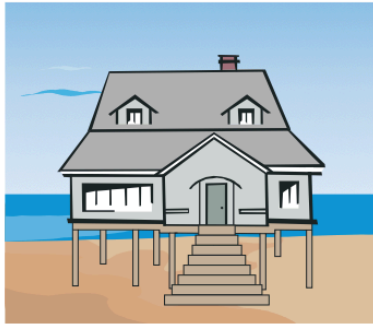


A house near the ocean in Surfside, New Jersey, is built on stilts.

Sometimes, when buildings are built near areas that are likely to flood, they are built on stilts. This allows the house and its contents to remain safe if the area floods. An example is shown in Figure 1.

Figure 1. Stilt House



Your Task

In the questions that follow, you will make a claim about the effectiveness of stilts as a solution to flooding.

1

Part A

Choose **three** ways that stilts protect houses from flooding.

	Protects Against	Does Not Protect Against
Household objects being washed away	<input type="checkbox"/>	<input type="checkbox"/>
Water damage to floors	<input type="checkbox"/>	<input type="checkbox"/>
Water damage to household objects	<input type="checkbox"/>	<input type="checkbox"/>
Yard flooding	<input type="checkbox"/>	<input type="checkbox"/>

Part B

Select **three** conditions that the stilts must meet to be effective.

- cost a lot of money
- resist strong water current
- match the building's appearance
- support the weight of the building
- tall enough to keep the building out of water

Part C

Choose **three** problems caused by using stilts under buildings.

- Building would be damaged if it falls.
- The stilts will get wet during the flood.
- Buildings are harder to enter because of stairs and ramps.
- The space stilts occupy could be another floor of the building.
- The building would not be able to protect the surrounding area from the flood.

2



Table 1 shows six locations in Alaska. It also shows how much rain three of the locations received in April.

Table 1. Average Rainfall Amounts in Alaska During April

Map of Alaska	Location	Average Rainfall (centimeters)
	Ketchikan	23.9
	Valdez	8.6
	Nome	2.0

Rank the other three locations by the amount of rain they received in April. Click on the blank boxes to make your selections.

Most Rain	<input type="text"/>
↓	<input type="text"/>
Least Rain	<input type="text"/>

Questions: 2 Grade 5 Science New Item Type Training Test (1 out of 4) QUEST, GUEST (SSID: GUEST) GUEST SESSION

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Periodic Table Calculator Line Reader Zoom Out Zoom In

A group of flamingos stands by a pond. The adults are pink but the babies are all gray and white.

Flamingos are known for their pink color but all baby flamingos are born gray and white. The pink color appears and gets darker during the first year of a flamingo's life. Figure 1 shows the difference in coloring between an adult and a baby flamingo.

Figure 1. Flamingo with Baby



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A flamingo's feathers can be many different shades of pink. Wild, adult flamingos in the Caribbean are dark pink. Adult flamingos at the London Zoo are light pink. This difference in color can be seen in Figure 2.

Table 1. Four Flamingo Groups

Group	Description
Group 1	Wild, adult flamingos in the Caribbean (see top panel in Fig 2).
Group 2	Adult flamingos born at the London Zoo (see bottom panel in Fig 2).
Group 3	The parents of group 1 (wild flamingos).
Group 4	The parents of group 2 (when they were caught in the wild).

Table 2 shows characteristics of flamingos in each of the groups.

Table 2. Characteristics and Habitats of Flamingo Groups

Group	Feather Color	Rain	Drinking Water	Diet
Group 1	Dark pink	Rain falls all year	Drinking water is freely available	Saltwater plants and shrimp
Group 2	Light pink	Rain falls all year	Drinking water is freely available	Fish and plants that are not part of the flamingos' diet in the wild
Group 3	Dark pink	Rain fell all year	Drinking water was freely available	Saltwater plants and shrimp
Group 4	Dark pink	Rain fell all year	Drinking water was freely available	Saltwater plants and shrimp

Your Task

In the questions that follow, you will create an explanation for the difference in color between the flamingos in the Caribbean and the flamingos at the London Zoo.

2

Part A

Using Table 2 compare the groups of flamingos and their habitats. Select the boxes in the table to show whether the factors are the same or different.

	Feather color	Drinking water	Rain	Diet
Same for all 4 groups of flamingos	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Different for group 1 only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Different for group 2 only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Different for group 3 only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Different for group 4 only	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part B

Using the table from Part A, what is the **most likely** cause for the darkness of the flamingos' pink feather color?

- (A) color is related to drinking water
- (B) color is inherited from parents
- (C) color is related to rainfall
- (D) color is related to diet

Part C

Click on the boxes and choose the words and phrases to make a statement that **best** explains why there is a difference in flamingo feather color between Group 1 and Group 2.

Flamingos in the Caribbean are pink because . This means that traits can .

Part D

What could be done to change the coloring of the flamingos in the London Zoo to a darker pink?

- (A) give the flamingos lots of drinking water
- (B) move the flamingos inside so that they are away from rainfall
- (C) feed the flamingos more of the shrimp they would eat in the wild
- (D) nothing, since coloring is inherited from parents



Table 1 describes four groups of flamingos.

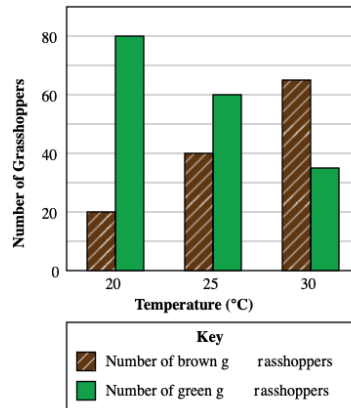
4



Adult grasshoppers in Asia can be brown or green.

Young grasshoppers are placed in different boxes. Each box is set to one of three temperatures: 20°C, 25°C, or 30°C. The grasshoppers are raised in the boxes. Once the grasshoppers are grown, the numbers of brown grasshoppers and green grasshoppers are counted. The results are shown in Graph 1.

Graph 1. The Effect of Temperature on the Color of Grasshoppers



Which statement **best** supports the claim that temperature affects the color of the grasshoppers?

- (A) The number of green grasshoppers in each box is different.
- (B) There are 20 brown grasshoppers and 80 green grasshoppers in the 20°C box.
- (C) There is the same number of brown grasshoppers and green grasshoppers in each box.
- (D) The number of brown grasshoppers in the boxes increased as the temperature increased.


Questions: 3 Grade 5 Science New Item Type Training Test (2 out of 4) - QUEST

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Three mineral crystals are placed on a table. The three crystals have a similar color. They look like clear glass. However, they are all different minerals.

Figure 1 shows all three unknown minerals.

Figure 1. Unknown Minerals



Mineral A Mineral B Mineral C

Minerals can be identified by their properties. One common property is hardness. A hardness test can be used to determine the identity of a mineral. Hardness testing is done by scratching a mineral with another mineral or tool. For example, diamond is the hardest known mineral and will scratch all other minerals.

Table 1 shows the mineral hardness scale. The identities of Minerals A, B, and C are shown in **bold**.

5

Part A

Use the simulation to determine the hardness of the unknown minerals.

First, select a Tool to scratch the unknown mineral sample. Next, select a Mineral to test. Then click Run Trial to see your results.

- You are only allowed to submit four trials. All four trials will be scored.

Tool: Chalk

Mineral to Test: Mineral A

Run Trial

Trial Number	Tool	Mineral	Does the Tool Scratch the Crystal?
1	Chalk	Mineral A	no
2	Chalk	Mineral A	no

Table 1. Hardness Scale

Hardness	Material
1	Talc
1.5	Chalk
2	Halite
2.5	<i>Fingernail</i>
3	Calcite
3.5	<i>Penny</i>
4	Fluorite
5	Apatite
5.5	<i>Steel Nail</i>
6	Orthoclase
6.5	Pyrite
7	Quartz
7.5	Garnet
8	Topaz
10	Diamond

*Materials in *italics* are tools, not minerals.

Your Task

In the questions that follow, you will investigate the hardness of the unknown minerals to identify which mineral is halite, which is calcite, and which is quartz.

Questions: 4 Grade 5 Science New Item Type Training Test (3 out of 4) GUEST, GUEST (SSID: GUEST) GUEST SESSION

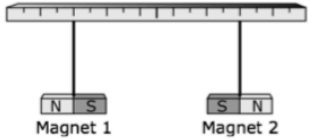
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Periodic Table Calculator Line Reader Zoom Out Zoom In

Two magnets are placed right next to each other. They seem to pull together. A third magnet is then placed right next to the first two magnets. This magnet seems to push away from the first two.

To help better understand these forces, you can conduct an experiment by tying two magnets to strings and hanging them from a meter stick. You can then observe how the magnets interact with each other. The setup of the experiment is shown in Picture 1.

Picture 1. Hanging Magnets Experiment



Magnet 1 Magnet 2

In the experiment, you will be able to change the orientation of each magnet as well as the distance between the magnets. The orientation of the magnet depends on the direction that the N (north) side is pointing.

For example, a magnet's orientation can start with the N side pointing to the right. If the orientation is changed, then the N side is pointing to the left.

Your Task

In the following questions, you will set up and perform an experiment that will help you understand what affects the force between the two magnets.

4

Part A

Select a testable, scientific question that can be answered by performing an experiment with the setup shown in Picture 1.

(A) How does the distance between the magnets affect the force?
 (B) How does the orientation of the magnets affect the force?
 (C) Will the force between the magnets always exist?

Part B

Use the table to select the properties you want to hold constant and the properties you want to change when you run your experiment to answer the question you chose in part A.

Select a box to identify whether each property should be held constant or changed in your experiment.

	Constant	Change
Magnet orientation	<input type="checkbox"/>	<input type="checkbox"/>
Magnet type	<input type="checkbox"/>	<input type="checkbox"/>
Magnet size	<input type="checkbox"/>	<input type="checkbox"/>
Distance between the magnets	<input type="checkbox"/>	<input type="checkbox"/>

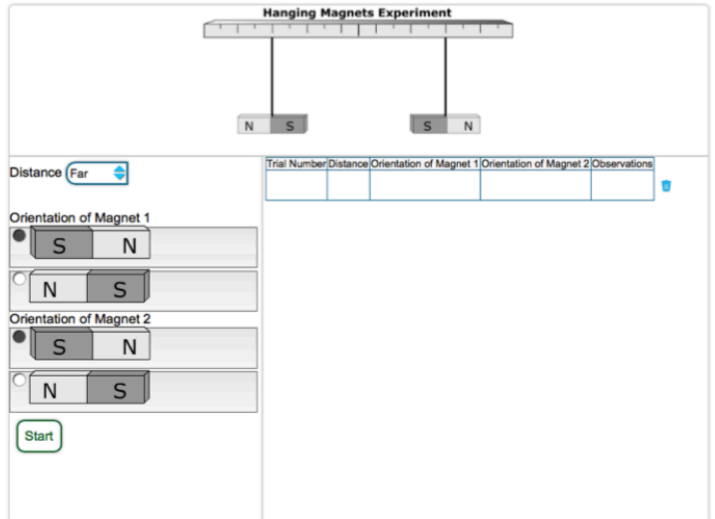
Part C

Use the Hanging Magnets Experiment simulation to run the experiment and gather observations to answer your question from part A.

First, select the Distance and Orientations. You must select an orientation for each magnet in each trial. Then, click Start to run the simulation.

- You will be limited to **three** rows of data.
- Be sure the final data table includes data that answers your question.
- Click on the trash can icon if you want to delete a row and generate new data.

Hanging Magnets Experiment



Distance: Far

Orientation of Magnet 1: S N N S

Orientation of Magnet 2: S N N S

Start

Trial Number	Distance	Orientation of Magnet 1	Orientation of Magnet 2	Observations

Part D

Click the box to select the answer to the question you decided to test in part A, based on the results of the experiment you ran in the simulation.

Result of Experiment

Answer to Question

7



An alpine marmot eats grass and seeds. In the fall, the marmot weighs more than it did in the spring.

Put the pictures in the correct order to show the flow of energy through the system.

- In Table 1, select a number for each picture to indicate the correct location in Figure 1.
- If a picture is not used in Figure 1, select "not used."

Figure 1. Energy Flow Model

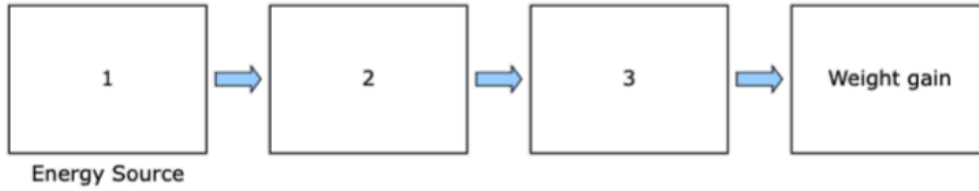


Table 1. Model Order

	Sun	Water	Marmot	Grass and Seeds
Picture				
Location	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>



A squishy ball looks different when thrown instead of dropped onto the floor.

A student completes four trials to test this statement.

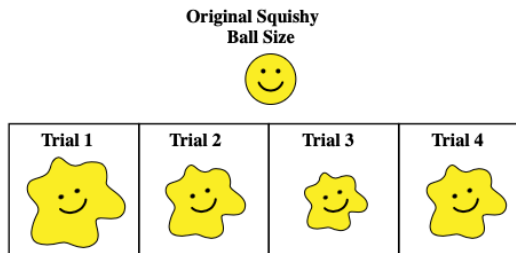
Table 1 shows information about the four trials. Height is measured in meters (m).

Table 1. Speed vs Size of Ball after Collision

Trial	Description	Speed	Height (m)	Size after Collision
Trial 1	Throw	Very fast	2	Large
Trial 2	Throw	Fast	2	Medium
Trial 3	Drop	Slow	2	Small
Trial 4	Drop	Slow	4	Medium

Figure 1 shows a comparison of the four trials.

Figure 1. Squishy Ball Appearance Based on Force



Part A

Click on the blank box and select a phrase to determine the relationship between the speed of the object and the energy within the ball.

As the force of the throw increases, the speed of the ball and the energy of the ball .

Part B

Select **two different** trials that support the relationship in part A.

- Click on the pencil icon.
- Then, select the trials that support the relationship.
- Click on the circular arrow to the right of any selection you would like to change.

