



**Connecticut
Alternate
Science
Assessment**

Grade 5 Performance Tasks

Physical Science

Storyline 5: Forces and Motion

Storyline 6: Using Energy Every Day



Connecticut
Alternate
Science
Assessment

Physical Science

Storyline 5: Forces and Motion

Grade 5 Performance Task



Physical Science

**Storyline 5: Forces and Motion
Grade 5 Performance Task**

Guiding Questions: What makes objects move? How can the pattern of an object’s motion be described?

Grade 5			
NGSS Learning Progressions	NGSS Standard Performance Expectations	Connecticut Alternate Science Essence Statements	Core Extensions
PS2.A Forces and Motion	<p>3-PS2-1 Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.</p> <p>3-PS2-2 Make observations and/or measurements of an object’s motion to provide evidence that a pattern can be used to predict future motion.</p>	<p>CTAS-3-PS2-1 Use the results of an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.</p> <p>CTAS-3-PS2-2 Make observations and/or measurements to show the pattern of an object’s motion in order to make predictions.</p>	<ol style="list-style-type: none"> 1. Identify a force as a push or pull on an object. (CTAS-3-PS2-1) 2. Recognize that an unbalanced force can cause an object to move. (CTAS-3-PS2-1) 3. Recognize that balanced forces do not cause an object to move or change motion. (CTAS-3-PS2-1) 4. Use the results of an investigation as evidence that two or more unbalanced forces will cause an object to move. (CTAS-3-PS2-1) 5. Make one qualitative observation about the pattern of an object in motion. (CTAS-3-PS2-2) 6. Make two quantitative observations to show the pattern of the motion of an object. (CTAS-3-PS2-2) 7. Make a prediction about the effect of a change in one variable on the motion of an object. (CTAS -3-PS2-2)
Appropriate Vocabulary	Force = a push or a pull; balanced = equal and opposite; unbalanced = not equal; variable; trial; distance		



Physical Science
Storyline 5: Forces and Motion
Grade 5 Performance Task

General Overview:

Students will view a series of images and a tug of war investigation related to forces. Students will participate in a guided, hands-on investigation using a toy car rolling down a ramp to make observations and measurements about its motion when a force is applied. Students should be informed that this performance task will focus on forces (push or pull). Forces are all around us and they affect the motion of different objects, such as a toy car that is pushed or that rolls down a ramp.

List of Materials Needed:

Teacher-Provided Resources:

ACTIVITY 5 & ACTIVITY 6

Use the materials and instructions included in Activity 5: Resource 3 to set up the investigation according to the diagram included in Activity 5: Resource 4. **Teacher must set up and test the investigation prior to introducing the investigation to the student.** Teacher-Provided Resources include:

- Table/Floor
- 3 Books
- Toy Car (or a Ball)
- Tape
- Measuring Device (Meter Stick, Yard Stick, or Measuring Tape)*

*Best practice is to use metric measuring devices and units.

Instructions for Preparing Materials:

Teachers must collect all relevant materials prior to the administration of each activity. The Card, Sentence Strip, and Strip Resources will need to be cut out. Resources are listed according to the Resource Identifier, which appears on the back of each Resource. The Resources needed for the administration of each activity are listed according to these Resource Identifiers in the Teacher Notes section of each activity.

List of Resources:

- Activity 1 Resource 1: Sled Poster
- Activity 1 Resource 2: Card 2a and Card 2b
 - Card 2a – Push
 - Card 2b – Pull
- Activity 1 Resource 3: Swing Poster
- Activity 1 Resource 4: Card 4a and Card 4b
 - Card 4a – Push
 - Card 4b – Pull
- Activity 2 Resource 1: *Use Activity 1 Resource 1: Sled Poster*

- Activity 2 Resource 2: Cards 2a – 2c
 - Card 2a – forward
 - Card 2b – backward
 - Card 2c – stays still
- Activity 2 Resource 3: *Use Activity 1 Resource 3: Swing Poster*
- Activity 2 Resource 4: Cards 4a – 4c
 - Card 4a – forward
 - Card 4b – backward
 - Card 4c – stays still
- Activity 2 Resource 5: Boy and Wagon Poster
- Activity 2 Resource 6: Card 6a and Card 6b
 - Card 6a – pull
 - Card 6b – push
- Activity 3 Resource 1: Pushing a Box Poster
- Activity 3 Resource 2: Card 2a and Card 2b
 - Card 2a – yes
 - Card 2b – no
- Activity 3 Resource 3: Pulling on a Toy Cart Poster
- Activity 4 Resource 1: Results of the Tug of War Investigation Data Table Poster
- Activity 4 Resource 2: Strips 2a – 2c
 - Strip 2a – not move
 - Strip 2b – left
 - Strip 2c – right
- Activity 4 Resource 3: Cards 3a – 3c
 - Card 3a – Trial 1
 - Card 3b – Trial 2
 - Card 3c – Trial 3
- Activity 5 Resource 1: Toy Car on Ramp Poster
- Activity 5 Resource 2: Sentence Strips 2a – 2c
 - Sentence Strip 2a – not move
 - Sentence Strip 2b – down
 - Sentence Strip 2c – up
- Activity 5 Resource 3: Teacher Directions for Toy Car Investigation – Materials
- Activity 5 Resource 4: Teacher Directions for Toy Car Investigation – Diagram
- Activity 5 Resource 5: Strips 5a – 5c
 - Strip 5a – not move
 - Strip 5b – down
 - Strip 5c – up
- Activity 6 Resource 1: Toy Car Investigation Data Table Poster

- Activity 6 Resource 2: Strips 2a – 2c
 - Strip 2a – longer distance
 - Strip 2b – shorter distance
 - Strip 2c – same distance
- Activity 6 Resource 3: *Use Activity 5 Resource 3: Teacher Directions for Toy Car Investigation – Materials*
- Activity 6 Resource 4: *Use Activity 5 Resource 4: Teacher Directions for Toy Car Investigation – Diagram*
- Activity 7 Resource 1: *Use Completed Activity 6 Resource 1: Toy Car Investigation Data Table Poster*
- Activity 7 Resource 2: Strips 2a – 2c
 - Strip 2a – longer distance
 - Strip 2b – shorter distance
 - Strip 2c – same distance

ACTIVITY 1

Essence Statement: CTAS-3-PS2-1 Use the results of an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.

Core Extension 1: Identify a force as a push or pull on an object. (CTAS-3-PS2-1)

Teacher Notes:

Collect the following resources for this activity:

- Activity 1 Resource 1: Sled Poster
- Activity 1 Resource 2: Card 2a and Card 2b
 - Card 2a – Push
 - Card 2b – Pull
- Activity 1 Resource 3: Swing Poster
- Activity 1 Resource 4: Card 4a and Card 4b
 - Card 4a – Push
 - Card 4b – Pull

Steps to Follow:

1. **SAY** “In this activity, we are going to talk about forces.”

2. Display Resource 1: Sled Poster for the student.

3. Indicate Resource 1.

SAY “This picture shows a snowy day. There are children sitting on a sled. The tall girl is bringing them up the hill.”

4. **ASK** “What type of force is the girl using to bring the children up the hill?”

5. Provide Resource 2: Card 2a and Card 2b to the student. Indicate and describe each Card.

a. Indicate Card 2a.

SAY “This is a **push** force.”

b. Indicate Card 2b.

SAY “This is a **pull** force.”

6. **ASK AGAIN** “What type of force is the girl using to bring the children up the hill?”

7. Allow student to respond and record response. If no response or if incorrect response, proceed to scaffolding instructions.

8. Place Card 2b in the small box below the sled picture.

SAY	“The girl is pulling the children up the hill. This is a pull force.”
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9. Display Resource 3: Swing Poster for the student.

10. Indicate Resource 3.

SAY	“This is a picture of a man and a boy playing with a swing. The boy is sitting on the swing.”
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11. **ASK** “Look at the force the man is putting on the boy in the swing. What type of force is this?”

12. Provide Resource 4: Card 4a and Card 4b to the student. Indicate and describe each Card.

a. Indicate Card 4a.

SAY	“This is a push force.”
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b. Indicate Card 4b.

SAY	“This is a pull force.”
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13. **ASK AGAIN** “Look at the force the man is putting on the boy in the swing. What type of force is this?”

14. Allow student to respond and record response.

15. Place Card 4a in the small box below the swing picture.

SAY	“The man is pushing the boy on the swing. This is a push force.”
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16. **SAY** “We are now finished with this activity.”

Scoring Guidance and Scaffolding

Scaffolding:

1. After student makes first incorrect attempt, place Card 2b in the small box below the sled picture.

SAY	“The girl is pulling the children up the hill. This is a pull force.”
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2. Display Resource 3: Swing Poster for the student.

3. Indicate Resource 3.

SAY	“This is a picture of a man and a boy playing with a swing. The boy is sitting on the swing.”
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4. **ASK** “Look at the force the man is putting on the boy in the swing. What type of force is this?”

5. Provide Resource 4: Card 4a and Card 4b to the student. Indicate and describe each Card.

- a. Indicate Card 4a.

SAY	“This is a push force.”
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- b. Indicate Card 4b.

SAY	“This is a pull force.”
------------	--------------------------------

6. **ASK AGAIN** “Look at the force the man is putting on the boy in the swing. What type of force is this?”

7. Allow student to respond and record response.

8. Place Card 4a in the small box below the swing picture.

SAY	“The man is pushing the boy on the swing. This is a push force.”
------------	---

9. **SAY** “We are now finished with this activity.”

Correct answers are as follows:

1. What type of force is the girl using to bring the children up the hill?
 - a. Card 2b – This is a **pull** force.
2. Look at the force the man is putting on the boy in the swing. What type of force is this?
 - a. Card 4a – This is a **push** force.

Content Guidance	Rating	Score
<p>Student...</p> <ul style="list-style-type: none"> • gives NO response. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • is unable to identify the force the girl is using to bring the children up the hill (Card 2b); and • is unable to identify the force the man is putting on the boy in the swing (Card 4a). 	<p>The student does not demonstrate understanding.</p>	<p>0</p>
<p>Student...</p> <ul style="list-style-type: none"> • is able to identify the force the girl is using to bring the children up the hill (Card 2b); and • is unable to identify the force the man is putting on the boy in the swing (Card 4a). <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • is unable to identify the force the girl is using to bring the children up the hill (Card 2b); and • after scaffolding, is able to identify the force the man is putting on the boy in the swing (Card 4a). 	<p>The student demonstrates limited understanding typically requiring additional support through scaffolding.</p>	<p>1</p>
<p>Student...</p> <ul style="list-style-type: none"> • is able to identify the force the girl is using to bring the children up the hill (Card 2b); and • is able to identify the force the man is putting on the boy in the swing (Card 4a). 	<p>The student demonstrates understanding independently without scaffolding.</p>	<p>2</p>

ACTIVITY 2

Essence Statement: CTAS-3-PS2-1 Use the results of an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.

Core Extension 2: Recognize that an unbalanced force can cause an object to move. (CTAS-3-PS2-1)

Teacher Notes:

Collect the following resources for this activity:

- Activity 2 Resource 1: *Use Activity 1 Resource 1: Sled Poster*
- Activity 2 Resource 2: Cards 2a – 2c
 - Card 2a – forward
 - Card 2b – backward
 - Card 2c – stays still
- Activity 2 Resource 3: *Use Activity 1 Resource 3: Swing Poster*
- Activity 2 Resource 4: Cards 4a – 4c
 - Card 4a – forward
 - Card 4b – backward
 - Card 4c – stays still
- Activity 2 Resource 5: Boy and Wagon Poster
- Activity 2 Resource 6: Card 6a and Card 6b
 - Card 6a – pull
 - Card 6b – push

Steps to Follow:

1. Display Resource 1: Sled Poster for the student.
2. Indicate Resource 1.

SAY	“This picture shows a girl pulling children on a sled on a snowy day.”
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- 3.

ASK	“What happens when the girl pulls the sled?”
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4. Provide Resource 2: Cards 2a – 2c to the student. Indicate and describe each Card.

- a. Indicate Card 2a.

SAY	“The sled moves forward .”
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- b. Indicate Card 2b.

SAY	“The sled moves backward .”
------------	------------------------------------

- c. Indicate Card 2c.

SAY	“The sled stays still .”
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- 5.

ASK	“What happens when the girl pulls the sled?”
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AGAIN	
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6. Allow student to respond and record response. If no response or if incorrect response, proceed to scaffolding instructions.
7. Indicate Card 2a.
- | | |
|------------|---|
| SAY | “The sled moves forward when the girl pulls the sled.” |
|------------|---|
8. Display Resource 3: Swing Poster for the student.
9. Indicate Resource 3.
- | | |
|------------|--|
| SAY | “This picture shows a man pushing the boy on a swing.” |
|------------|--|
10. **ASK** “What happens when the man pushes the swing?”
11. Provide Resource 4: Cards 4a – 4c to the student. Indicate and describe each Card.
- a. Indicate Card 4a.
- | | |
|------------|------------------------------------|
| SAY | “The swing moves forward .” |
|------------|------------------------------------|
- b. Indicate Card 4b.
- | | |
|------------|-------------------------------------|
| SAY | “The swing moves backward .” |
|------------|-------------------------------------|
- c. Indicate Card 4c.
- | | |
|------------|----------------------------------|
| SAY | “The swing stays still .” |
|------------|----------------------------------|
12. **ASK** “What happens when the man pushes the swing?”
AGAIN
13. Allow student to respond and record response.
14. Indicate Card 4a.
- | | |
|------------|--|
| SAY | “The swing moves forward when the man pushes the boy on the swing.” |
|------------|--|
15. Display Resource 5: Boy and Wagon Poster for the student.
16. Indicate Resource 5.
- | | |
|------------|---|
| SAY | “This picture shows a boy holding the handle of a wagon.” |
|------------|---|
17. **ASK** “What force should the boy use to make the wagon roll toward him?”
18. Provide Resource 6: Card 6a and Card 6b. Indicate and describe each Card.
- a. Indicate Card 6a.
- | | |
|------------|-----------------------|
| SAY | “a pull force” |
|------------|-----------------------|

b. Indicate Card 6b.

SAY	"a push force"
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19. **ASK AGAIN** "What force should the boy use to make the wagon roll toward him?"

20. Allow student to respond and record response.

21. Indicate Card 6a.

SAY	"The boy should use a pull force to make the wagon roll toward him."
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22. **SAY** "We are now finished with this activity."

Scoring Guidance and Scaffolding

Scaffolding:

Note: Optionally, you may ask the student the third question, “What force should the boy use to make the wagon roll toward him?” if the scaffold is applied. However, if you choose to ask the third question and the student answers the third question correctly, the student will still receive one point.

1. After student makes first incorrect attempt, indicate Card 2a.

SAY	“The sled moves forward when the girl pulls the sled.”
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2. Display Resource 3: Swing Poster for the student.

3. Indicate Resource 3.

SAY	“This picture shows a man pushing the boy on a swing.”
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4.

ASK	“What happens when the man pushes the swing?”
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5. Provide Resource 4: Cards 4a – 4c to the student. Indicate and describe each Card.

- a. Indicate Card 4a.

SAY	“The swing moves forward .”
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- b. Indicate Card 4b.

SAY	“The swing moves backward .”
------------	-------------------------------------

- c. Indicate Card 4c.

SAY	“The swing stays still .”
------------	----------------------------------

6.

ASK	“What happens when the man pushes the swing?”
AGAIN	

7. Allow student to respond and record response.

8. Indicate Card 4a.

SAY	“The swing moves forward when the man pushes the boy on the swing.”
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Correct answers are as follows:

1. What happens when the girl pulls the sled?
 - a. Card 2a – The sled moves **forward** when the girl pulls the sled.
2. What happens when the man pushes the swing?
 - a. Card 4a – The swing moves **forward** when the man pushes the boy on the swing.
3. What force should the boy use to make the wagon roll toward him?
 - a. Card 6a – pull



Content Guidance	Rating	Score
Student... <ul style="list-style-type: none">gives NO response. <p style="text-align: center;">OR</p> <ul style="list-style-type: none">is unable to identify the movement of either the sled (Card 2a) or the swing (Card 4a) when a force acts on the object; andis unable to identify the force that the boy should use to make the wagon roll toward him (Card 6a).	The student does not demonstrate understanding.	0
Student... <ul style="list-style-type: none">is able to identify the movement of the sled (Card 2a) and/or the swing (Card 4a) when a force acts on the object; andis unable to identify the force that the boy should use to make the wagon roll toward him (Card 6a). <p style="text-align: center;">OR</p> <ul style="list-style-type: none">is unable to identify the movement of the sled (Card 2a) when a force acts on the object; andafter scaffolding, is able to identify the movement of the swing (Card 4a) when a force acts on the object.	The student demonstrates limited understanding typically requiring additional support through scaffolding.	1
Student... <ul style="list-style-type: none">is able to identify the movement of both the sled (Card 2a) and the swing (Card 4a) when a force acts on the object; andis able to identify the force that the boy should use to make the wagon roll toward him (Card 6a).	The student demonstrates understanding independently without scaffolding.	2

ACTIVITY 3

Essence Statement: CTAS-3-PS2-1 Use the results of an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.

Core Extension 3: Recognize that balanced forces do not cause an object to move or change motion. (CTAS-3-PS2-1)

Teacher Notes:

Collect the following resources for this activity:

- Activity 3 Resource 1: Pushing a Box Poster
- Activity 3 Resource 2: Card 2a and Card 2b
 - Card 2a – yes
 - Card 2b – no
- Activity 3 Resource 3: Pulling on a Toy Cart Poster

Steps to Follow:

1. **SAY** “In the last activity, we learned that unbalanced forces move objects. The girl used an unbalanced force called a ‘pull’ to make the sled move. The boy put an unbalanced force called a ‘push’ to move the swing. In this activity, we are going to talk about when forces do **not** move an object. When forces are equal, but in opposite directions we call them balanced forces. If forces are balanced, the object will not move.”

2. Display Resource 1: Pushing a Box Poster for the student.

3. Indicate Resource 1.

SAY “In this picture, two girls are pushing on the box with the same amount of force. One girl pushes on the right side of the box. Another girl pushes on the left side of the box. These two girls are pushing on the box in opposite directions.”

4. **ASK** “Will the box move?”

5. Provide Resource 2: Card 2a and Card 2b to the student. Indicate and read each Card.

a. Indicate Card 2a.

SAY “yes”

b. Indicate Card 2b.

SAY “no”

6. **ASK AGAIN** “Will the box move?”

7. Allow student to respond and record response. If no response or if incorrect response, proceed to scaffolding instructions.
8. Indicate Card 2b.

SAY	“Each girl is pushing on the box with the same amount of force in opposite directions. Since the girls push with the same amount of force, the box will not move. So, ‘no’, the box will not move.”
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9. Display Resource 3: Pulling on a Toy Cart Poster for the Student.
10. Indicate Resource 3.

SAY	“This is a picture of two children pulling on either side of a toy cart. Both children are pulling on the cart with the same amount of force.”
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11. **ASK** “Will the toy cart move?”
12. Provide Resource 2: Card 2a and Card 2b to the student. Indicate and read each Card.
 - a. Indicate Card 2a.

SAY	“yes”
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 - b. Indicate Card 2b.

SAY	“no”
------------	------
13. **ASK AGAIN** “Will the toy cart move?”
14. Allow student to respond and record response.
15. Indicate Card 2b.

SAY	“Both children are pulling on the toy cart with the same amount of force in opposite directions. So, ‘no’, the toy cart will not move.”
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16. **SAY** “We are now finished with this activity.”

Scoring Guidance and Scaffolding

Scaffolding:

1. Indicate Card 2b.

SAY	“Each girl is pushing on the box with the same amount of force in opposite directions. Since the girls push with the same amount of force, the box will not move. So, ‘ no ’, the box will not move.”
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2. Display Resource 3: Pulling on a Toy Cart Poster for the Student.

3. Indicate Resource 3.

SAY	“This is a picture of two children pulling on either side of a toy cart. Both children are pulling on the cart with the same amount of force.”
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4.

ASK	“Will the toy cart move?”
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5. Provide Resource 2: Card 2a and Card 2b to the student. Indicate and read each Card.

- a. Indicate Card 2a.

SAY	“yes”
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- b. Indicate Card 2b.

SAY	“no”
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6.

ASK AGAIN	“Will the toy cart move?”
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7. Allow student to respond and record response.

8. Indicate Card 2b.

SAY	“Both children are pulling on the toy cart with the same amount of force in opposite directions. So, ‘ no ’, the toy cart will not move.”
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9.

SAY	“We are now finished with this activity.”
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Correct answers are as follows:

1. Will the box move?
 - a. Card 2b – no
2. Will the toy cart move?
 - a. Card 2b – no



Content Guidance	Rating	Score
<p>Student...</p> <ul style="list-style-type: none">gives NO response. <p style="text-align: center;">OR</p> <ul style="list-style-type: none">is unable to identify that the box will not move (Card 2b); andis unable to identify that the toy cart will not move (Card 2b).	<p>The student does not demonstrate understanding.</p>	<p>0</p>
<p>Student...</p> <ul style="list-style-type: none">is able to identify that the box will not move (Card 2b); andis unable to identify that the toy cart will not move (Card 2b). <p style="text-align: center;">OR</p> <ul style="list-style-type: none">is unable to identify that the box will not move (Card 2b); andafter scaffolding, is able to identify that the toy cart will not move (Card 2b).	<p>The student demonstrates limited understanding typically requiring additional support through scaffolding.</p>	<p>1</p>
<p>Student...</p> <ul style="list-style-type: none">is able to identify that the box will not move (Card 2b); andis able to identify that the toy cart will not move (Card 2b).	<p>The student demonstrates understanding independently without scaffolding.</p>	<p>2</p>

ACTIVITY 4

Essence Statement: CTAS-3-PS2-1 Use the results of an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.

Core Extension 4: Use the results of an investigation as evidence that two or more unbalanced forces will cause an object to move. (CTAS-3-PS2-1)

Teacher Notes:

Collect the following resources for this activity:

- Activity 4 Resource 1: Results of the Tug of War Investigation Data Table Poster
- Activity 4 Resource 2: Strips 2a – 2c
 - Strip 2a – not move
 - Strip 2b – left
 - Strip 2c – right
- Activity 4 Resource 3: Cards 3a – 3c
 - Card 3a – Trial 1
 - Card 3b – Trial 2
 - Card 3c – Trial 3

Steps to Follow:

1.

SAY	“In this activity, we are going to talk about students in a class who were studying forces by playing tug of war. The children are the same size. Each pulls the rope with the same force. They tied a ribbon in the middle of the rope. The students observed how the rope moves when different numbers of students pull the rope on each side. They observed the movement of the ribbon during the tug of war and recorded their results during each Trial.”
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2. Display Resource 1: Tug of War Investigation Data Table Poster for the student.
3. Indicate Resource 1.

- | | |
|------------|--|
| SAY | “The students recorded their results of the investigation in this data table. The data table is titled ‘ Results of the Tug of War Investigation ’ (<i>indicate the title</i>). (<i>Indicate the ‘Trial 1’ row</i>). During Trial 1, there were 3 students pulling the rope on the left side and 3 students pulling the rope on the right side. (<i>Indicate the ‘Movement of the Ribbon’ column for ‘Trial 1’</i>). The ribbon did not move. (<i>Indicate the ‘Trial 2’ row</i> .) During Trial 2, there was 1 student pulling the rope on the left side and 3 students pulling the rope on the right side. (<i>Indicate the ‘Movement of the Ribbon’ column for ‘Trial 2’</i>). The ribbon moved to the right. (<i>Indicate the ‘Trial 3’ row</i>). During Trial 3, there were 3 students pulling the rope on the left side and 1 student pulling the rope on the right side.” |
|------------|--|

4.

ASK	“In which direction will the ribbon move during Trial 3?”
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5. Provide Resource 2: Strips 2a – 2c to the student. Indicate and read each Strip.

a. Indicate Strip 2a.

SAY	“will not move”
------------	-----------------

b. Indicate Strip 2b.

SAY	“will move to the left”
------------	-------------------------

c. Indicate Strip 2c.

SAY	“will move to the right”
------------	--------------------------

6. **ASK** “In which direction will the ribbon move during Trial 3?”

AGAIN	
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7. Allow student to respond and record response. If no response or if incorrect response, proceed to scaffolding instructions.

8. Indicate Strip 2b.

SAY	“The ribbon will move to the left during Trial 3.”
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9. **ASK** “Which trial shows a force that is greater on the right side than the force on the left side?”

10. Provide Resource 3: Cards 3a – 3c to the student. Indicate and read each Card.

a. Indicate Card 3a.

SAY	“Trial 1”
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b. Indicate Card 3b.

SAY	“Trial 2”
------------	-----------

c. Indicate Card 3c.

SAY	“Trial 3”
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11. **ASK** “Which trial shows a force that is greater on the right side than the force on the left side?”

AGAIN	
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12. Allow student to respond and record response.

13. Indicate Card 3b.

SAY	“Trial 2 shows a greater force on the right side because there are 3 children on the right and only 1 child on the left.”
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14. **SAY** "We are now finished with this activity."

Scoring Guidance and Scaffolding

Scaffolding:

1. After student makes first incorrect attempt, indicate Strip 2b.

SAY "The ribbon will move to the left during Trial 3."

2. **ASK** "Which trial shows a force that is greater on the right side than the force on the left side?"

3. Provide Resource 3: Cards 3a – 3c to the student. Indicate and read each Card.

- a. Indicate Card 3a.

SAY "Trial 1"

- b. Indicate Card 3b.

SAY "Trial 2"

- c. Indicate Card 3c.

SAY "Trial 3"

4. **ASK AGAIN** "Which trial shows a force that is greater on the right side than the force on the left side?"

5. Allow student to respond and record response.

6. Indicate Card 3b.

SAY "Trial 2 shows a greater force on the right side because there are 3 children on the right and only 1 child on the left."

Correct answers are as follows:

1. In which direction will the ribbon move during Trial 3?
 - a. Strip 2b – moved to the left
2. Which trial shows a force that is greater on the right side than the force on the left side?
 - a. Card 3b – Trial 2

Content Guidance	Rating	Score
<p>Student...</p> <ul style="list-style-type: none"> • gives NO response. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • is unable to identify the direction that the ribbon will move in Trial 3 (Strip 2b); and • is unable to identify that Trial 2 had a force that was greater on the right side than the force on the left side (Card 3b). 	<p>The student does not demonstrate understanding.</p>	<p>0</p>
<p>Student...</p> <ul style="list-style-type: none"> • is able to identify the direction that the ribbon will move in Trial 3 (Strip 2b); and • is unable to identify that Trial 2 had a force that was greater on the right side than the force on the left side (Card 3b). <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • is unable to identify the direction that the ribbon will move in Trial 3 (Strip 2b); and • after scaffolding, is able to identify that Trial 2 had a force that was greater on the right side than the force on the left side (Card 3b). 	<p>The student demonstrates limited understanding typically requiring additional support through scaffolding.</p>	<p>1</p>
<p>Student...</p> <ul style="list-style-type: none"> • is able to identify the direction that the ribbon will move in Trial 3 (Strip 2b); and • is able to identify that Trial 2 had a force that was greater on the right side than the force on the left side (Card 3b). 	<p>The student demonstrates understanding independently without scaffolding.</p>	<p>2</p>

ACTIVITY 5

Essence Statement: CTAS-3-PS2-2 Make observations and/or measurements to show the pattern of an object's motion in order to make predictions.

Core Extension 5: Make one qualitative observation about the pattern of an object in motion. (CTAS-3-PS2-2)

Teacher Notes:

Collect the following resources for this activity:

- Activity 5 Resource 1: Toy Car on Ramp Poster
- Activity 5 Resource 2: Sentence Strips 2a – 2c
 - Sentence Strip 2a – not move
 - Sentence Strip 2b – down
 - Sentence Strip 2c – up
- Activity 5 Resource 3: Teacher Directions for Toy Car Investigation – Materials
- Activity 5 Resource 4: Teacher Directions for Toy Car Investigation – Diagram
- Activity 5 Resource 5: Strips 5a – 5c
 - Strip 5a – not move
 - Strip 5b – down
 - Strip 5c – up

Teacher-Provided Resources:

Use the materials and instructions included in Resource 3 to set up the investigation according to the diagram included in Resource 4. **Teacher must set up and test the investigation prior to introducing the investigation to the student.** Teacher-Provided Resources include:

- Table/Floor
- 3 Books
- Toy Car (or a Ball)
- Tape
- Measuring Device (Meter Stick, Yard Stick, or Measuring Tape)*
*Best practice is to use metric measuring devices and units.

Activities 5, 6, and 7 should be completed back-to-back.

Steps to Follow:

1. Use the materials and instructions included in Resource 3: Teacher Directions for Toy Car Investigation – Materials to set up the investigation according to Resource 4: Teacher Directions for Toy Car Investigation – Diagram.
2. Display Resource 1: Toy Car on Ramp Poster for the student.

3. Indicate Resource 1.

SAY	“This is a picture of a student that is holding a toy car on at the top of a ramp. In the next activity, we will actually roll a toy car down a ramp that we create. But in this activity, I want you to predict what might happen to the car when the student lets go of the toy car. Use these Sentence Strips to predict what will happen to the toy car.”
------------	---

4. **ASK** “What will happen when the student lets go of the toy car?”

5. Provide Resource 2: Sentence Strips 2a – 2c to the student. Indicate and read each Sentence Strip.

a. Indicate Sentence Strip 2a.

SAY	“The toy car will not move.”
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a. Indicate Sentence Strip 2b.

SAY	“The toy car will roll down the ramp.”
------------	--

a. Indicate Sentence Strip 2c.

SAY	“The toy car will roll up the ramp.”
------------	--------------------------------------

6. **ASK AGAIN** “What will happen when the student lets go of the toy car?”

7. Allow student to respond and record response.

Please note that students will not be rated for predicting the correct answer – this is simply a first step to the instruction in this activity.

8. Indicate Sentence Strip 2b.

SAY	“The toy car will roll down the ramp.”
------------	--

9. **SAY** “Now, you will observe what happens when we let go of the toy car at the top of the ramp.”

10. Allow the student to roll the toy car down the ramp and observe its motion three different times.

Teacher may assist the student if necessary.

11. **ASK** “What happens to the toy car when it is let go at the top of the ramp?”

12. Provide Resource 5: Strips 5a – 5c to the student. Indicate and describe each Strip.

a. Indicate Strip 5a.

SAY	"The toy car does not move. "
------------	--------------------------------------

b. Indicate Strip 5b.

SAY	"The toy car rolls down the ramp. "
------------	--

c. Indicate Strip 5c.

SAY	"The toy car rolls up the ramp. "
------------	--

13.	ASK	"What happens to the toy car when it is let go at the top of the ramp?"
	AGAIN	

14.	Allow student to respond and record response. If no response or if incorrect response, proceed to scaffolding instructions.
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15. Indicate Strip 5b.

SAY	"When the toy car is let go at the top of the ramp, the toy car rolls down the ramp. "
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16.	SAY	"We are now finished with this activity."
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Scoring Guidance and Scaffolding

Scaffolding:

1. After student makes first incorrect attempt, remove Strip 5a.

SAY	“The toy car does not move is not the correct answer.”
------------	--

2. Allow the student to roll the toy car down the ramp and observe its motion.
Teacher may assist the student if necessary.

3. **ASK AGAIN** “What happens to the toy car when it is let go at the top of the ramp?”

4. Provide Resource 5: Strip 5b and Strip 5c to the student. Indicate and describe each Strip.

- a. Indicate Strip 5b.

SAY	“The toy car rolls down the ramp. ”
------------	--

- b. Indicate Strip 5c.

SAY	“The toy car rolls up the ramp. ”
------------	--

5. **ASK AGAIN** “What happens to the toy car when it is let go at the top of the ramp?”

6. Allow student to respond and record response. If no response or if incorrect response, proceed to scaffolding instructions.

7. Indicate Strip 5b.

SAY	“When the toy car is let go at the top of the ramp, the toy car rolls down the ramp. ”
------------	---

8. **SAY** “We are now finished with this activity.”

The correct answer is as follows:

1. What happens to the toy car when it is let go at the top of the ramp?
 - a. Strip 5b – The toy car **rolls down the ramp.**



Content Guidance	Rating	Score
Student... <ul style="list-style-type: none">gives NO response. <p style="text-align: center;">OR</p> <ul style="list-style-type: none">is unable to describe that the toy car rolls down the ramp (Strip 5b).	The student does not demonstrate understanding.	0
Student... <ul style="list-style-type: none">after scaffolding, is able to describe that the toy car rolls down the ramp (Strip 5b).	The student demonstrates limited understanding typically requiring additional support through scaffolding.	1
Student... <ul style="list-style-type: none">is able to describe that the toy car rolls down the ramp (Strip 5b).	The student demonstrates understanding independently without scaffolding.	2

ACTIVITY 6

Essence Statement: CTAS-3-PS2-2 Make observations and/or measurements to show the pattern of an object’s motion in order to make predictions.

Core Extension 6: Make two quantitative observations to show the pattern of the motion of an object. (CTAS-3-PS2-2)

Teacher Notes:

Collect the following resources for this activity:

- Activity 6 Resource 1: Toy Car Investigation Data Table Poster
- Activity 6 Resource 2: Strips 2a – 2c
 - Strip 2a – longer distance
 - Strip 2b – shorter distance
 - Strip 2c – same distance
- Activity 6 Resource 3: *Use Activity 5 Resource 3: Teacher Directions for Toy Car Investigation – Materials*
- Activity 6 Resource 4: *Use Activity 5 Resource 4: Teacher Directions for Toy Car Investigation – Diagram*

Teacher-Provided Resources:

Use the materials and instructions included in Resource 3 to set up the investigation according to the diagram included in Resource 4. **Teacher must set up and test the investigation prior to introducing the investigation to the student.** Teacher-Provided Resources include:

- Table/Floor
 - 3 Books
 - Toy Car
 - Tape
 - Measuring Device (Meter Stick, Yard Stick, or Measuring Tape)*
- *Best practice is to use metric measuring devices and units.

Activities 5, 6, and 7 should be completed back-to-back.

Steps to Follow:

1. Use the materials and instructions included in Resource 3: Teacher Directions for Toy Car Investigation – Materials to set up the investigation according to Resource 4: Teacher Directions for Toy Car Investigation – Diagram.
2. Display Resource 1: Toy Car Investigation Data Table Poster for the student.
3.

SAY	“In this activity, you will record measurements for two different ramp heights. Then, for each ramp height, you will observe how far the toy car travels after we let go of the toy car at the top of the ramp.”
------------	--

4. Indicate Resource 1.

SAY	“We will record our observations in this data table. The title of this data table is ‘ Toy Car Investigation ’ (<i>indicate title</i>). The first column says ‘ Trial ’ (<i>indicate ‘Trial’ column</i>). The next column says ‘ Height of Ramp ’ (<i>indicate ‘Height of Ramp’ column</i>). The last column says ‘ Distance Toy Car Traveled ’ (<i>indicate ‘Distance Toy Car Traveled’ column</i>). For Trial 1 and for Trial 2, we will measure the height of the ramp. Then we will roll the toy car down the ramp and record how far the car travels in the ‘ Distance Toy Car Traveled ’ column for each trial (<i>indicate ‘Distance Toy Car Traveled’ column</i>).”
------------	--

5. **SAY** “For Trial 1, we will have the ramp at a one-book height. Let’s measure the height of the one book.”

6. **ASK** “How tall is the one book?”

7. Allow student to record observation.
Teacher may assist the student if necessary.
Allow student to respond and record response. If no response or if incorrect response, proceed to scaffolding instructions.

8. **SAY** “Let’s roll the toy car down the ramp and see how far it goes.”

9. Allow the student to roll the toy car down the ramp and measure the distance that the toy car traveled.
Teacher may assist the student if necessary.
Place a piece of tape on the floor/table to mark the end point of the car after Trial 1 and record “1 Book” on tape.

10. **ASK** “What is the distance that the toy car traveled during Trial 1 at the one-book height? Let’s record our observations in the ‘**Distance Toy Car Traveled**’ column for Trial 1.”

11. Allow student to record observation.
Teacher may assist the student if necessary.
Allow student to respond and record response.

12. **SAY** “For Trial 2, we will have the ramp at a two-books height. Let’s measure the height of the two books.”

13. **ASK** “How tall are the two books?”
14. Allow student to record observation.
Teacher may assist the student if necessary.
Allow student to respond and record response.
15. **SAY** “Let’s roll the toy car down the ramp and see how far it goes.”
16. Allow the student to roll the toy car down the ramp and measure the distance that the toy car traveled.
Teacher may assist the student if necessary.
Place a piece of tape on the floor/table to mark the end point of the car after Trial 1 and record “2 Books” on tape.
17. **ASK** “What is the distance that the toy car traveled during Trial 2 at the two-books height? Let’s record our observations in the ‘**Distance Toy Car Traveled**’ column for Trial 2.”
18. Allow student to record observation.
Teacher may assist the student if necessary.
Allow student to respond and record response.
19. **SAY** “Let’s look at the **pattern** of the car’s motion. With one book, the toy car rolled to this first point (*indicate ‘1 Book’ tape on floor*). With two books, the toy car rolled to this second point (*indicate ‘2 Books’ tape on floor*). There is a pattern in the motion of the toy car as we added one more book to the ramp for Trial 2.”
20. **ASK** “From Trial 1 to Trial 2, did the toy car travel a longer distance, a shorter distance, or the same distance?”
21. Provide Resource 2: Strips 2a – 2c to the student. Indicate and read each Strip.
- a. Indicate Strip 2a.
- SAY** “longer distance”
- b. Indicate Strip 2b.
- SAY** “shorter distance”

c. Indicate Strip 2c.

SAY	“same distance”
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22. **ASK AGAIN** “From Trial 1 to Trial 2, did the toy car travel a longer distance, a shorter distance, or the same distance?”

23. Allow student to respond and record response.

24. Indicate Strip 2a.

SAY	“From Trial 1 to Trial 2, the toy car traveled a longer distance.”
------------	--

25. **SAY** “We are now finished with this activity.”

Scoring Guidance and Scaffolding

Scaffold:

1. After student makes first incorrect attempt, assist the student in recording the height of the one book and the two books.
2. Demonstrate how to measure and record the distance the toy car travels during Trial 1 and during Trial 2.

3. **SAY** "Let's look at the **pattern** of the car's motion. With one book, the toy car rolled to this first point (*indicate '1 Book' tape on floor*). With two books, the toy car rolled to this second point (*indicate '2 Books' tape on floor*). There is a pattern in the motion of the toy car as we added one more book to the ramp for Trial 2."

4. **ASK** "From Trial 1 to Trial 2, did the toy car travel a longer distance, a shorter distance, or the same distance?"

5. Provide Resource 2: Strips 2a – 2c to the student. Indicate and read each Strip.

- a. Indicate Strip 2a.

SAY "longer distance"

- b. Indicate Strip 2b.

SAY "shorter distance"

- c. Indicate Strip 2c.

SAY "same distance"

6. **ASK AGAIN** "From Trial 1 to Trial 2, did the toy car travel a longer distance, a shorter distance, or the same distance?"

7. Allow student to respond and record response.

8. Indicate Strip 2a.

SAY "From Trial 1 to Trial 2, the toy car traveled a longer distance."

9. **SAY** "We are now finished with this activity."

Correct answers are as follows:

1. How tall is the one book?
 - a. Student is able to measure the height of the one book.
2. What is the distance that the toy car traveled during Trial 1 at the one-book height?
 - a. Student is able to record the distance that the toy car traveled during Trial 1.
3. How tall are the two books?
 - a. Student is able to measure the height of the two books.
4. What is the distance that the toy car traveled during Trial 2 at the two-books height?
 - a. Student is able to record the distance that the toy car traveled during Trial 2.
5. From Trial 1 to Trial 2, did the toy car travel a longer distance, a shorter distance, or the same distance?
 - a. Strip 2a – longer distance

Content Guidance	Rating	Score
Student... <ul style="list-style-type: none"> • gives NO response. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • is unable to measure either the height of the one book or the height of the two books; and • is unable to record either the distance that the toy car traveled during Trial 1 or during Trial 2; and • is unable to compare the difference in distance that the toy car traveled between Trial 1 and Trial 2 (Strip 2a). 	The student does not demonstrate understanding.	0
Student... <ul style="list-style-type: none"> • is able to determine any measurement; and • is unable to compare the difference in distance that the toy car traveled between Trial 1 and Trial 2 (Strip 2a). <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • is unable to determine any measurement; and • after scaffolding, is able to compare the difference in distance that the toy car traveled between Trial 1 and Trial 2 (Strip 2a). 	The student demonstrates limited understanding typically requiring additional support through scaffolding.	1
Student... <ul style="list-style-type: none"> • is able to determine all measurements; and • is able to compare the difference in distance that the toy car traveled between Trial 1 and Trial 2 (Strip 2a). 	The student demonstrates understanding independently without scaffolding.	2

ACTIVITY 7

Essence Statement: CTAS-3-PS2-2 Make observations and/or measurements to show the pattern of an object’s motion in order to make predictions.

Core Extension 7: Make a prediction about the effect of a change in one variable on the motion of an object. (CTAS-3-PS2-2)

Teacher Notes:

Collect the following resources for this activity:

- Activity 7 Resource 1: *Use Completed Activity 6 Resource 1: Toy Car Investigation Data Table Poster*
- Activity 7 Resource 2: Strips 2a – 2c
 - Strip 2a – longer distance
 - Strip 2b – shorter distance
 - Strip 2c – same distance

Activities 5, 6, and 7 should be completed back-to-back.

Steps to Follow:

1. **SAY** “In this activity, we are going to predict the motion of the toy car if we change a variable in our last activity.”

2. Display Resource 1: Toy Car Investigation Data Table Poster for the student.

3. Indicate Resource 1.

SAY “We are going to use the data we collected in the last activity for the toy car investigation to make a prediction about the motion of the toy car if we change the height of the ramp.”

4. **ASK** “If we add a third book to the ramp and increase the ramp’s height, how far do you predict the toy car will travel?”

5. Provide Resource 2: Strips 2a – 2c to the student. Indicate and read each Strip.

a. Indicate Strip 2a.

SAY “longer distance”

b. Indicate Strip 2b.

SAY “shorter distance”

c. Indicate Strip 2c.

SAY “same distance”

6. **ASK AGAIN** “If we add a third book to the ramp and increase the ramp’s height, how far do you predict the toy car will travel?”

7. Allow student to respond and record response. If no response or if incorrect response, proceed to scaffolding instructions.

8. Indicate Strip 2a.

SAY	“If we add a third book to the ramp and increase the ramp’s height, the toy car will travel a longer distance.”
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9. **SAY** “We are now finished with this activity.”

Scoring Guidance and Scaffolding

Scaffolding:

1. After student makes first incorrect attempt, remove Strip 2c.

SAY	“The toy car will not travel the same distance when we add a third book to increase the ramp’s height.”
------------	--

2. **ASK AGAIN** “If we add a third book to the ramp and increase the ramp’s height, how far do you predict the toy car will travel?”

3. Provide Resource 2: Strip 2a and Strip 2b to the student. Indicate and read each Strip.

- a. Indicate Strip 2a.

SAY	“longer distance”
------------	-------------------

- b. Indicate Strip 2b.

SAY	“shorter distance”
------------	--------------------

4. **ASK AGAIN** “If we add a third book to the ramp and increase the ramp’s height, how far do you predict the toy car will travel?”

5. Allow student to respond and record response.

6. Indicate Strip 2a.

SAY	“If we add a third book to the ramp and increase the ramp’s height, the toy car will travel a longer distance.”
------------	---

7. **SAY** “We are now finished with this activity.”

Correct answers are as follows:

1. If we add a third book to the ramp and increase the ramp’s height, how far do you predict the toy car will travel?
 - a. Strip 2a – longer distance



Content Guidance	Rating	Score
Student... <ul style="list-style-type: none">gives NO response. <p style="text-align: center;">OR</p> <ul style="list-style-type: none">is unable to predict that the toy car will travel a farther distance when a third book is added to increase the ramp's height (Strip 2a).	The student does not demonstrate understanding.	0
Student... <ul style="list-style-type: none">after scaffolding, is able to predict that the toy car will travel a farther distance when a third book is added to increase the ramp's height (Strip 2a).	The student demonstrates limited understanding typically requiring additional support through scaffolding.	1
Student... <ul style="list-style-type: none">is able to predict that the toy car will travel a farther distance when a third book is added to increase the ramp's height (Strip 2a).	The student demonstrates understanding independently without scaffolding.	2



Connecticut
Alternate
Science
Assessment

Physical Science

Storyline 6: Using Energy Every Day

Grade 5 Performance Task



Physical Science

Storyline 6: Using Energy Every Day

Grade 5 Performance Task

Guiding Questions: What is energy and how is it transferred? How do we use light and heat energy? Where do we get the energy we need for everyday life?

Grade 5			
NGSS Learning Progressions	NGSS Standard Performance Expectations	Connecticut Alternate Science Essence Statements	Core Extensions
PS3.A Definitions of Energy	4-PS3-2 Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.	CTAS-4-PS3-2 Make observations that light and heat are forms of energy that can be transferred from place to place.	<ol style="list-style-type: none"> 1. Distinguish between at least two examples of hot and cold. (CTAS-4-PS3-2) 2. Distinguish between at least two examples of light and dark. (CTAS-4-PS3-2) 3. Identify two examples of how light and heat energy are used in everyday life. (CTAS-PS3-2) 4. Make observations that heat is transferred from the sun to the Earth. (CTAS-4-PS3-2) 5. Use a simple model to show that plants need light energy from the sun to grow. (CTAS-5-PS3-1) 6. Use a simple model to describe that the food animals need was once energy from the sun. (CTAS-5-PS3-1)
PS3.D Energy in Chemical Processes and Everyday Life	5-PS3-1 Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.	CTAS-5-PS3-1 Use a simple model to describe that light energy comes from the sun, and is used by plants to grow and produce food that is eaten by animals and/or humans that they use for various purposes.	
Appropriate Vocabulary	Hot, cold, light, dark, light energy, sound energy, electric energy, transfer		



Physical Science
Storyline 6: Using Energy Every Day
Grade 5 Performance Task

General Overview:

This performance task focuses on how light and heat energy are used and transferred in everyday life. Students will make observations that light and heat are forms of energy that can be transferred from place to place. Students will use a simple model to describe that light energy comes from the sun and is used by plants to grow and produce food that is eaten by animals and/or humans that they use for various purposes (e.g., how energy is used by plants and animals in a simple food chain).

List of Materials Needed:

Teacher-Provided Resources:

No Teacher-Provided Resources are required for this Performance Task.

Instructions for Preparing Materials:

Teachers must collect all relevant materials prior to the administration of each activity. The Card, Sentence Strip, and Strip Resources will need to be cut out. Resources are listed according to the Resource Identifier, which appears on the back of each Resource. The Resources needed for the administration of each activity are listed according to these Resource Identifiers in the Teacher Notes section of each activity.

List of Resources:

- Activity 1 Resource 1: Cards 1a – 1c
 - Card 1a – coffee
 - Card 1b – lemonade
 - Card 1c – milkshake
- Activity 1 Resource 2: Cards 2a – 2c
 - Card 2a – beach
 - Card 2b – snow-covered mountains
 - Card 2c – jungle
- Activity 2 Resource 1: Cards 1a – 1c
 - Card 1a – moon
 - Card 1b – sun
 - Card 1c – lamp
- Activity 2 Resource 2: Cards 2a – 2c
 - Card 2a – sun
 - Card 2b – clouds
 - Card 2c – moon



- Activity 3 Resource 1: Cards 1a – 1d
 - Card 1a – scissors
 - Card 1b – stove
 - Card 1c – baseball
 - Card 1d – lamp
- Activity 3 Resource 2: Cards 2a – 2d
 - Card 2a – to cook
 - Card 2b – to read
 - Card 2c – to play
 - Card 2d – to swim
- Activity 4 Resource 1: Sun Poster
- Activity 4 Resource 2: Cards 2a – 2d
 - Card 2a – sound
 - Card 2b – heat
 - Card 2c – electric
 - Card 2d – water
- Activity 4 Resource 3: Strips 3a – 3c
 - Strip 3a – home
 - Strip 3b – food
 - Strip 3c – warm
- Activity 5 Resource 1: Sun and Plants Poster
- Activity 5 Resource 2: Strips 2a – 2c
 - Strip 2a – light energy
 - Strip 2b – heat energy
 - Strip 2c – sound energy
- Activity 5 Resource 3: Sentence Strips 3a – 3c
 - Sentence Strip 3a – water
 - Sentence Strip 3b – soil
 - Sentence Strip 3c – food
- Activity 6 Resource 1: Energy Flow Chart Poster
- Activity 6 Resource 2: Cards 2a – 2c
 - Card 2a – sun
 - Card 2b – rock
 - Card 2c – fox

ACTIVITY 1

Essence Statement: CTAS-4-PS3-2 Make observations that light and heat are forms of energy that can be transferred from place to place.

Core Extension 1: Distinguish between at least two examples of hot and cold. (CTAS-4-PS3-2)

Teacher Notes:

Collect the following resources for this activity:

- Activity 1 Resource 1: Cards 1a – 1c
 - Card 1a – coffee
 - Card 1b – lemonade
 - Card 1c – milkshake
- Activity 1 Resource 2: Cards 2a – 2c
 - Card 2a – beach
 - Card 2b – snow-covered mountains
 - Card 2c – jungle

Steps to Follow:

1.

SAY	“In this activity, we are going to talk about hot and cold.”
------------	--

2.

ASK	“Which picture shows a hot drink?”
------------	------------------------------------

3. Provide Resource 1: Cards 1a – 1c to the student. Indicate and describe each Card.
 - a. Indicate Card 1a.

SAY	“This picture shows a cup filled with coffee. Steam is rising from the coffee.”
------------	---

 - b. Indicate Card 1b.

SAY	“This picture shows a glass of lemonade. It has ice cubes inside.”
------------	--

 - c. Indicate Card 1c.

SAY	“This picture shows a milkshake. It is made from ice cream and milk.”
------------	---

4.

ASK AGAIN	“Which picture shows a hot drink?”
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5.

Allow student to respond and record response. If no response or if incorrect response, proceed to scaffolding instructions.

6. Indicate Card 1a.

SAY	“Coffee is a hot drink.”
------------	--------------------------

7.

ASK	“Which picture shows a cold place?”
------------	-------------------------------------

8. Provide Resource 2: Cards 2a – 2c to the student. Indicate and describe each Card.

a. Indicate Card 2a.

SAY	“This picture shows a beach with sand and palm trees. It rains here all during the year.”
------------	---

b. Indicate Card 2b.

SAY	“This picture shows tall, snow-covered mountains. It rains here mainly in the summer.”
------------	--

c. Indicate Card 2c.

SAY	“This picture shows a jungle with lots of green plants. It rains here all during the year.”
------------	---

9. **ASK** “Which picture shows a cold place?”

AGAIN

10. Allow student to respond and record response.

11. Indicate Card 2b.

SAY	“The snow-covered mountains are a cold place.”
------------	--

12. **SAY** “We are now finished with this activity.”

Scoring Guidance and Scaffolding

Scaffolding:

1. After student makes first incorrect attempt, indicate Card 1a.

SAY	“Coffee is a hot drink.”
------------	--------------------------

2. **ASK** “Which picture shows a cold place?”

3. Provide Resource 2: Cards 2a – 2c to the student. Indicate and describe each Card.

- a. Indicate Card 2a.

SAY	“This picture shows a beach with sand and palm trees. It rains here all during the year.”
------------	---

- b. Indicate Card 2b.

SAY	“This picture shows tall, snow-covered mountains. It rains here mainly in the summer.”
------------	--

- c. Indicate Card 2c.

SAY	“This picture shows a jungle with lots of green plants. It rains here all during the year.”
------------	---

4. **ASK AGAIN** “Which picture shows a cold place?”

5. Allow student to respond and record response.

6. Indicate Card 2b.

SAY	“The snow-covered mountains are a cold place.”
------------	--

7. **SAY** “We are now finished with this activity.”

Correct answers are as follows:

1. Which picture shows a hot drink?
 - a. Card 1a – coffee
2. Which picture shows a cold place?
 - a. Card 2b – snow-covered mountains

Content Guidance	Rating	Score
Student... <ul style="list-style-type: none"> • gives NO response. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • is unable to identify the hot drink (Card 1a); and • is unable to identify the cold place (Card 2b). 	The student does not demonstrate understanding.	0
Student... <ul style="list-style-type: none"> • is able to identify the hot drink (Card 1a); and • is unable to identify the cold place (Card 2b). <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • is unable to identify the hot drink (Card 1a); and • after scaffolding, is able to identify the cold place (Card 2b). 	The student demonstrates limited understanding typically requiring additional support through scaffolding.	1
Student... <ul style="list-style-type: none"> • is able to identify the hot drink (Card 1a); and • is able to identify the cold place (Card 2b). 	The student demonstrates understanding independently without scaffolding.	2

ACTIVITY 2

Essence Statement: CTAS-4-PS3-2 Make observations that light and heat are forms of energy that can be transferred from place to place.

Core Extension 2: Distinguish between at least two examples of light and dark. (CTAS-4-PS3-2)

Teacher Notes:

Collect the following resources for this activity:

- Activity 2 Resource 1: Cards 1a – 1c
 - Card 1a – moon
 - Card 1b – sun
 - Card 1c – lamp
- Activity 2 Resource 2: Cards 2a – 2c
 - Card 2a – sun
 - Card 2b – clouds
 - Card 2c – moon

Steps to Follow:

1.

SAY	“In this activity, we are going to talk about light and dark.”
------------	--

2.

ASK	“Which picture shows the living room that has the most light?”
------------	--

3. Provide Resource 1: Cards 1a – 1c to the student. Indicate and describe each Card.
 - a. Indicate Card 1a.

SAY	“In this picture, the moon and the shadow of the moon is shining through the window into the living room – you cannot see anything else.”
------------	---

 - b. Indicate Card 1b.

SAY	“In this picture, the sun is shining through the window into the living room. You can see the living room furniture.”
------------	---

 - c. Indicate Card 1c.

SAY	“In this picture, a table lamp is turned on. You can see parts of the living room furniture.”
------------	---

4.

ASK AGAIN	“Which picture shows the living room that has the most light?”
----------------------	--

5. Allow student to respond and record response. If no response or if incorrect response, proceed to scaffolding instructions.

6. Indicate Card 1b.

SAY	“In this picture, the sun is shining through the window. You can see all the furniture in the living room. This living room has the most light.”
------------	--

7. **ASK** “In which picture is the outside space the darkest?”
8. Provide Resource 2: Cards 2a – 2c to the student. Indicate and describe each Card.
- a. Indicate Card 2a.
- SAY** “In this picture, there is a grassy hill with a tree with many leaves. There are a few clouds in the sky. The sun is shining.”
- b. Indicate Card 2b.
- SAY** “In this picture, there is the same grassy hill. There are many clouds in the sky.”
- c. Indicate Card 2c.
- SAY** “In this picture, there is the same grassy hill. The moon is shining but it is hard to see anything else.”
9. **ASK AGAIN** “In which picture is the outside space the darkest?”
10. Allow student to respond and record response.
11. Indicate Card 2c.
- SAY** “In this picture, there is the same grassy hill. The moon is shining but it is hard to see anything else. This is the darkest outside space.”
12. **SAY** “We are now finished with this activity.”

Scoring Guidance and Scaffolding

Scaffolding:

1. After student makes first incorrect attempt, indicate Card 1b.

SAY	"In this picture, the sun is shining through the window. You can see all the furniture in the living room. This living room has the most light."
------------	--

2. **ASK** "In which picture is the outside space the darkest?"

3. Provide Resource 2: Cards 2a – 2c to the student. Indicate and describe each Card.

- a. Indicate Card 2a.

SAY	"In this picture, there is a grassy hill with a tree with many leaves. There are a few clouds in the sky. The sun is shining."
------------	--

- b. Indicate Card 2b.

SAY	"In this picture, there is the same grassy hill. There are many clouds in the sky."
------------	---

- c. Indicate Card 2c.

SAY	"In this picture, there is the same grassy hill. The moon is shining but it is hard to see anything else."
------------	--

4. **ASK AGAIN** "In which picture is the outside space the darkest?"

5. Allow student to respond and record response.

6. Indicate Card 2c.

SAY	"In this picture, there is the same grassy hill. The moon is shining but it is hard to see anything else. This is the darkest outside space."
------------	---

7. **SAY** "We are now finished with this activity."

Correct answers are as follows:

1. Which picture shows the living room that has the most light?
 - a. Card 1b – sun
2. In which picture is the outside space the darkest?
 - a. Card 2c – moon



Content Guidance	Rating	Score
Student... <ul style="list-style-type: none">gives NO response. <p style="text-align: center;">OR</p> <ul style="list-style-type: none">is unable to identify the living room that has the most light (Card 1b); andis unable to identify the outside space that is the darkest (Card 2c).	The student does not demonstrate understanding.	0
Student... <ul style="list-style-type: none">is able to identify the living room that has the most light (Card 1b); andis unable to identify the outside space that is the darkest (Card 2c). <p style="text-align: center;">OR</p> <ul style="list-style-type: none">is unable to identify the living room that has the most light (Card 1b); andafter scaffolding, is able to identify the outside space that is the darkest (Card 2c).	The student demonstrates limited understanding typically requiring additional support through scaffolding.	1
Student... <ul style="list-style-type: none">is able to identify the living room that has the most light (Card 1b); andis able to identify the outside space that is the darkest (Card 2c).	The student demonstrates understanding independently without scaffolding.	2

ACTIVITY 3

Essence Statement: CTAS-4-PS3-2 Make observations that light and heat are forms of energy that can be transferred from place to place.

Core Extension 3: Identify two examples of how light and heat energy are used in everyday life. (CTAS-PS3-2)

Teacher Notes:

Collect the following resources for this activity:

- Activity 3 Resource 1: Cards 1a – 1d
 - Card 1a – scissors
 - Card 1b – stove
 - Card 1c – baseball
 - Card 1d – lamp
- Activity 3 Resource 2: Cards 2a – 2d
 - Card 2a – to cook
 - Card 2b – to read
 - Card 2c – to play
 - Card 2d – to swim

Steps to Follow:

1. **SAY** “In this activity, we are going to talk about how two forms of energy are used in everyday life.”

2. **SAY** “Light and heat are forms of energy that are used every day.”

3. **ASK** “Which object is designed to produce light energy?”

4. Provide Resource 1: Cards 1a – 1d to the student. Indicate and read each Card.

a. Indicate Card 1a.

SAY “scissors”

b. Indicate Card 1b.

SAY “stove”

c. Indicate Card 1c.

SAY “baseball”

d. Indicate Card 1d.

SAY “lamp”

5. **ASK** “Which object is designed to produce light energy?”

AGAIN

6. Allow student to respond and record response. If no response or if incorrect response, proceed to scaffolding instructions.
7. Indicate Card 1d.
- | | |
|------------|---------------------------------|
| SAY | “A lamp produces light energy.” |
|------------|---------------------------------|
8. **ASK** “How is the light energy from the lamp most often used in everyday life?”
9. Provide Resource 2: Cards 2a – 2d to the student. Indicate and read each Card.
- a. Indicate Card 2a.
- | | |
|------------|-----------|
| SAY | “to cook” |
|------------|-----------|
- b. Indicate Card 2b.
- | | |
|------------|-----------|
| SAY | “to read” |
|------------|-----------|
- c. Indicate Card 2c.
- | | |
|------------|-----------|
| SAY | “to play” |
|------------|-----------|
- d. Indicate Card 2d.
- | | |
|------------|-----------|
| SAY | “to swim” |
|------------|-----------|
10. **ASK AGAIN** “How is the light energy from the lamp most often used in everyday life?”
11. Allow student to respond and record response.
12. Indicate Card 2b.
- | | |
|------------|---|
| SAY | “The light energy from the lamp is most often used to read in everyday life.” |
|------------|---|
13. **ASK** “Which object is designed to produce heat energy?”
14. Provide remaining Resource 1: Cards 1a – 1c to the student. Indicate and describe each remaining Card.
- a. Indicate Card 1a.
- | | |
|------------|------------|
| SAY | “scissors” |
|------------|------------|
- b. Indicate Card 1b.
- | | |
|------------|---------|
| SAY | “stove” |
|------------|---------|

c. Indicate Card 1c.

SAY	“baseball”
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15. **ASK** “Which object is designed to produce heat energy?”

ASK AGAIN	
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16. Allow student to respond and record response.

17. Indicate Card 1b.

SAY	“A stove produces heat energy.”
------------	---------------------------------

18. **ASK** “How is the heat energy from the stove most often used in everyday life?”

ASK	
------------	--

19. Provide remaining Resource 2: Card 2a, Card 2c, and Card 2d to the student. Indicate and read each remaining Card.

a. Indicate Card 2a.

SAY	“to cook”
------------	-----------

c. Indicate Card 2c.

SAY	“to play”
------------	-----------

d. Indicate Card 2d.

SAY	“to swim”
------------	-----------

20. **ASK** “How is the heat energy from the stove most often used in everyday life?”

ASK AGAIN	
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21. Allow student to respond and record response.

22. Indicate Card 2a.

SAY	“The heat energy from the stove is most often used to cook in everyday life.”
------------	---

23. **SAY** “We are now finished with this activity.”

SAY	
------------	--

Scoring Guidance and Scaffolding

Scaffolding:

Note: Optionally, you may ask the student the third question and/or fourth question, “Which object is designed to produce heat energy?” and “How is the heat energy from the stove most often used in everyday life?”, if the scaffold is applied. However, if you choose to ask the third question and/or fourth question and the student answers the third question and/or fourth question correctly, the student will still receive one point.

1. After student makes first incorrect attempt, indicate Card 1d.

SAY	“A lamp produces light energy.”
------------	---------------------------------

2.

ASK	“How is the light energy from the lamp most often used in everyday life?”
------------	---

3. Provide Resource 2: Cards 2a – 2d to the student. Indicate and read each Card.

- a. Indicate Card 2a.

SAY	“to cook”
------------	-----------

- b. Indicate Card 2b.

SAY	“to read”
------------	-----------

- c. Indicate Card 2c.

SAY	“to play”
------------	-----------

- d. Indicate Card 2d.

SAY	“to swim”
------------	-----------

4.

ASK AGAIN	“How is the light energy from the lamp most often used in everyday life?”
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5.

	Allow student to respond and record response.
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6. Indicate Card 2b.

SAY	“The light energy from the lamp is most often used to read in everyday life.”
------------	---

7.

SAY	“We are now finished with this activity.”
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Correct answers are as follows:		
1. Which object is designed to produce light energy? a. Card 1d – lamp 2. How is the light energy from the lamp most often used in everyday life? a. Card 2b – to read 3. Which object is designed to produce heat energy? a. Card 1b – stove 4. How is the heat energy from the stove most often used in everyday life? a. Card 2a – to cook		
Content Guidance	Rating	Score
Student... <ul style="list-style-type: none"> gives NO response. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> is unable to identify an object designed to produce light energy (Card 1d) or an object designed to produce heat energy (Card 1b); and is unable to describe how light energy (Card 2b) or heat energy are used in everyday life (Card 2a). 	The student does not demonstrate understanding.	0
Student... <ul style="list-style-type: none"> is able to identify an object designed to produce light energy (Card 1d); and/or is able to identify how light energy is most often used in everyday life (Card 2b); and is unable to identify an object designed to produce heat energy (Card 1b); and is unable to identify how heat energy is most often used in everyday life. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> is unable to identify an object designed to produce light energy (Card 1d); and is unable to identify how light energy is most often used in everyday life (Card 2b); and is able to identify an object designed to produce heat energy (Card 1b); and/or is able to describe how heat energy is most often used in everyday life (Card 2a). <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> is unable to identify an object designed to produce light energy (Card 1d); and after scaffolding, is able to describe how light energy is most often used in everyday life (Card 2a). 	The student demonstrates limited understanding typically requiring additional support through scaffolding.	1



<p>Student...</p> <ul style="list-style-type: none">• is able to identify an object designed to produce light energy (Card 1d); and• is able to identify how light energy is most often used in everyday life (Card 2b); and• is able to identify an object designed to produce heat energy (Card 1b); and• is able to identify how heat energy is most often used in everyday life.	<p>The student demonstrates understanding independently without scaffolding.</p>	<p>2</p>
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ACTIVITY 4

Essence Statement: CTAS-4-PS3-2 Make observations that light and heat are forms of energy that can be transferred from place to place.

Core Extension 4: Make observations that heat is transferred from the sun to the Earth. (CTAS-4-PS3-2)

Teacher Notes:

Collect the following resources for this activity:

- Activity 4 Resource 1: Sun Poster
- Activity 4 Resource 2: Cards 2a – 2d
 - Card 2a – sound
 - Card 2b – heat
 - Card 2c – electric
 - Card 2d – water
- Activity 4 Resource 3: Strips 3a – 3c
 - Strip 3a – home
 - Strip 3b – food
 - Strip 3c – warm

Steps to Follow:

1.

SAY	“In this activity, we are going to talk about how energy can be used in an ecosystem. Energy makes it possible for living things to grow and move.”
------------	---
2. Display Resource 1: Sun Poster for the student.
3. Indicate Resource 1.

SAY	“This is the sun. The sun provides energy for all living things. Animals are living things.”
------------	--
4.

ASK	“What is one form of energy that animals get from the sun?”
------------	---
5. Provide Resource 2: Cards 2a – 2d to the student. Indicate and read each Card.
 - a. Indicate Card 2a.

SAY	“sound”
------------	---------
 - b. Indicate Card 2b.

SAY	“heat”
------------	--------
 - c. Indicate Card 2c.

SAY	“electric”
------------	------------
 - d. Indicate Card 2d.

SAY	“water”
------------	---------

6. **ASK AGAIN** "What is one form of energy that animals get from the sun?"
7. Allow student to respond and record response. If no response or if incorrect response, proceed to scaffolding instructions.
8. Indicate Card 2b.
- SAY** "Animals use heat energy from the sun."
9. **ASK** "How do animals use heat energy from the sun?"
10. Provide Resource 3: Strips 3a – 3c to the student. Indicate and read each Strip.
- a. Indicate Strip 3a.
- SAY** "to build homes"
- b. Indicate Strip 3b.
- SAY** "to eat more food"
- c. Indicate Strip 3c.
- SAY** "to stay warm"
11. Allow student to respond and record response.
12. Indicate Strip 3c.
- SAY** "Animals use heat energy from the sun to stay warm."
13. **SAY** "We are now finished with this activity."

Scoring Guidance and Scaffolding

Scaffolding:

1. After student makes first incorrect attempt, indicate Card 2b.

SAY	“Animals use heat energy from the sun.”
------------	---

2. **ASK** “How do animals use heat energy from the sun?”

3. Provide Resource 3: Strips 3a – 3c to the student. Indicate and read each Strip.

- a. Indicate Strip 3a.

SAY	“to build homes”
------------	------------------

- b. Indicate Strip 3b.

SAY	“to eat more food”
------------	--------------------

- c. Indicate Strip 3c.

SAY	“to stay warm”
------------	----------------

4. Allow student to respond and record response.

5. Indicate Strip 3c.

SAY	“Animals use heat energy from the sun to stay warm.”
------------	--

6. **SAY** “We are now finished with this activity.”

Correct answers are as follows:

1. What is one form of energy that animals get from the sun?
 - a. Card 2b – heat
2. How do animals use heat energy from the sun?
 - a. Strip 3c – to stay warm



Content Guidance	Rating	Score
Student... <ul style="list-style-type: none">gives NO response. <p style="text-align: center;">OR</p> <ul style="list-style-type: none">is unable to identify the form of energy that animals get from the sun (Card 2b); andis unable to describe how animals use heat energy from the sun (Strip 3c).	The student does not demonstrate understanding.	0
Student... <ul style="list-style-type: none">is able to identify the form of energy that animals get from the sun (Card 2b); andis unable to describe how animals use heat energy from the sun (Strip 3c). <p style="text-align: center;">OR</p> <ul style="list-style-type: none">is unable to identify the form of energy that animals get from the sun (Card 2b); andafter scaffolding, is able to describe how animals use heat energy from the sun (Strip 3c).	The student demonstrates limited understanding typically requiring additional support through scaffolding.	1
Student... <ul style="list-style-type: none">is able to identify the form of energy that animals get from the sun (Card 2b); andis able to describe how animals use heat energy from the sun (Strip 3c).	The student demonstrates understanding independently without scaffolding.	2

ACTIVITY 5

Essence Statement: CTAS-5-PS3-1 Use a simple model to describe that light energy comes from the sun, and is used by plants to grow and produce food that is eaten by animals and/or humans that they use for various purposes.

Core Extension 5: Use a simple model to show that plants need light energy from the sun to grow. (CTAS-5-PS3-1)

Teacher Notes:

Collect the following resources for this activity:

- Activity 5 Resource 1: Sun and Plants Poster
- Activity 5 Resource 2: Strips 2a – 2c
 - Strip 2a – light energy
 - Strip 2b – heat energy
 - Strip 2c – sound energy
- Activity 5 Resource 3: Sentence Strips 3a – 3c
 - Sentence Strip 3a – water
 - Sentence Strip 3b – soil
 - Sentence Strip 3c – food

Steps to Follow:

1. **SAY** “In this activity, we are going to talk about how the energy from the sun is used by living things.”

2. Display Resource 1: Sun and Plants Poster for the student.

3. Indicate Resource 1.

SAY “The sun provides energy to plants. Plants need energy from the sun to survive.”

4. **ASK** “What form of energy do plants use from the sun?”

5. Provide Resource 2: Strips 2a – 2c to the student. Indicate and read each Strip.

a. Indicate Strip 2a.

SAY “light energy”

b. Indicate Strip 2b.

SAY “heat energy”

c. Indicate Strip 2c.

SAY “sound energy”

6. **ASK** “What form of energy do plants use from the sun?”

AGAIN

7. Allow student to respond and record response. If no response or if incorrect response, proceed to scaffolding instructions.
8. Indicate Strip 2a.

SAY	“Plants use light energy from the sun.”
------------	---
9.

ASK	“How do the plants use light energy from the sun?”
------------	--
10. Provide Resource 3: Sentence Strips 3a – 3c to the student. Indicate and read each Sentence Strip.
 - a. Indicate Sentence Strip 3a.

SAY	“They make water to drink.”
------------	-----------------------------
 - b. Indicate Sentence Strip 3b.

SAY	“They make soil for their roots.”
------------	-----------------------------------
 - c. Indicate Sentence Strip 3c.

SAY	“They make food to grow.”
------------	---------------------------
11.

ASK AGAIN	“How do the plants use light energy from the sun?”
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12. Allow student to respond and record response.
13. Indicate Sentence Strip 3c.

SAY	“They make food to grow.”
------------	---------------------------
14.

SAY	“We are now finished with this activity.”
------------	---

Scoring Guidance and Scaffolding

Scaffolding:

1. After student makes first incorrect attempt, indicate Strip 2a.

SAY	“Plants use light energy from the sun.”
------------	---

2. **ASK** “How do the plants use light energy from the sun?”

3. Provide Resource 3: Sentence Strips 3a – 3c to the student. Indicate and read each Sentence Strip.

- a. Indicate Sentence Strip 3a.

SAY	“They make water to drink.”
------------	-----------------------------

- b. Indicate Sentence Strip 3b.

SAY	“They make soil for their roots.”
------------	-----------------------------------

- c. Indicate Sentence Strip 3c.

SAY	“They make food to grow.”
------------	---------------------------

4. **ASK AGAIN** “How do the plants use light energy from the sun?”

5. Allow student to respond and record response.

6. Indicate Sentence Strip 3c.

SAY	“They make food to grow.”
------------	---------------------------

7. **SAY** “We are now finished with this activity.”

Correct answers are as follows:

1. What form of energy do plants use from the sun?
 - a. Strip 2a – light energy
2. How do the plants use light energy from the sun?
 - a. Sentence Strip 3c – They make food to grow.

Content Guidance	Rating	Score
<p>Student...</p> <ul style="list-style-type: none"> • gives NO response. <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • is unable to identify the form of energy that plants use from the sun (Strip 2a); and • is unable to describe how plants use light energy from the sun (Sentence Strip 3c). 	<p>The student does not demonstrate understanding.</p>	<p>0</p>
<p>Student...</p> <ul style="list-style-type: none"> • is able to identify the form of energy that plants use from the sun (Strip 2a); and • is unable to describe how plants use light energy from the sun (Sentence Strip 3c). <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> • is unable to identify the form of energy that plants use from the sun (Strip 2a); and • after scaffolding, is able to describe how plants use light energy from the sun (Sentence Strip 3c). 	<p>The student demonstrates limited understanding typically requiring additional support through scaffolding.</p>	<p>1</p>
<p>Student...</p> <ul style="list-style-type: none"> • is able to identify the form of energy that plants use from the sun (Strip 2a); and • is able to describe how plants use light energy from the sun (Sentence Strip 3c). 	<p>The student demonstrates understanding independently without scaffolding.</p>	<p>2</p>

ACTIVITY 6

Essence Statement: CTAS-5-PS3-1 Use a simple model to describe that light energy comes from the sun, and is used by plants to grow and produce food that is eaten by animals and/or humans that they use for various purposes.

Core Extension 6: Use a simple model to describe that the food animals need was once energy from the sun. (CTAS-5-PS3-1)

Teacher Notes:

Collect the following resources for this activity:

- Activity 6 Resource 1: Energy Flow Chart Poster
- Activity 6 Resource 2: Cards 2a – 2c
 - Card 2a – sun
 - Card 2b – rock
 - Card 2c – fox

Steps to Follow:

1. **SAY** “In this activity, we are going to talk about how the energy is used by living things. Like plants, animals need energy to grow and survive.”

2. Display Resource 1: Energy Flow Chart Poster for the student.

3. Indicate Resource 1.

SAY “This is an energy flow chart. We are going to use this flow chart to show the relationship between energy and living things. We will use Cards to complete this flow chart. This flow chart starts with a blank box. There is an arrow between the blank box and a second box with plants (*indicate plants*) labeled ‘**Energy**’. There is an arrow between the second box with plants and a third box with a rabbit (*indicate rabbit*) labeled ‘**Energy**’. Let’s use Cards to complete the blank box in the flow chart.”

4. **ASK** “What gives energy directly to the plants?”

5. Provide Resource 2: Cards 2a – 2c to the student. Indicate and read each Card.

a. Indicate Card 2a.

SAY “sun”

b. Indicate Card 2b.

SAY “rock”

c. Indicate Card 2c.

SAY “fox”

6. **ASK** “What gives energy directly to the plants?”

AGAIN

7. Allow student to respond and record response. If no response or if incorrect response, proceed to scaffolding instructions.
8. Indicate Card 2a.

SAY	“The sun gives its energy directly to the plants. Let’s place the sun in the empty box on our flow chart.”
------------	--
9. Place Card 2a in the empty box in Resource 1.
10. Indicate Resource 1.

SAY	“The sun gives light energy to the plants to make their own food. The plants give energy to the rabbit when the rabbit eats the plants. In this way, energy is transferred from the sun to the plants to the rabbit.”
------------	---
11.

SAY	“We are now finished with this activity.”
------------	---

Scoring Guidance and Scaffolding

Scaffolding:

1. After student makes first incorrect attempt, remove Card 2c.

SAY	“The fox is an incorrect answer because it does not give energy to the plant.”
------------	--

2. **ASK AGAIN** “What gives energy directly to the plants?”

3. Provide remaining Resource 2: Card 2a and Card 2b to the student. Indicate and read each remaining Card.

- a. Indicate Card 2a.

SAY	“sun”
------------	-------

- b. Indicate Card 2b.

SAY	“rock”
------------	--------

4. Allow student to respond and record response.

5. Indicate Card 2a.

SAY	“The sun gives its energy directly to the plants. Let’s place the sun in the empty box on our flow chart.”
------------	--

6. Place Card 2a in the empty box in Resource 1.

7. Indicate Resource 1.

SAY	“The sun gives light energy to the plants to make their own food. The plants give energy to the rabbit when the rabbit eats the plants. In this way, energy is transferred from the sun to the plants to the rabbit.”
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8. **SAY** “We are now finished with this activity.”

The correct answer is:

1. What gives energy directly to the plants?
 - a. Card 2a – sun



Content Guidance	Rating	Score
Student... <ul style="list-style-type: none">gives NO response. <p style="text-align: center;">OR</p> <ul style="list-style-type: none">is unable to identify what gives its energy directly to the plants (Card 2a).	The student does not demonstrate understanding.	0
Student... <ul style="list-style-type: none">after scaffolding, is able to identify what gives its energy directly to the plants (Card 2a).	The student demonstrates limited understanding typically requiring additional support through scaffolding.	1
Student <ul style="list-style-type: none">is able to identify what gives its energy directly to the plants (Card 2a).	The student demonstrates understanding independently without scaffolding.	2