketball         </p> <p>What part of the graph shows the motion of the ball?</p>



A.  
(audio: Card A)



B.  
(audio: Card B)

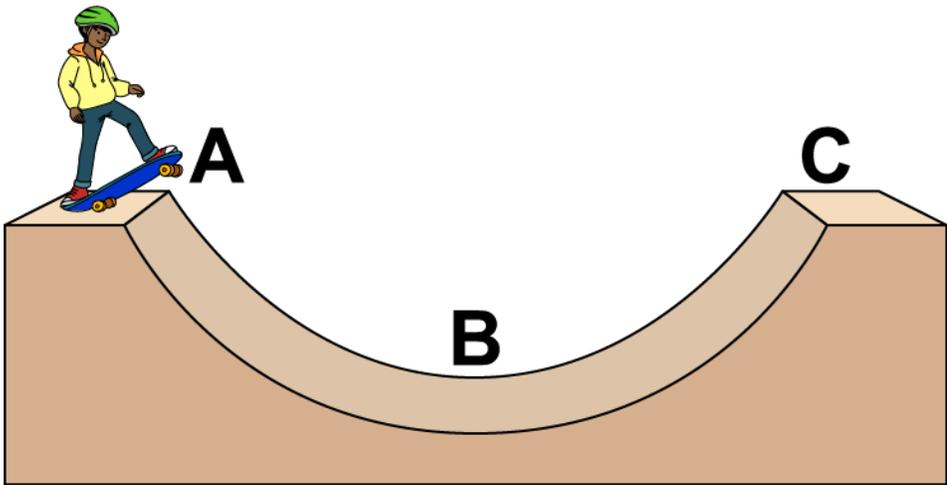


C.  
(audio: Card C)

pv

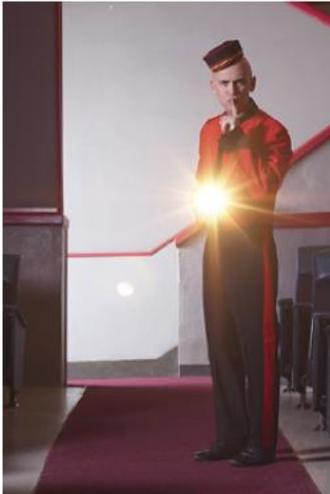
Reporting Category	Analyzing, Interpreting, and Computational Thinking
Content Connector	<b>6.PS.3.a.1:</b> Describe how potential and kinetic energy can be transferred from one form to another.
IAS Standard	<b>6.PS.3:</b> Describe how potential and kinetic energy can be transferred from one form to another.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p>
Allowable Stimulus Material	graphics; diagrams; charts
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC) Multiple Select (MS) Table Match (TM)
Construct-Relevant Vocabulary	potential energy, kinetic energy, transfer, form (of energy)
Cognitive Complexity	5
<b>Evidence Statements</b>	
Evidence Statements	<p><b>Tier 1</b></p> <p>Given a graphic, students identify either potential energy or kinetic energy.</p>
	<p><b>Tier 2</b></p> <p>Given a graphic, students distinguish between potential energy and kinetic energy.</p>
	<p><b>Tier 3</b></p> <p>Given a graphic, students identify when one form of energy (kinetic or potential) has changed into the other form (potential or kinetic).</p>

Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item	
<b>Tier 3</b>	<p>Here is a picture of a person on a skateboard at the top of a skateboard ramp.</p>  <p>At which point does potential energy change into kinetic energy?</p> <p><b>A. Point A</b> B. Point B C. Point C</p>

Reporting Category	Explaining Solutions, Reasoning, and Communicating
Content Connector	<b>6.PS.4.a.1:</b> Investigate the properties of light, sound, and other energy waves and how they are reflected, absorbed, and transmitted through materials and space.
IAS Standard	<b>6.PS.4:</b> Investigate the properties of light, sound, and other energy waves and how they are reflected, absorbed, and transmitted through materials and space.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Limit to light and sound/vibration.</p> <p>Limit liquids to water.</p>
Allowable Stimulus Material	N/A
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC)
Construct-Relevant Vocabulary	light waves, sound waves, energy, reflect, absorb, transmit, conversion, properties, medium, transparent, translucent, opaque, color, vibration
Cognitive Complexity	5
<b>Evidence Statements</b>	
Evidence Statements	<b>Tier 1</b> Students identify light, sound, and vibration.
	<b>Tier 2</b> Students identify whether energy is reflected or absorbed.
	<b>Tier 3</b> Students identify the results of a wave passing through two different mediums (e.g., blue light passing through filters).

Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item	
Tier 2	<p>Sasha is holding a flashlight in a dark room.</p>  <p>What will happen if Sasha shines the flashlight toward a mirror?</p> <p>A. The light disappears.            B. <b>The light is reflected.</b>            C. The light changes color.</p>

Reporting Category	Questioning and Modeling
Content Connector	<b>6-8.CD.1.a.1:</b> Demonstrate an understanding of the relationship between hardware and software.
IAS Standard	<b>6-8.CD.1:</b> Demonstrate an understanding of the relationship between hardware and software.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem. Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p>
Allowable Stimulus Material	graphics; graphs; tables; diagrams
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC) Multiple Select (MS) Table Match (TM)
Construct-Relevant Vocabulary	relationship, hardware, software, demonstrate
Cognitive Complexity	2
<b>Evidence Statements</b>	
Evidence Statements	<b>Tier 1</b> Students identify a piece of hardware.
	<b>Tier 2</b> Students identify a piece of software (CD, program, game).
	<b>Tier 3</b> Students identify uses of a specific piece of hardware or software.

Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item	
Tier 2	<p>What is a piece of software?</p> <div style="text-align: center;">  <p>A. computer CD <b>(audio: a computer CD)</b></p> </div> <div style="text-align: center;">  <p>B. computer cord <b>(audio: a computer cord)</b></p> </div> <div style="text-align: center;">  <p>C. computer mouse <b>(audio: a computer mouse)</b></p> </div>

Reporting Category	Analyzing, Interpreting, and Computational Thinking
Content Connector	<b>6-8.CD.2.a.1:</b> Apply troubleshooting strategies to identify and solve routine hardware and software problems that occur during everyday computer use.
IAS Standard	<b>6-8.CD.2:</b> Apply troubleshooting strategies to identify and solve routine hardware and software problems that occur during everyday computer use.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem. Any necessary stimulus should be written with clear language following the rules for “plain language.” Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension. Tier 2 items can contain picture support in answer choices. Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill. Tier 2 distractors should be possible misunderstandings of the concept or skill.</p>
Allowable Stimulus Material	graphics of applicable accessories
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC)
Construct-Relevant Vocabulary	mouse, computer monitor, keyboard, printer, charger, stylus, touch screen, desktop, laptop, phone, tablet, troubleshooting, hardware, software, strategy (for troubleshooting), routine
Cognitive Complexity	3
<b>Evidence Statements</b>	
Evidence Statements	<b>Tier 1</b> Students identify a piece of hardware.
	<b>Tier 2</b> Students identify a problem.
	<b>Tier 3</b> Students identify solutions to the problem in a given scenario.

Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item	
Tier 2	<p>Here is a laptop. The laptop will not work.</p>  <p>What is a solution to this problem?</p> <p>A. Fold down the laptop's screen.            B. Remove the plug from the laptop.            C. <b>Push the "on" button of the laptop.</b></p>

Reporting Category	Analyzing, Interpreting, and Computational Thinking
Content Connector	<b>6-8.DI.1.a.1:</b> Use the basic steps in algorithmic problem-solving to design solutions (e.g., problem statement and exploration, examination of sample instances, design, implementing a solution, testing, and evaluation).
IAS Standard	<b>6-8.DI.1:</b> Use the basic steps in algorithmic problem-solving to design solutions (e.g., problem statement and exploration, examination of sample instances, design, implementing a solution, testing, and evaluation).
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem. Any necessary stimulus should be written with clear language following the rules for “plain language.” Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>No mathematical algorithms. Limit algorithm to two or three steps.</p>
Allowable Stimulus Material	graphics; instructions; directions
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC)
Construct-Relevant Vocabulary	problem solving, exploration, implementing, design, evaluate, solve, solution, algorithm
Cognitive Complexity	3
<b>Evidence Statements</b>	
Evidence Statements	<b>Tier 1</b> Students recognize a missing step.
	<b>Tier 2</b> Students put steps in order.
	<b>Tier 3</b> Students identify the outcome of a series of events.

Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item	
Tier 2	<p>Here is a list of some of the steps in the scientific method.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;"><b>Scientific Method</b></p> <ul style="list-style-type: none"> <li><input type="radio"/> 1. <b>Observe</b></li> <li><input type="radio"/> 2. <b>Question</b></li> <li><input type="radio"/> 3. <b>Hypothesis</b></li> <li><input type="radio"/> 4. <b>?</b></li> </ul> </div> <p>What is the next step?</p> <ul style="list-style-type: none"> <li>A. Record data</li> <li>B. Write a conclusion</li> <li>C. <b>Conduct an investigation</b></li> </ul>

Reporting Category	Questioning and Modeling
Content Connector	<b>6-8.DI.3.a.1:</b> Represent data in a variety of ways (e.g., text, sounds, pictures, and numbers), and use different visual representations of problems, structures, and data (e.g., graphs, charts, network diagrams, flowcharts).
IAS Standard	<b>6-8.DI.3:</b> Represent data in a variety of ways (e.g., text, sounds, pictures, and numbers), and use different visual representations of problems, structures, and data (e.g., graphs, charts, network diagrams, flowcharts).
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Stimulus limited to school or daily life.</p>
Allowable Stimulus Material	graphics; graphs; tables; diagrams; flowcharts
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC) Multiple Select (MS) Table Match (TM)
Construct-Relevant Vocabulary	represent, diagrams, flowcharts, network diagrams, data, structure, visual representation, pie chart, line graph, bar graph
Cognitive Complexity	3

Evidence Statements	
Evidence Statements	<p><b>Tier 1</b> Students identify components of a display (graph or chart). Students identify the correct graph for a given set of data.</p>
	<p><b>Tier 2</b> Students identify appropriate use of given data in a visual display (graph or chart).</p>
	<p><b>Tier 3</b> Students identify different ways data can be displayed. Given a set of data, students identify ways data can be displayed appropriately. Given a set of data, students identify the best way to display data.</p>
Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item									
<b>Tier 3</b>	<p>Jake timed how long it takes for an ice cube to melt. The table gives his results. He must create a visual display of his data.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">Melting Times</th> </tr> </thead> <tbody> <tr> <td>Trial 1</td> <td>4 minutes</td> </tr> <tr> <td>Trial 2</td> <td>7 minutes</td> </tr> <tr> <td>Trial 3</td> <td>5 minutes</td> </tr> </tbody> </table> <p>What is the best way for Jake to display his results?</p> <p>A. pie chart B. bar graph C. <b>line graph</b></p>	Melting Times		Trial 1	4 minutes	Trial 2	7 minutes	Trial 3	5 minutes
Melting Times									
Trial 1	4 minutes								
Trial 2	7 minutes								
Trial 3	5 minutes								

Reporting Category	Questioning and Modeling
Content Connector	<b>6-8.E.1.a.1:</b> Identify the criteria and constraints of a design to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
IAS Standard	<b>6-8.E.1:</b> Identify the criteria and constraints of a design to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Limit to recycling, water conservation, deforestation, and conservation of natural resources.</p>
Allowable Stimulus Material	graphics; graphs; tactile stimulus
Context	Required
Recommended Response Mechanisms	Multiple Choice (MC) Multiple Select (MS) Table Match (TM)
Construct-Relevant Vocabulary	criteria, constraints (limit), solution, outcome, natural environment, potential (possibility), impact
Cognitive Complexity	5

Evidence Statements	
Evidence Statements	<p><b>Tier 1</b> Students can identify a scientific principle with its definition (e.g., deforestation—cutting down trees, water conservation—practicing water saving methods).</p>
	<p><b>Tier 2</b> Students can identify the impact of a given scenario on people or the natural environment.</p>
	<p><b>Tier 3</b> Given a scenario, students can identify ways that the action impacts the humans. Given a scenario, students can identify ways that the action impacts natural environment. Given multiple designs for the same scenario, student can identify the best design solution.</p>
Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item

What is deforestation?



planting trees

A.

(audio: planting trees)



cutting down trees

B.

(audio: cutting down trees)



trimming dead limbs off trees

C.

(audio: trimming dead limbs off trees)

Tier 1

Reporting Category	Questioning and Modeling
Content Connector	<b>6-8.IC.1.a.1:</b> Exhibit legal and ethical behaviors when using technology and information and discuss the consequences of misuse.
IAS Standard	<b>6-8.IC.1:</b> Exhibit legal and ethical behaviors when using technology and information and discuss the consequences of misuse.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Do not use the term “ethics.”</p>
Allowable Stimulus Material	graphics
Context	Required
Recommended Response Mechanisms	Multiple Choice (MC)
Construct-Relevant Vocabulary	password, passphrase, appropriate, inappropriate, behaviors, access, device, technology, account (online), accountability, responsibility, digital citizenship, legal, ethical, consequences, privacy rights
Cognitive Complexity	4

Evidence Statements	
Evidence Statements	<p><b>Tier 1</b> Students can identify behaviors that are inappropriate for technology use.</p>
	<p><b>Tier 2</b> Students can identify the relationship between behavior and consequence. Students can demonstrate behaviors that are inappropriate for technology use.</p>
	<p><b>Tier 3</b> Students can understand basic legal consequences. Students can demonstrate behaviors that are appropriate for technology use.</p>
Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item

Tier 1

Which of the following is inappropriate behavior when using technology?



logging out

A. (audio: logging out of online accounts)



charging device

B. (audio: charging the device after use)



using a person's  
passcode

C. (audio: using another person's passcode)

Reporting Category	Questioning and Modeling
Content Connector	<b>6-8.IC.2.a.1:</b> Identify the positive and negative impacts of technology on one's personal life, society, and our culture.
IAS Standard	<b>6-8.IC.2:</b> Analyze the positive and negative impacts of technology on one's personal life, society, and our culture.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem. Any necessary stimulus should be written with clear language following the rules for “plain language.” Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension. Tier 2 items can contain picture support in answer choices. Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill. Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Do not assess culture. Do not assess differences or impacts prior to 2000 C.E.</p>
Allowable Stimulus Material	graphics
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC) Multiple Select (MS) Table Match (TM)
Construct-Relevant Vocabulary	impact, negative, neutral, positive, technology, personal, social, digital native, society
Cognitive Complexity	4

Evidence Statements	
Evidence Statements	<p><b>Tier 1</b> Students can identify a positive impact of technology on their life.</p>
	<p><b>Tier 2</b> Students can identify a positive, negative, or neutral impact of technology on their personal or social life.</p>
	<p><b>Tier 3</b> Students can distinguish between positive and negative impacts of technology on their personal or social life.</p>
Accessibility and Accommodation Considerations	
Stimulus Graphic limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item	
<p><b>Tier 3</b></p>	<p>Select the statement that reflects a positive impact associated with technology.</p> <p>A. limited physical activity</p> <p>B. lack of interpersonal skills</p> <p>C. <b>faster ways to communicate</b></p>

Reporting Category	Explaining Solutions, Reasoning, and Communicating
Content Connector	<b>6-8.IC.3.a.1:</b> Determine the accuracy, relevance, appropriateness, comprehensiveness, and biases that occur in electronic information sources.
IAS Standard	<b>6-8.IC.3:</b> Evaluate the accuracy, relevance, appropriateness, comprehensiveness, and biases that occur in electronic information sources.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem. Any necessary stimulus should be written with clear language following the rules for “plain language.” Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Do not assess comprehensiveness of sources.</p>
Allowable Stimulus Material	graphs
Context	Required
Recommended Response Mechanisms	Multiple Choice (MC) Multiple Select (MS) Table Match (TM)
Construct-Relevant Vocabulary	accurate (e.g., .org, .com, .gov), appropriate, bias, relevant, source, online resources, electronic information, technology, website, relevance, social media, web page, URL, sources, device, apps
Cognitive Complexity	4

Evidence Statements	
Evidence Statements	<b>Tier 1</b> Students can determine if a source is relevant.
	<b>Tier 2</b> Students can determine if a source is accurate.
	<b>Tier 3</b> Students can determine if a source is biased.
Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item	
<b>Tier 2</b>	Which website will provide correct information about the habitat of whales?  A. <a href="http://www.animals.mom.me">www.animals.mom.me</a> <b>B. <a href="http://www.fisheries.noaa.gov">www.fisheries.noaa.gov</a></b> C. <a href="http://www.ebay.com/bhp/whale-toy">www.ebay.com/bhp/whale-toy</a>

Reporting Category	Explaining Solutions, Reasoning, and Communicating
Content Connector	<b>6-8.NC.2.a.1:</b> Exhibit dispositions necessary for collaboration: providing useful feedback, integrating feedback, understanding and accepting multiple perspectives, and socialization.
IAS Standard	<b>6-8.NC.2:</b> Exhibit dispositions necessary for collaboration: providing useful feedback, integrating feedback, understanding and accepting multiple perspectives, and socialization.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem. Any necessary stimulus should be written with clear language following the rules for “plain language.” Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension. Tier 2 items can contain picture support in answer choices. Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill. Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Do not assess “understanding and accepting multiple perspectives, socialization.” Limit examples and scenarios to schools and/or classrooms.</p>
Allowable Stimulus Material	graphics
Context	Required
Recommended Response Mechanisms	Multiple Choice (MC) Multiple Select (MS) Table Match (TM)
Construct-Relevant Vocabulary	feedback, socialization, integration, understanding, perspectives, peers
Cognitive Complexity	4

Evidence Statements	
Evidence Statements	<p><b>Tier 1</b> Students can identify a positive or negative response to feedback.</p>
	<p><b>Tier 2</b> Students can identify an appropriate response to feedback.</p>
	<p><b>Tier 3</b> Students can provide appropriate feedback to peers.</p>
Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item	
<p><b>Tier 2</b></p>	<p>Students work in groups to give feedback on a science projects.</p> <p>Which statement is appropriate feedback?</p> <p>A. “Your pictures should be better.”</p> <p>B. “You should choose a topic that is fun to do.”</p> <p>C. <b>“Your graph shows data that is different from the data in your data table.”</b></p>

Reporting Category	Questioning and Modeling
Content Connector	<b>6-8.PA.1.a.1:</b> Select appropriate tools and technology resources to support learning and personal productivity, publish individual products, and design, develop, and publish data, accomplish a variety of tasks, and solve problems.
IAS Standard	<b>6-8.PA.1:</b> Select appropriate tools and technology resources to support learning and personal productivity, publish individual products, and design, develop, and publish data, accomplish a variety of tasks, and solve problems.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p>
Allowable Stimulus Material	graphics; graphs; tables; diagrams
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC)
Construct-Relevant Vocabulary	technology resources, reliable, published data (reports, graphs, etc.), personal productivity, publish (online)
Cognitive Complexity	3

Evidence Statements	
Evidence Statements	<p><b>Tier 1</b></p> <p>Students identify between reliable and non-reliable resources for a variety of tasks.</p> <p>Students identify a technology resource that can be used for problem solving.</p>
	<p><b>Tier 2</b></p> <p>Students distinguish reliable resources from non-reliable resources used for problem solving.</p> <p>Students identify tools needed to design or develop a project.</p>
	<p><b>Tier 3</b></p> <p>Students identify the appropriate tools or technology resources to create documents (reports, age-appropriate school topics).</p>
Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item	
<b>Tier 3</b>	<p>Andrew writes a paper about the moon.</p> <p>What is a reliable resource Andrew can use?</p> <p>A. social media</p> <p>B. <b>government website</b></p> <p>C. another student's report</p>

Reporting Category	Questioning and Modeling
Content Connector	<b>SEPS.1:</b> Posing questions (for science) and defining problems (for engineering): A practice of science is posing and refining questions that lead to descriptions and explanations of how the natural and designed world(s) work and these questions can be scientifically tested. Engineering questions clarify problems to determine criteria for possible solutions and identify constraints to solve problems about the designed world.
IAS Standard	<b>SEPS.1:</b> Posing questions (for science) and defining problems (for engineering): A practice of science is posing and refining questions that lead to descriptions and explanations of how the natural and designed world(s) work and these questions can be scientifically tested. Engineering questions clarify problems to determine criteria for possible solutions and identify constraints to solve problems about the designed world.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Students must be given short scenarios (no more than 2–3 sentences) to select a related question.</p>
Allowable Stimulus Material	graphics
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC) Multiple Select (MS) Table Match (TM)

Construct-Relevant Vocabulary	natural world, design world, criteria, constraint, posing (question), explanations, defining (problem), description
Cognitive Complexity	3
Evidence Statements	
Evidence Statements	<b>Tier 1</b> Students can match the question to a single scenario.
	<b>Tier 2</b> From a set of questions, students can identify the correct question for a given scenario. Given a scenario, students are able to identify the one correct question.
	<b>Tier 3</b> Given a chart or table, students are able to match questions to a given scenario. Given a question, students are able to identify the scenario that matches the question.
Accessibility and Accommodation Considerations	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item	
<b>Tier 3</b>	<p>Here is a question.</p> <p>“How can students demonstrate evaporation?”</p> <p>What scenario matches this question?</p> <p>A. Students put ice cubes in a freezer.</p> <p>B. Students place ice cubes in a glass of tea.</p> <p>C. <b>Students heat ice cubes in a pan on a stove.</b></p>

Reporting Category	Questioning and Modeling
Content Connector	<p><b>SEPS.2:</b> Developing and using models and tools: A practice of both science and engineering is to use and construct conceptual models that illustrate ideas and explanations. Models are used to develop questions, predictions, and explanations; analyze and identify flaws in systems; build and revise scientific explanations and proposed engineered systems; and communicate ideas. Measurements and observations are used to revise and improve models and designs. Models include, but are not limited to diagrams, drawings, physical replicas, mathematical representations, analogies, and other technological models. Another practice of both science and engineering is to identify and correctly use tools to construct, obtain, and evaluate questions and problems. Utilize appropriate tools while identifying their limitations. Tools include, but are not limited to, pencil and paper, models, ruler, a protractor, a calculator, laboratory equipment, safety gear, a spreadsheet, experiment data collection software, and other technological tools.</p>
IAS Standard	<p><b>SEPS.2:</b> Developing and using models and tools: A practice of both science and engineering is to use and construct conceptual models that illustrate ideas and explanations. Models are used to develop questions, predictions, and explanations; analyze and identify flaws in systems; build and revise scientific explanations and proposed engineered systems; and communicate ideas. Measurements and observations are used to revise and improve models and designs. Models include, but are not limited to diagrams, drawings, physical replicas, mathematical representations, analogies, and other technological models.</p> <p>Another practice of both science and engineering is to identify and correctly use tools to construct, obtain, and evaluate questions and problems. Utilize appropriate tools while identifying their limitations. Tools include, but are not limited to, pencil and paper, models, ruler, a protractor, a calculator, laboratory equipment, safety gear, a spreadsheet, experiment data collection software, and other technological tools</p>

Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p>
Allowable Stimulus Material	graphics of given tools
Context	No context required
Recommended Response Mechanisms	<p>Multiple Choice (MC)</p> <p>Multiple Select (MS)</p> <p>Table Match (TM)</p>
Construct-Relevant Vocabulary	thermometer, degrees, ruler, measurement, measuring cup, scale, analyze, analogy, replica (model), beaker, graduated cylinder, digital scale
Cognitive Complexity	3
<b>Evidence Statements</b>	
Evidence Statements	<p><b>Tier 1</b></p> <p>Students can select the appropriate tool for each scenario.</p> <p>Students can select the correct model using a scenario.</p>
	<p><b>Tier 2</b></p> <p>Students can identify the correct measurements (units) to use in a given scenario.</p> <p>Students can identify which step is missing in a model (e.g., water cycle, life cycle, etc.).</p>
	<p><b>Tier 3</b></p> <p>Students can identify appropriate units given a tool.</p> <p>Students can identify which steps are missing in a model (e.g., water cycle, life cycle).</p>

Accessibility and Accommodation Considerations	
Stimulus Graphic limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item	
<b>Tier 3</b>	<p>A student investigates the size of leaves on different trees in a forest.</p> <p>What tool should the student use?</p> <p>A. <b>a metric ruler to measure length</b></p> <p>B. a magnifying glass to view the details</p> <p>C. a thermometer to measure the temperature</p>

Updated: 07/19

Reporting Category	Analyzing, Interpreting, and Computational Thinking
Content Connector	<p><b>SEPS.3:</b> Constructing and performing investigations: Scientists and engineers are constructing and performing investigations in the field or laboratory, working collaboratively as well as individually. Researching analogous problems in order to gain insight into possible solutions allows them to make conjectures about the form and meaning of the solution. A plan to a solution pathway is developed prior to constructing and performing investigations. Constructing investigations systematically encompasses identified variables and parameters generating quality data. While performing, scientists and engineers monitor and record progress. After performing, they evaluate to make changes to modify and repeat the investigation if necessary.</p>
IAS Standard	<p><b>SEPS.3:</b> Constructing and performing investigations: Scientists and engineers are constructing and performing investigations in the field or laboratory, working collaboratively as well as individually. Researching analogous problems in order to gain insight into possible solutions allows them to make conjectures about the form and meaning of the solution. A plan to a solution pathway is developed prior to constructing and performing investigations. Constructing investigations systematically encompasses identified variables and parameters generating high-quality data. While performing, scientists and engineers monitor and record progress. After performing, they evaluate to make changes to modify and repeat the investigation if necessary.</p>
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p>

	<p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Give steps to the scientific method (using simple language), if necessary.</p>
Allowable Stimulus Material	charts; graphics; data table; graph
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC) Multiple Select (MS) Table Match (TM)
Construct-Relevant Vocabulary	scientific method, experiment, investigation, data, hypothesis, conclusion, supporting, evidence, evaluate
Cognitive Complexity	4
<b>Evidence Statements</b>	
Evidence Statements	<p><b>Tier 1</b></p> <p>Students can identify an experiment.</p>
	<p><b>Tier 2</b></p> <p>Students can select the correct order of the scientific method.</p>
	<p><b>Tier 3</b></p> <p>Students can identify the missing component of an investigation.</p>
<b>Accessibility and Accommodation Considerations</b>	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item

Tier 2

Nicole begins a list of the steps in the scientific method.

●	<b>Scientific Method</b>
	1. Observe
	2. Question
	3. Hypothesis
	4. Conduct an investigation
	5. ?
●	

Which step comes next in the scientific method?

- A. **Record data**
- B. Graph results
- C. Write conclusion

Reporting Category	Questioning and Modeling
Content Connector	<p><b>SEPS.4: Analyzing and interpreting data:</b> Investigations produce data that must be analyzed in order to derive meaning. Because data patterns and trends are not always obvious, scientists and engineers use a range of tools to identify the significant features in the data. They identify sources of error in the investigations and calculate the degree of certainty in the results. Advances in science and engineering makes analysis of proposed solutions more efficient and effective. They analyze their results by continually asking themselves questions; possible questions may be, but are not limited to: “Does this make sense?” “Could my results be duplicated?”, and/or “Does the design solve the problem with the given constraints?”</p>
IAS Standard	<p><b>SEPS.4: Analyzing and interpreting data:</b> Investigations produce data that must be analyzed in order to derive meaning. Because data patterns and trends are not always obvious, scientists and engineers use a range of tools to identify the significant features in the data. They identify sources of error in the investigations and calculate the degree of certainty in the results. Advances in science and engineering make analysis of proposed solutions more efficient and effective. They analyze their results by continually asking themselves questions; possible questions may be but are not limited to: “Does this make sense?” “Could my results be duplicated?” and/or “Does the design solve the problem with the given constraints?”</p>
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem. Any necessary stimulus should be written with clear language following the rules for “plain language.” Any necessary stimulus text complexity should increase as the tiers increase. Tier 1 items should contain picture support in answer choices when possible to aid comprehension. Tier 2 items can contain picture support in answer choices. Tier 3 items should not contain picture support unless necessary. Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill. Tier 2 distractors should be possible misunderstandings of the concept or skill.</p>
Allowable Stimulus Material	graphics; graphs; tables; diagrams; descriptions

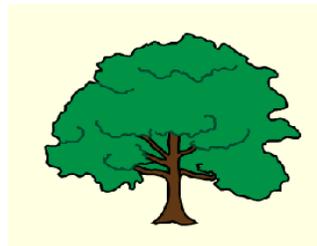
Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC) Multiple Select (MS) Table Match (TM)
Construct-Relevant Vocabulary	duplicate, constraint, investigate, significant, range, data patterns, analyze, interpret, propose, effective, certainty
Cognitive Complexity	5
<b>Evidence Statements</b>	
Evidence Statements	<p><b>Tier 1</b></p> <p>Using a given picture, students can identify the cause or effect.</p> <p>Students can identify a missing point on the graph based on a pattern.</p>
	<p><b>Tier 2</b></p> <p>Using a given picture, students can identify the cause and effect.</p> <p>Students identify missing points on a graph.</p>
	<p><b>Tier 3</b></p> <p>Students can identify effects of a given cause.</p> <p>Students can predict the next data point on a graph.</p>
<b>Accessibility and Accommodation Considerations</b>	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item

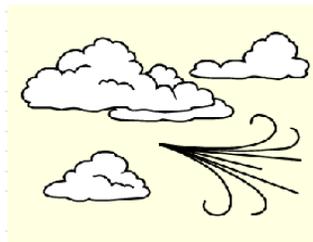
Here is a picture of a smashed car. The roof is caved in and the windshield is broken.



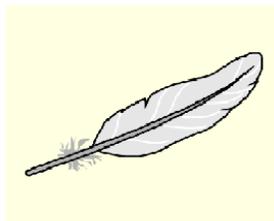
What could have caused the damage to this car?



A. tree  
(audio: a tree falling on it)



B. wind  
(audio: a wind blowing on it)



C. feather  
(audio: a feather floating on it.)

Tier 2

Reporting Category	Questioning and Modeling
Content Connector	<b>SEPS.5:</b> Using mathematics and computational thinking: Scientists and engineers use their results from the investigation in constructing descriptions and explanations, citing the interpretation of data, and connecting the investigation to how the natural and designed world(s) work. They construct or design logical coherent explanations or solutions of phenomena that incorporate their understanding of science and/or engineering or a model that represents it and are consistent with the available evidence.
IAS Standard	<b>SEPS.5:</b> Using mathematics and computational thinking: Scientists and engineers use their results from the investigation in constructing descriptions and explanations, citing the interpretation of data, and connecting the investigation to how the natural and designed world(s) work. They construct or design logical coherent explanations or solutions of phenomena that incorporate their understanding of science and/or engineering or a model that represents it and are consistent with the available evidence.
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Limit to comparisons of weight, height, length, and temperature.</p> <p>Limit to quantitatively similar comparisons (e.g., same units).</p>
Allowable Stimulus Material	graphics; graphs; tables; diagrams; descriptions

Context	No context required
Recommended Response Mechanisms	Multiple Choice (MC) Multiple Select (MS) Table Match (TM)
Construct-Relevant Vocabulary	mathematics, computation, tools, variables, range, solve equations, relationships, compute, predict, equal
Cognitive Complexity (DOK)	4
<b>Evidence Statements</b>	
Evidence Statements	<b>Tier 1</b> Given a picture or scenario, students can select the correct tool to measure desired units.
	<b>Tier 2</b> Students can comparatively measure two objects.
	<b>Tier 3</b> Students can order measured objects from least to greatest (or greatest to least) according to given quantities.
<b>Accessibility and Accommodation Considerations</b>	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item

Jason has two glasses of water. Jason leaves one glass on a table. He places one glass in the refrigerator.



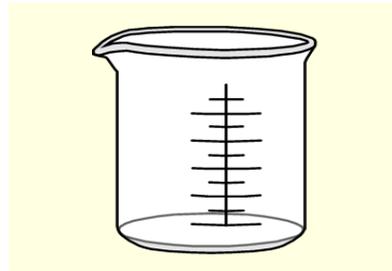
leaves on table



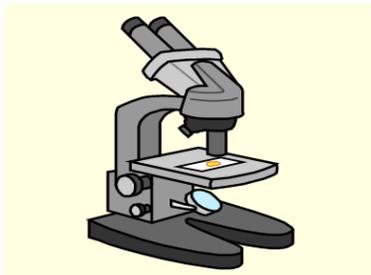
places in refrigerator

What tool is needed to compare the temperature of the water in each glass?

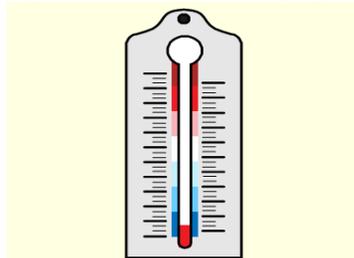
Tier 1



A. beaker  
(audio: a beaker)



B. microscope  
(audio: a microscope)



C. thermometer  
(audio: a thermometer)

Reporting Category	Explaining Solutions, Reasoning, and Communicating
Content Connector	<p><b>SEPS.6:</b> Constructing explanations (for science) and designing solutions (for engineering): Scientists and engineers use their results from the investigation in constructing descriptions and explanations, citing the interpretation of data, and connecting the investigation to how the natural and designed world(s) work. They construct or design logical coherent explanations or solutions of phenomena that incorporate their understanding of science and/or engineering or a model that represents it and are consistent with the available evidence.</p>
IAS Standard	<p><b>SEPS.6:</b> Constructing explanations (for science) and designing solutions (for engineering): Scientists and engineers use their results from the investigation in constructing descriptions and explanations, citing the interpretation of data, and connecting the investigation to how the natural and designed world(s) work. They construct or design logical coherent explanations or solutions of phenomena that incorporate their understanding of science and/or engineering or a model that represents it and are consistent with the available evidence.</p>
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem.</p> <p>Any necessary stimulus should be written with clear language following the rules for “plain language.”</p> <p>Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Explanation of data must be provided.</p> <p>Do not assess the term “phenomena.”</p> <p>Allow the use of calculator, if necessary.</p>

Allowable Stimulus Material	graph; table; chart; graphics
Context	Required
Recommended Response Mechanisms	Multiple Choice (MC) Multi-Select (MS)
Construct-Relevant Vocabulary	data, investigation, average, prediction, represent, scientific outcome, interpretation, design, engineering, construct, model, consistent, evidence, observation.
Cognitive Complexity	5
<b>Evidence Statements</b>	
Evidence Statements	<b>Tier 1</b> Students can recognize ways in which given data could be represented.
	<b>Tier 2</b> Students can select an appropriate representation of data from an investigation.
	<b>Tier 3</b> Students can evaluate data to make a prediction.
<b>Accessibility and Accommodation Considerations</b>	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item

Jessica records the temperature for four days in this table.

Temperature over Four Days

Monday	Tuesday	Wednesday	Thursday	Friday
76°	80°	84°	86°	?

(audio for table: On Monday, the temperature is 76°. On Tuesday, the temperature is 80°. On Wednesday, the temperature is 84°. On Thursday, the temperature is 86°.)

Tier 3

If the pattern continues, what will the temperature **most likely** be on Friday?

- A. 79°
- B. 82°
- C. 84°
- D. 91°

Reporting Category	Explaining Solutions, Reasoning, and Communicating
Content Connector	<p><b>SEPS.7:</b> Engaging in argument from evidence: Scientists and engineers use reasoning and arguments based on evidence to identify the best explanation for a natural phenomenon or the best solution to a design problem. Scientists and engineers use argumentation, the process by which evidence-based conclusions and solutions are reached, to listen to, compare, and evaluate competing ideas and methods based on merits. Scientists and engineers engage in argumentation when investigating a phenomenon, testing a design solution, resolving questions about measurements, building data models, and using evidence to evaluate claims.</p>
IAS Standard	<p><b>SEPS.7:</b> Engaging in argument from evidence: Scientists and engineers use reasoning and arguments based on evidence to identify the best explanation for a natural phenomenon or the best solution to a design problem. Scientists and engineers use argumentation, the process by which evidence-based conclusions and solutions are reached, to listen to, compare, and evaluate competing ideas and methods based on merits. Scientists and engineers engage in argumentation when investigating a phenomenon, testing a design solution, resolving questions about measurements, building data models, and using evidence to evaluate claims.</p>
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem. Any necessary stimulus should be written with clear language following the rules for “plain language.” Any necessary stimulus text complexity should increase as the tiers increase.</p> <p>Tier 1 items should contain picture support in answer choices when possible to aid comprehension.</p> <p>Tier 2 items can contain picture support in answer choices.</p> <p>Tier 3 items should not contain picture support unless necessary.</p> <p>Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill.</p> <p>Tier 2 distractors should be possible misunderstandings of the concept or skill.</p> <p>Limit the number of variables in the argument or counter-argument to one.</p>

Allowable Stimulus Material	tables; graphs; graphics
Context	Required
Recommended Response Mechanisms	Multiple Choice (MC)
Construct-Relevant Vocabulary	opinion, fact, argument, evidence, support
Cognitive Complexity	5
<b>Evidence Statements</b>	
Evidence Statements	<b>Tier 1</b> Students can recognize an opinion (argument) vs. a fact.
	<b>Tier 2</b> Students can support a simple argument with evidence (e.g., students will recognize what clothing choice to wear based on the weather).
	<b>Tier 3</b> Students can choose a piece of evidence that supports an argument.
<b>Accessibility and Accommodation Considerations</b>	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

Sample Item

Tier 2

A family goes to this park on a sunny day.



The picture shows:

- blue skies
- trees with green leaves
- flowers
- green grass
- a pond

What would be the appropriate clothing to wear on this day?

- A. shorts and t-shirts to stay cool**
- B. raincoats and umbrellas to keep dry
- C. snow boots and jackets to stay warm

Reporting Category	Explaining Solutions, Reasoning, and Communicating
Content Connector	<p><b>SEPS.8:</b> Obtaining, evaluating, and communicating information: Scientists and engineers need to be communicating clearly and articulating the ideas and methods they generate. Critiquing and communicating ideas individually and in groups is a critical professional activity. Communicating information and ideas can be done in multiple ways: using tables, diagrams, graphs, models, and equations, as well as orally and in writing and through extended discussions. Scientists and engineers employ multiple sources to obtain information that is used to evaluate the merit and validity of claims, methods, and designs.</p>
IAS Standard	<p><b>SEPS.8:</b> Obtaining, evaluating, and communicating information: Scientists and engineers need to be communicating clearly and articulating the ideas and methods they generate. Critiquing and communicating ideas individually and in groups is a critical professional activity. Communicating information and ideas can be done in multiple ways: using tables, diagrams, graphs, models, and equations, as well as orally and in writing and through extended discussions. Scientists and engineers employ multiple sources to obtain information that is used to evaluate the merit and validity of claims, methods, and designs.</p>
Content Limits	<p>Tier 1 and 2 items should avoid the word “best” in the stem. Any necessary stimulus should be written with clear language following the rules for “plain language.” Any necessary stimulus text complexity should increase as the tiers increase. Tier 1 items should contain picture support in answer choices when possible to aid comprehension. Tier 2 items can contain picture support in answer choices. Tier 3 items should not contain picture support unless necessary. Tier 1 distractors should demonstrate clear misunderstanding of the concept or skill. Tier 2 distractors should be possible misunderstandings of the concept or skill. For Tier 1, data tables should have 1:1 correspondence to graphs.</p>

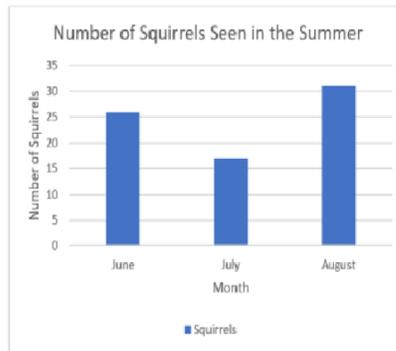
	<p>For Tiers 2 and 3, data tables should have 1:1 or 1:10 correspondence to graphs. Both x- and y-axis should have the same interval (e.g., 1's, 10's). Data should be limited to whole numbers.</p>
Allowable Stimulus Material	data tables; graphs
Context	context required
Recommended Response Mechanisms	Multiple Choice (MC)
Construct-Relevant Vocabulary	bar graphs, pie charts, line graph, picture graph, data table, tally marks, simulation, critique (feedback), claim
Cognitive Complexity	4
<b>Evidence Statements</b>	
Evidence Statements	<p><b>Tier 1</b> Students can recognize grade appropriate graphs.</p>
	<p><b>Tier 2</b> Students can select an appropriate representation of the data given.</p>
	<p><b>Tier 3</b> Students can match a data table to the appropriate graph.</p>
<b>Accessibility and Accommodation Considerations</b>	
Stimulus Graphic Limitations	Stimulus graphics will be limited to clear photos, illustrations, diagrams, tables, and charts that directly relate to the passage topic. Information contained within stimulus graphics is ineligible for assessment unless specifically prescribed by Content Connector and/or evidence statements.
Linguistic Complexity	To be determined after IDOE review
Reference Tools	N/A

**Sample Item**

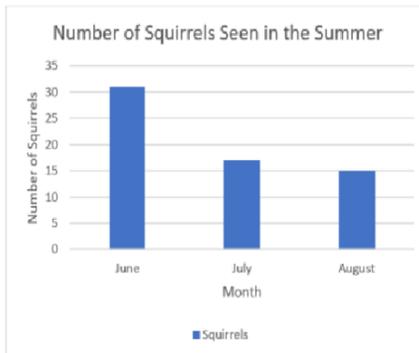
This table shows the number of squirrels seen in the summer in a certain area.

Number of Squirrels Seen in the Summer	
Month	Number of Squirrels
June	26
July	17
August	31

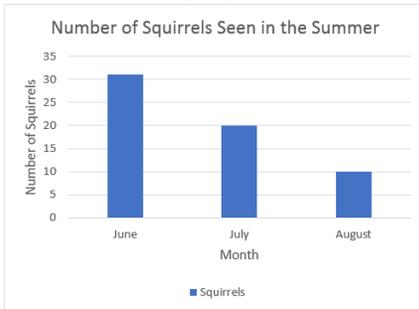
Which graph correctly represents the data in the table?



A.  
(audio: this graph)



B.  
(audio: this graph)



C.  
(audio: this graph)

**Tier 2**