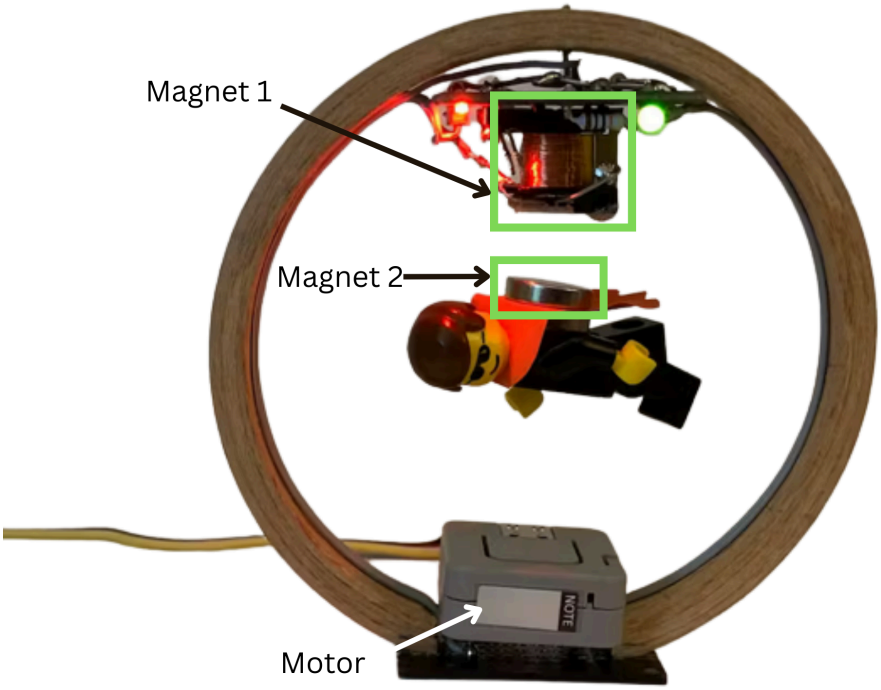
Grade 5 NYS Science Assessment Review

A scientist in his laboratory is not merely a technician: he is also a child confronting natural phenomena that impress him as though they were fairy tales.

— Marie Curie

Magnetic Levitation of a Lego Person!

Base your answers for questions 1 through 3 on the information below and your knowledge of science.



Link to GIF image (Slide 3)

Magnetic levitation, also known as maglev, can create the illusion of an object floating in midair because of the invisible magnetic forces at work. When two magnets are close to each other, they create forces that either push (repel) or pull (attract) things.

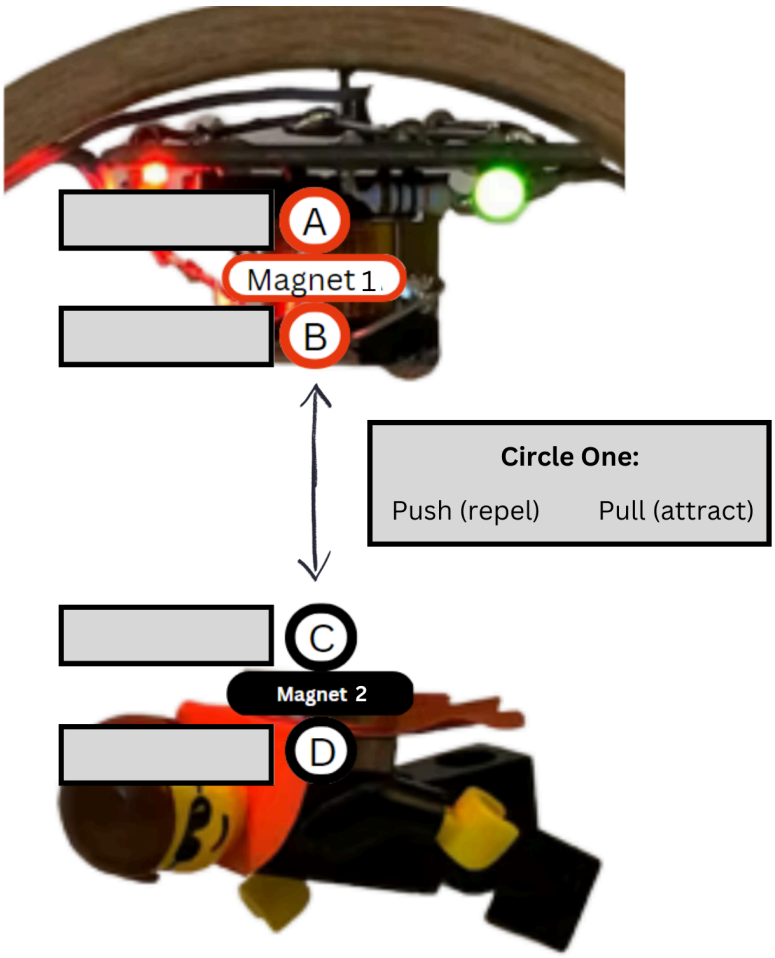
Imagine you have a ring with a powerful magnet hanging from the top, and you have a smaller Lego character with a magnet on his back, like in the model above. The forces between the magnets are able to work against the force of gravity that is pulling the Lego character down. As a result, the Lego character hovers above the platform without touching it, making it look like it is magically floating!

1. Look at the model **below**.

    a. Using your knowledge of *cause and effect*, label the magnetic poles represented by letters A-D with positive (+) or negative (-).

    b. What kind of magnetic force is represented by the arrow? Circle one on the diagram.

    c. Add an arrow to the diagram and label it ***Force of Gravity***. Remember, the direction of your arrow is important.



2. You decide to replace Magnet 1 with a stronger magnet.

    a. What will happen to the force between the new, stronger magnet and Magnet 2? *Circle one.*

        i. Increase
        ii. Decrease
        iii. Stay the same

    b. Predict what effect a stronger magnet will have on the Lego person.

3. Alex is a fifth grader who looks forward to recess every day at school. Alex has cerebral palsy, which sometimes makes it difficult for them to use their hands and fingers to button or zip up a jacket. When the weather starts to get colder, Alex's friends decide they want to design a way to help Alex close their jacket independently.

   In the space below:
   1. Sketch a simple model of <u>one</u> possible solution Alex's friends could design for a jacket using magnets
   2. Include a key for the symbols you use in your model
      a. Label the poles (North/South or +/-) on all magnets in your model
   3. Write a title for your model (Do this last)

Simple Model:

Key:

Title:

Animal Group Survival

Focus Question: How does forming groups help some animals survive?

In nature, there are many examples of animals that form groups to help each other survive. Some examples include a herd of cattle, a swarm of bees, a flock of geese, a pride of lions, or a pod of whales or dolphins.

Herd of Cattle

Swarm of Bees

Flock of Geese

Family of Geese

Pride of Lions

Pride of Lions vs. Family of Giraffes

Pod of Whales

Pod of Dolphins

Choose an animal group that you are the most familiar with: _____

1. Construct an argument, with evidence, for how your animal group helps each other to survive.
   - ★ Your argument must contain ***at least two*** pieces of evidence to support your argument.

_____

_____

_____

_____

2. Not all animals form groups to survive. What is one reason that forming an animal group might be a disadvantage (not helpful to individual animals in the group) for survival?

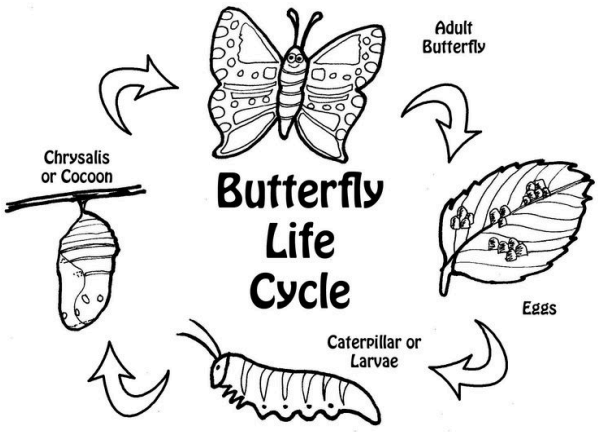
_____

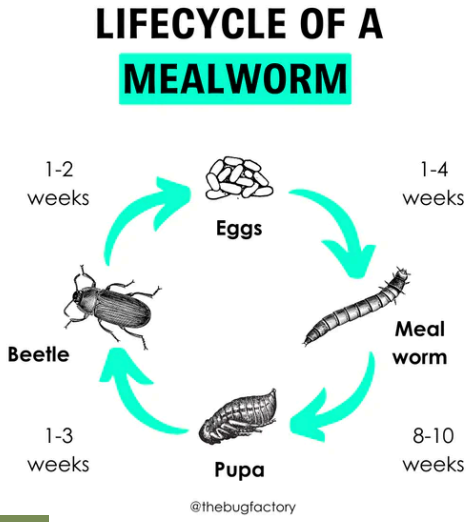
_____

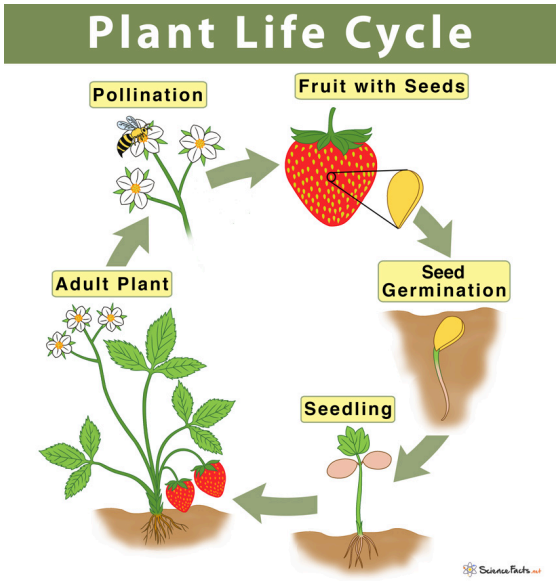
_____

Life Cycles and Traits

Below are 3 sample models of life cycles:







Note: All models in science have limitations (they do not show everything!).

1. What do all life cycles have in common? Check all that apply:
   - ☐ Birth
   - ☐ Growth
   - ☐ Reproduction
   - ☐ Death
   - ☐ Living Forever

2. Choose one of the Life Cycles above: _____

Name **<u>at least 2</u>** complex features that develop over time that provide advantages for surviving, finding mates, or reproducing:

_____ _____

Here is a picture of Jace with his parents.

3. Which statement best explains why Jace has brown hair and brown eyes?
    a) Jace inherited these traits from his parents.
    b) Jace's hair and eye color were randomly determined at birth.
    c) Jace's hair and eye color changed due to exposure to sunlight
    d) Jace's hair and eye color were influenced by his diet.

According to the World Health Organization, stunting is defined as low height-for-age. It is the result of ongoing or repeated events of poor nutrition, usually associated with poverty, poor maternal health and nutrition, frequent illness and/or inappropriate feeding and care in early life. Stunting prevents children from reaching their predicted physical height and cognitive (thinking) potential for brain development.

4. How can the environment affect a person's height?
    a) The environment has no impact on a person's height.
    b) Proper nutrition and exercise can help a person grow taller.
    c) A person's height is solely determined by their genetics.
    d) The environment can change a person's DNA, causing changes in height.

Use the information contained in the passage below and your knowledge to answer questions 5 through 7.

The **snowshoe hare** (***Lepus americanus***), also called the **varying hare** or **snowshoe rabbit**, is a species of hare found in North America. It has the name "snowshoe" because of the large size of its hind feet. The animal's feet prevent it from sinking into the snow when it hops and walks. Its feet also have fur on the soles to protect it from freezing temperatures. Snowshoe hares are unique because their fur color changes with the seasons. The length of daylight causes this change. In the spring, hares begin to shed their white winter coat in favor of the brown colors of summer. In the fall, the hares then shed their brown summer fur in preparation for the winter snow.

5. What causes the change in fur color for snowshoe hares?
    a) The length of daylight
    b) The temperature
    c) The amount of food they eat
    d) The presence of other animals

6. What evidence from the passage supports the statement that traits are influenced by **both** the environment and inheritance?
    a) Snowshoe hares inherit fur coats from their parents.
    b) Snowshoe hares learn how to change colors.
    c) Snowshoe hares inherit the ability to make fur and the length of daylight causes the snowshoe hares' fur to change color.
    d) Snowshoe hares' fur helps them to blend into their environment.

7. ▹ Make a claim about the relationship between traits and the environment.
   ▹ Support your claim with evidence.

What's the Weather?

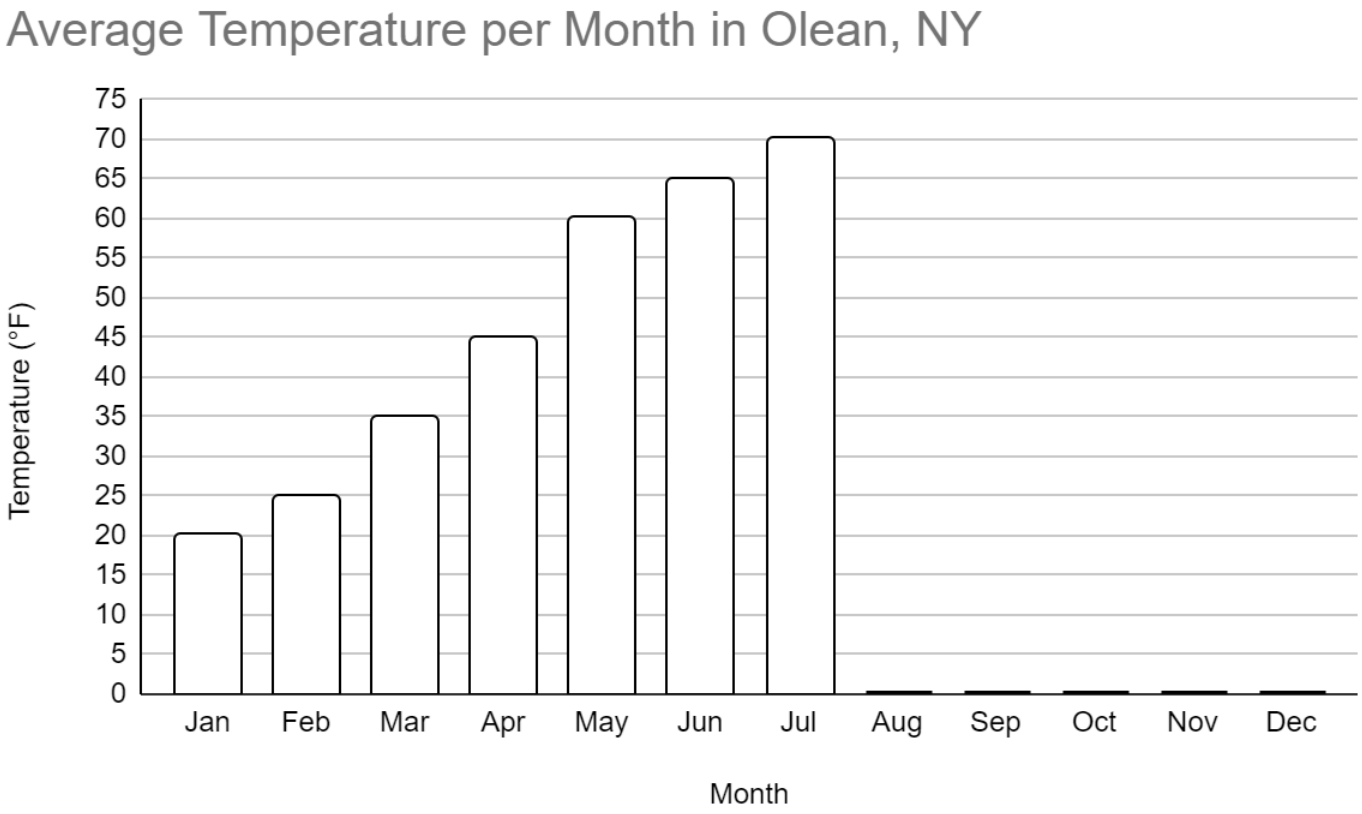
What kind of weather should we expect for some of our special times during the year?

Below is a table that includes some *average* weather data for our region. These numbers were based on weather reports collected over 10 years, during 2005-2015.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Temperature (°F)	20	25	35	45	60	65	70	65	60	50	40	30
Precipitation (inches)	2.0	1.5	2.5	3.0	3.5	4.5	4.5	4.0	3.0	3.5	3.0	3.5
Wind (miles/hour)	8	9	10	10	7	7	5	6	6	8	9	10

Here in Olean we have seasons. Some times of the year are colder and some times are warmer. There are times of the year that are also wetter or drier, and some times that are windier or calmer.

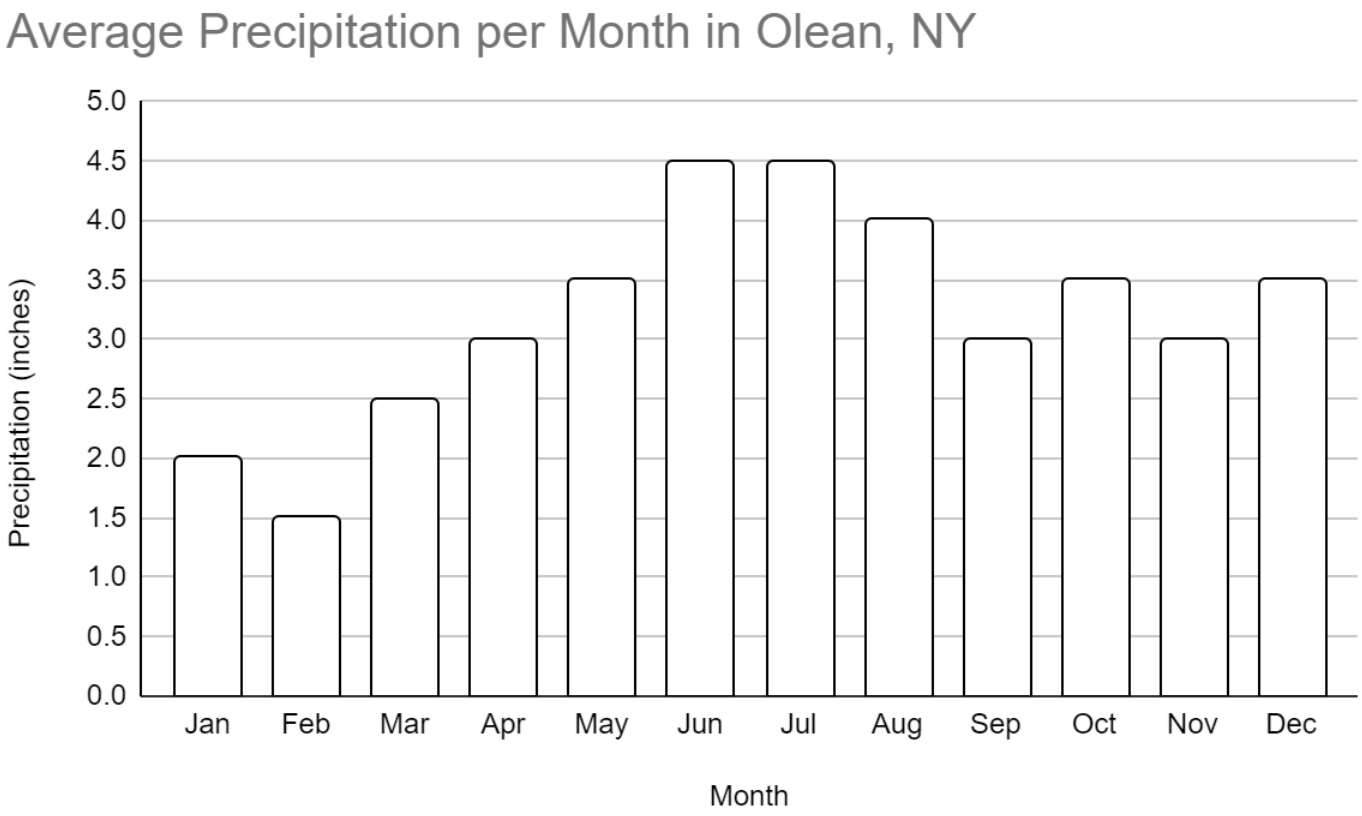
1. Now that you have all of the data filled in…
    - shade the three warmest temperatures red.
    - Shade the three coldest temperatures blue.
    - Shade the three highest amounts of precipitation green.
    - Shade the three lowest amounts of precipitation yellow.
    - Shade the three highest wind speeds orange.
    - Shade the three lowest wind speeds purple.



2. On the graph above, the bars represent the average temperature for each month. Each block represents 5°F.
    - Use the data from the data table above to complete the graph for the months of August through December.
    - Shade the three warmest temperatures red.
    - Shade the three coldest temperatures blue.

Optional questions for discussion:

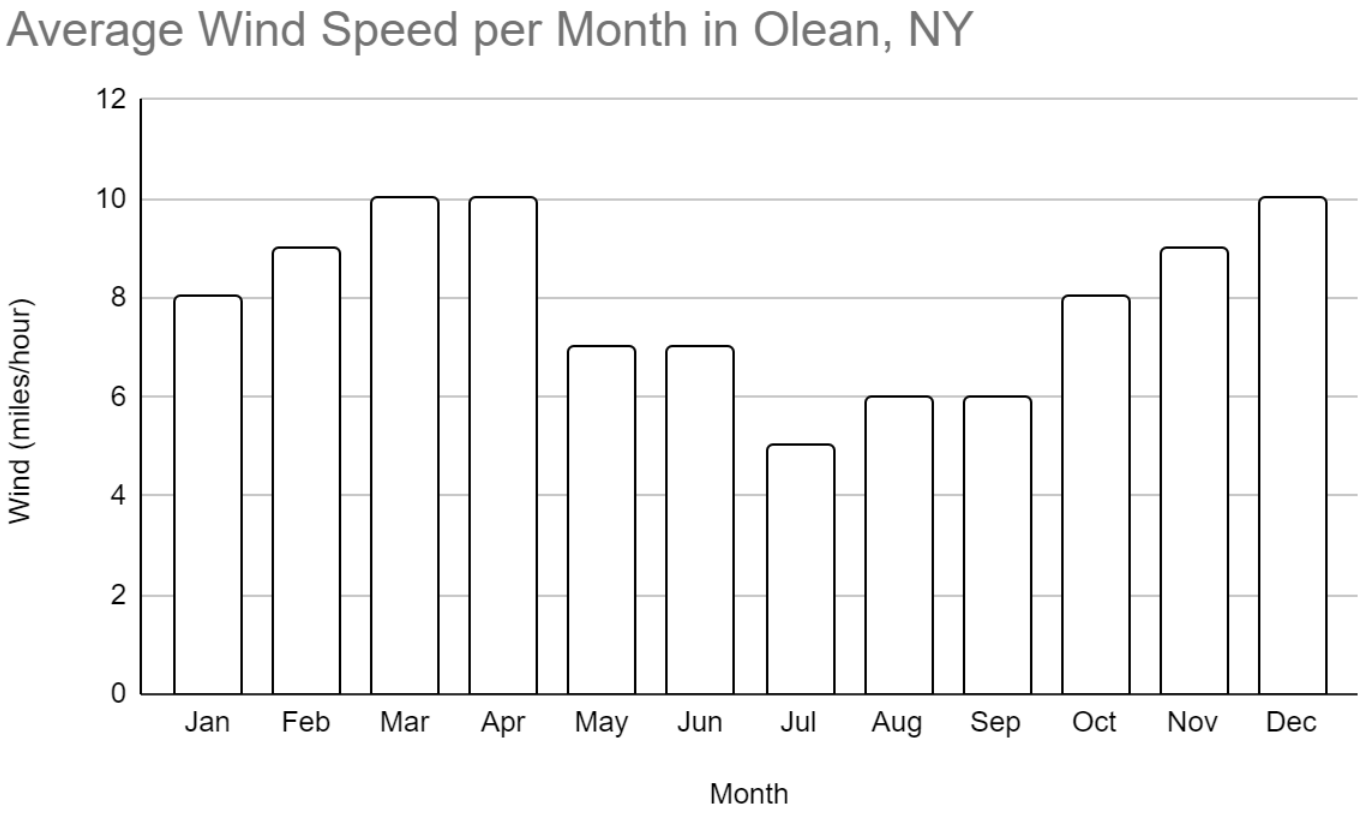
- What months have the warmest temperatures?
    - What season is this?
- What months have the coolest temperatures?
    - What season is this?



3. On the graph above, the bars represent the amount of precipitation (rain and snow) for each month. Each block represents 0.5 inches of rain or snow.
    - Shade the three tallest bars green.
    - Shade the shortest bars yellow.

Optional questions for discussion:

- What months are the wettest?
    - Compare these months to the temperatures on the previous graph. Is there a relationship between the wettest months and the temperature?
- What months are the driest?
    - Compare these months to the temperatures on the previous graph. Is there a relationship between the driest months and the temperature?



4. On the graph above, the bars represent the wind speed for each month. Each block represents 2 miles per hour of wind.
    - Shade the three tallest bars orange.
    - Shade the three shortest bars purple.

Optional questions for discussion:

- What months are the windiest?
    - Compare these months to the temperatures on the previous graph. Is there a relationship between the windiest months and the temperature?
- What months are the least windy?
    - Compare these months to the temperatures on the previous graph. Is there a relationship between the least windy months and the temperature?

Jigsaw: What's the Weather?

Jigsaw the following questions, assigning each question to 4-6 students in the class. Have them answer it independently, then join the other students who answered the same question to come to an agreement on their answers. Then join together groups that are a mixture of students that each answered a different question. Have them go around and (a) read their question, (b) provide their answer, and (c) provide evidence from the graphs that supports their answer, pointing to where in their graphs they see this evidence.

1. Use the patterns in your graphs to predict what the weather will be like for the next **Halloween**. Use evidence from each of the three graphs to support your prediction.
2. Use the patterns in your graphs to predict what the weather will be like for your next **December Winter Break**. Use evidence from each of the three graphs to support your prediction.
3. Use the patterns in your graphs to predict what the weather will be like for your next **Spring Break**. Use evidence from each of the three graphs to support your prediction.
4. Use the patterns in your graphs to predict what the weather will be like for the **End Of The School Year**. Use evidence from each of the three graphs to support your prediction.
5. Use the patterns in your graphs to predict what the weather will be like for **Your Next Birthday**. Use evidence from each of the three graphs to support your prediction.

Your assigned question number: _____
Time of Year (circle one): **Halloween, December winter break, Spring break, End Of The School Year,** or **Your Next Birthday**

What do you predict the weather will be like…?	What is evidence from the Temperature graph?	What is evidence from the Precipitation graph?	What is evidence from the Wind Speed graph?

Group member's question number: _____

Time of Year (circle one): **Halloween, December winter break, Spring break, End Of The School Year,** or **Your Next Birthday**

What do you predict the weather will be like…?	What is evidence from the Temperature graph?	What is evidence from the Precipitation graph?	What is evidence from the Wind Speed graph?

Group member's question number: _____

Time of Year (circle one): **Halloween, December winter break, Spring break, End Of The School Year,** or **Your Next Birthday**

What do you predict the weather will be like…?	What is evidence from the Temperature graph?	What is evidence from the Precipitation graph?	What is evidence from the Wind Speed graph?

Group member's question number: _____

Time of Year (circle one): **Halloween, December winter break, Spring break, End Of The School Year,** or **Your Next Birthday**

What do you predict the weather will be like…?	What is evidence from the Temperature graph?	What is evidence from the Precipitation graph?	What is evidence from the Wind Speed graph?

Group member's question number: _____

Time of Year (circle one): **Halloween, December winter break, Spring break, End Of The School Year,** or **Your Next Birthday**

What do you predict the weather will be like…?	What is evidence from the Temperature graph?	What is evidence from the Precipitation graph?	What is evidence from the Wind Speed graph?

Cloud in a Room

Berndnaut Smilde is an artist that creates conditions to form clouds indoors. He creates the clouds in cold, damp rooms by adding smoke and mist.

1. What substances and conditions are needed for clouds to form? (check all that apply)
   - ☐ tiny particles of matter
   - ☐ water vapor
   - ☐ a large height above the ground (ex. as high as a mountain or an airplane)

2. When the artist Berndnaut makes a cloud in a room, he makes sure that the room is cold. Your classmate makes a claim:
   - Berndnaut's clouds would form more easily if he used a hot room.

What evidence from an investigation would suggest that this claim is supported?

_____

_____

3. Berndnaut said that when he creates a cloud in a room, it only lasts for a few seconds as the water vapor sticks to the smoke particles. What might you suggest to Berndnaut to cause his clouds to last longer based on your investigation into forming a cloud in a bottle? (select all that apply)

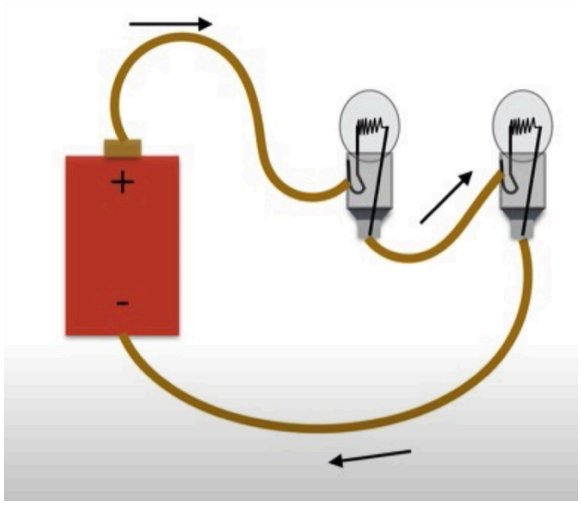
☐ Increase the pressure to increase evaporation of water vapor
☐ Decrease the pressure to increase condensation of water vapor onto smoke particles

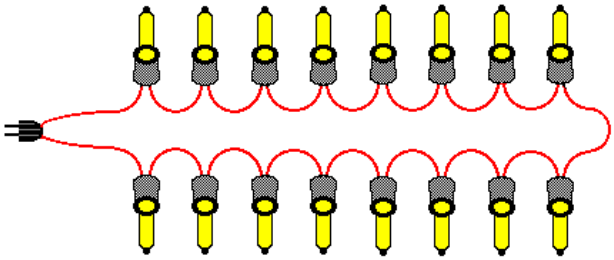
☐ Increase the temperature during the process
☐ Decrease the temperature during the process

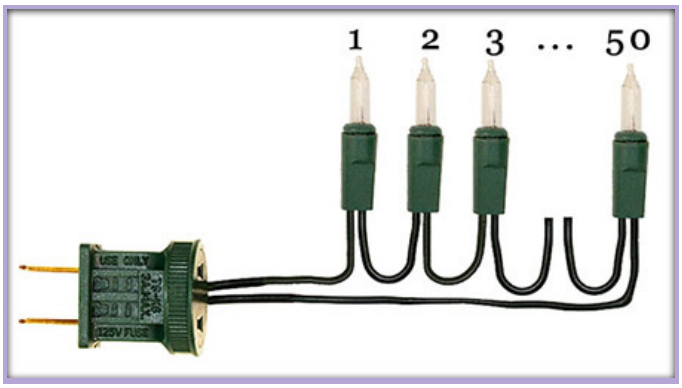
☐ Seal the room so that air cannot escape
☐ Open the windows so that air can move freely

Holiday Lights

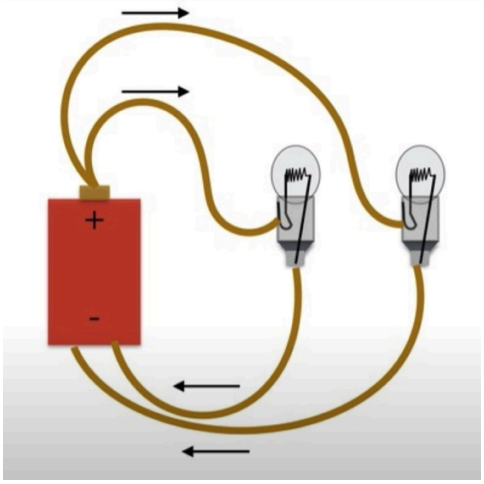
The diagrams below show two ways in which holiday lights have been wired:

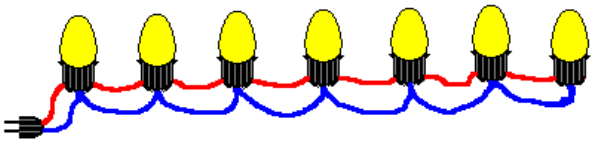


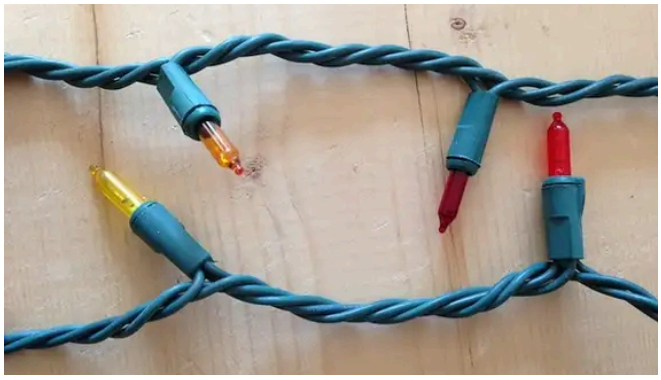




Wiring Method A







Wiring Method B

The problem with all holiday lights is that the bulbs can easily burn out.

1. Predict:

   a. What would happen if one light bulb burned out for **Wiring Method A**?

_____

   b. What would happen if one light bulb burned out for **Wiring Method B**?

_____

2. Which method of wiring would you choose to purchase if you were to reuse your lights year after year?

Circle one: Method A or Method B

Explain your reasoning for the method you chose. Use the word ***criteria*** in your answer.

_____

_____

_____

3. Name at least one ***constraint*** that might influence your choice.

_____

_____

4. In traditional holiday lights, electric energy is transferred through the wires and converted to light energy in the light bulbs. As an inventor, you have been asked to <u>add a device</u> to the circuit that converts electric energy to a different type of energy (other than light energy).

Describe the device that you might add to the circuit:

_____

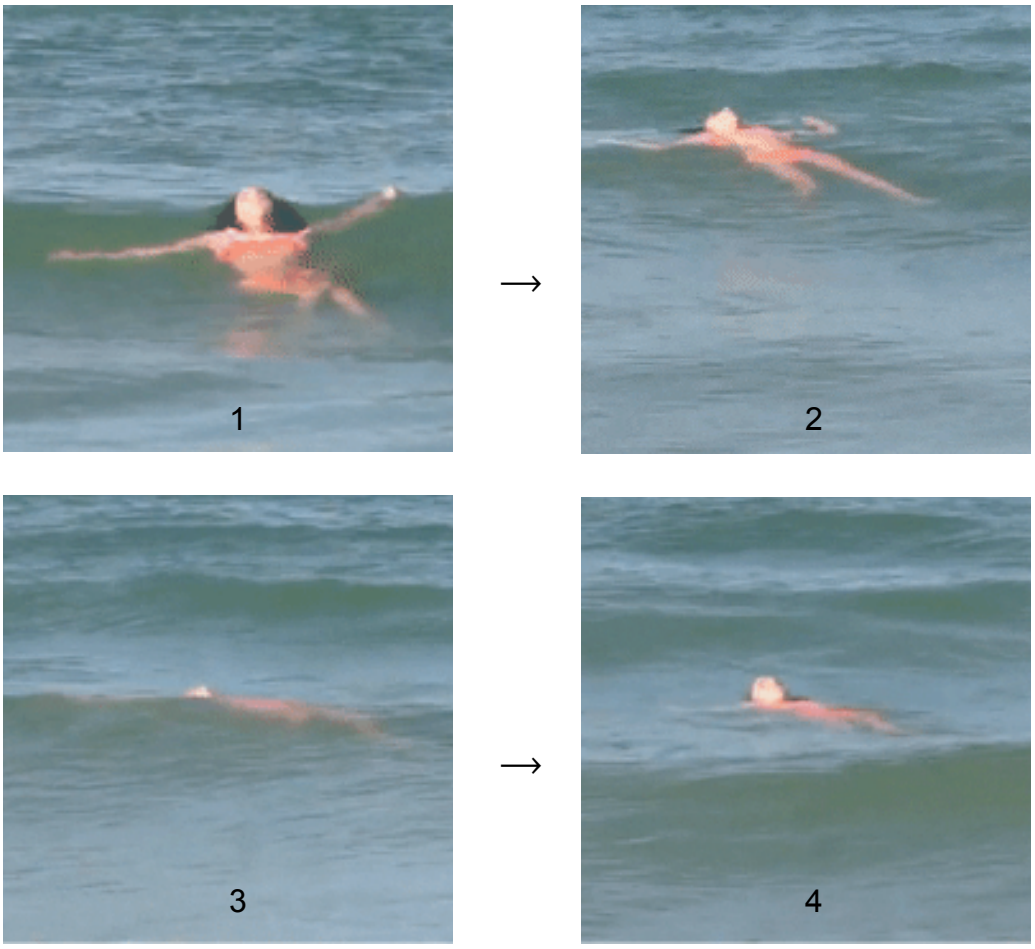
_____

_____

5. Name the type of energy that the electric energy is converted into with your new device (light energy is not allowed):

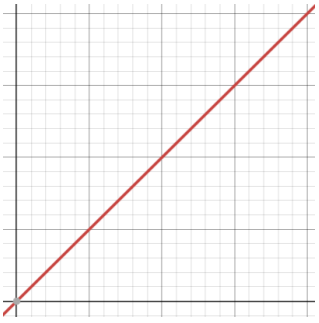
_____

Floating on Waves

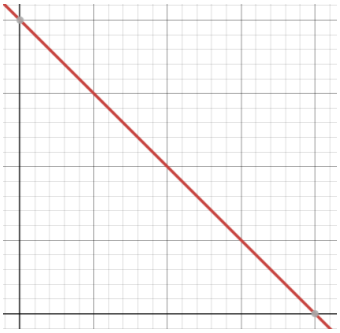


1. Which of the following models represents what is happening in the sequence of photos above? Use your knowledge of the pattern of similarities and differences to make your choice.

A

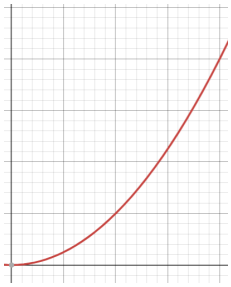


C

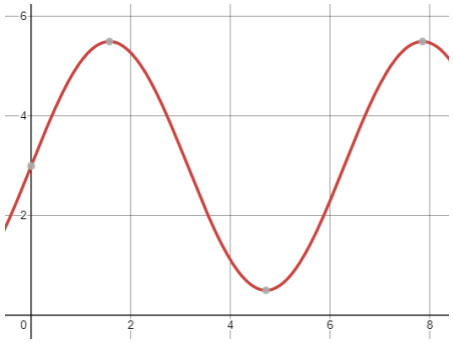
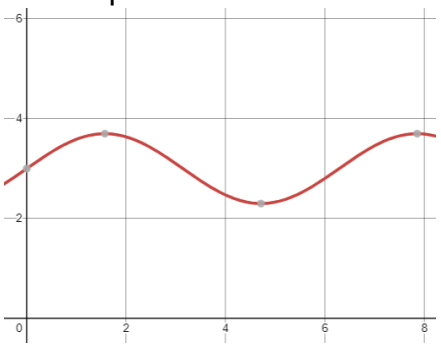
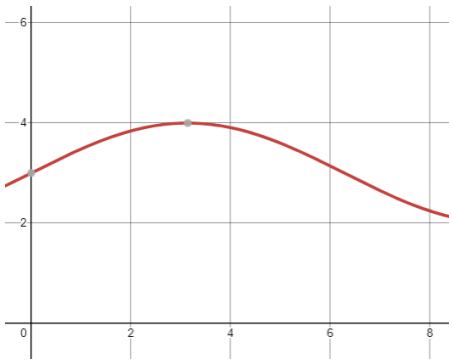
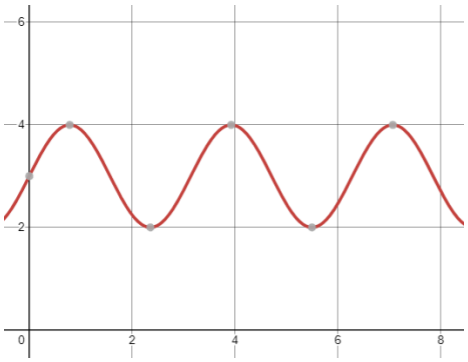


B

D



2. A storm comes in and the wave size increases, so that each wave now lifts the person higher than before. How would this change in wave size cause the model to change?

A The amplitude would increase. 	B The amplitude would decrease. 
B The wavelength would increase. 	D The wavelength would decrease. 

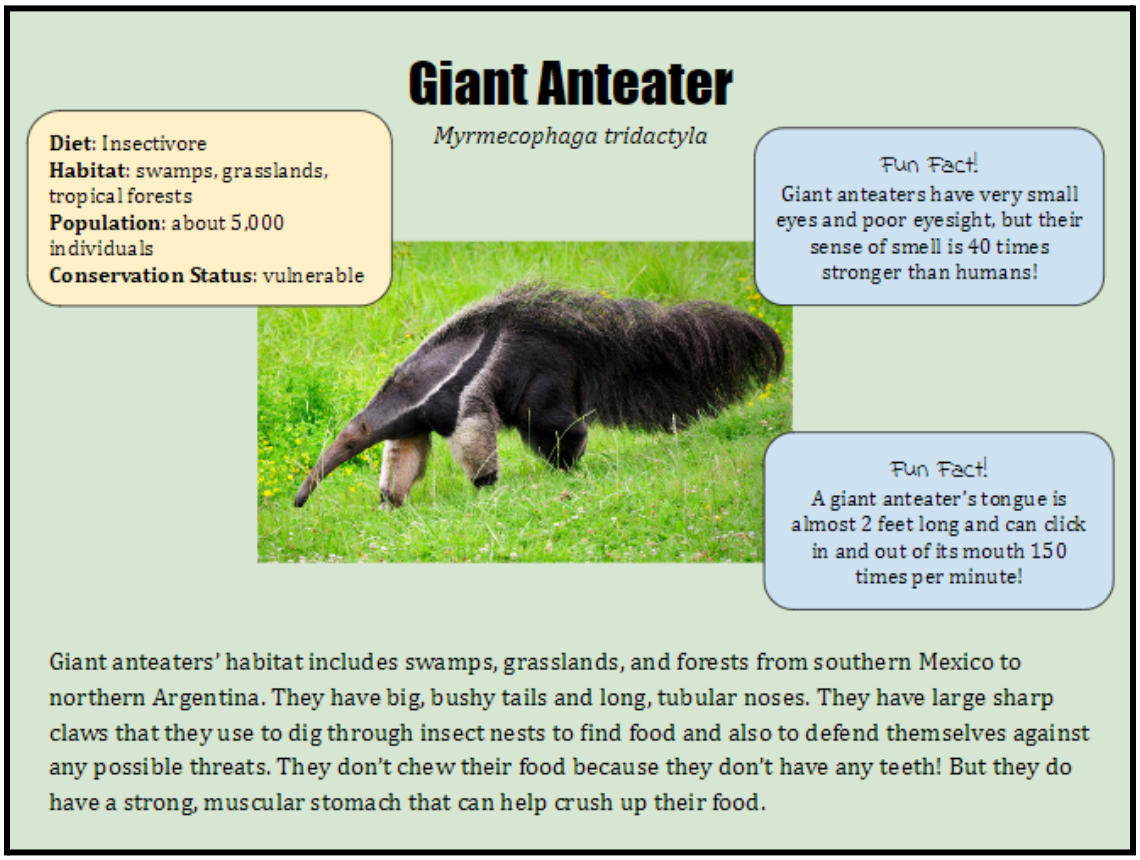
3. Explain and/or draw how you might create a 3D model of wave patterns, using materials other than water below:

Description:
Model: Model Checklist: ☐ Title ☐ Pictures + Labels ☐ Arrows + Labels ☐ Description

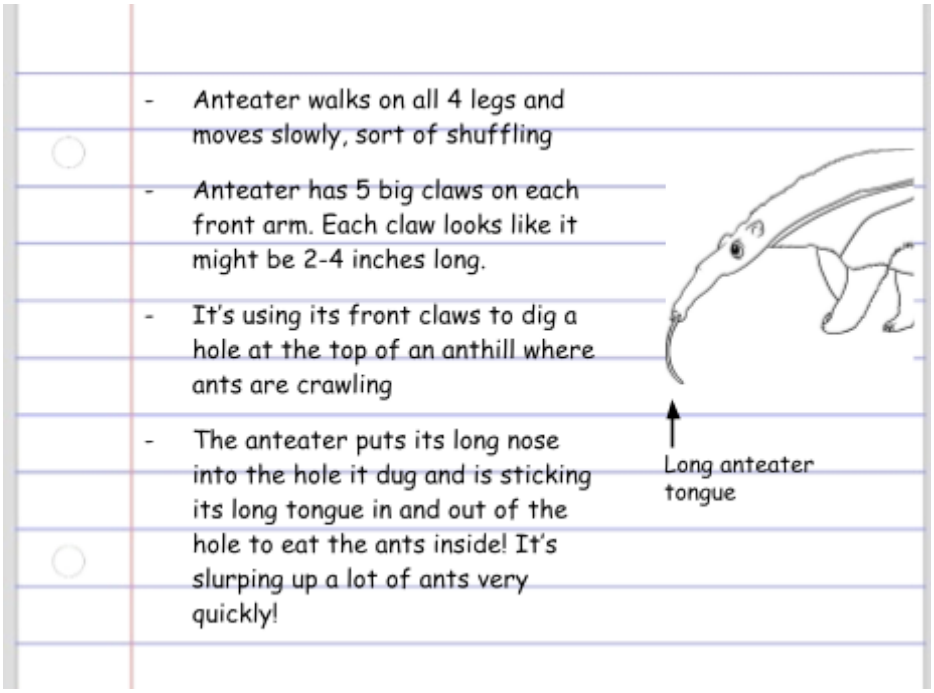
A Trip to the Zoo

On a class field trip to the Bronx Zoo, a group of students go to see a giant anteater exhibit.

They read the following sign at the exhibit:



They then take the following notes while observing the anteater:



1. After reading about and observing the anteater, the students make the following claim:
Giant anteaters have many structures that function to support their survival.

In the table below, identify two pieces of evidence that support this claim.

Structure	Function

2. A giant anteater breaks out of its enclosure at the zoo and sneaks into the neighboring enclosure, which is designed for polar bears! Do you think that these same structures will support the anteater's survival in this new environment? Why or why not?

_____

_____

_____

_____

_____

_____

Canadian Wildfires & Air Pollution

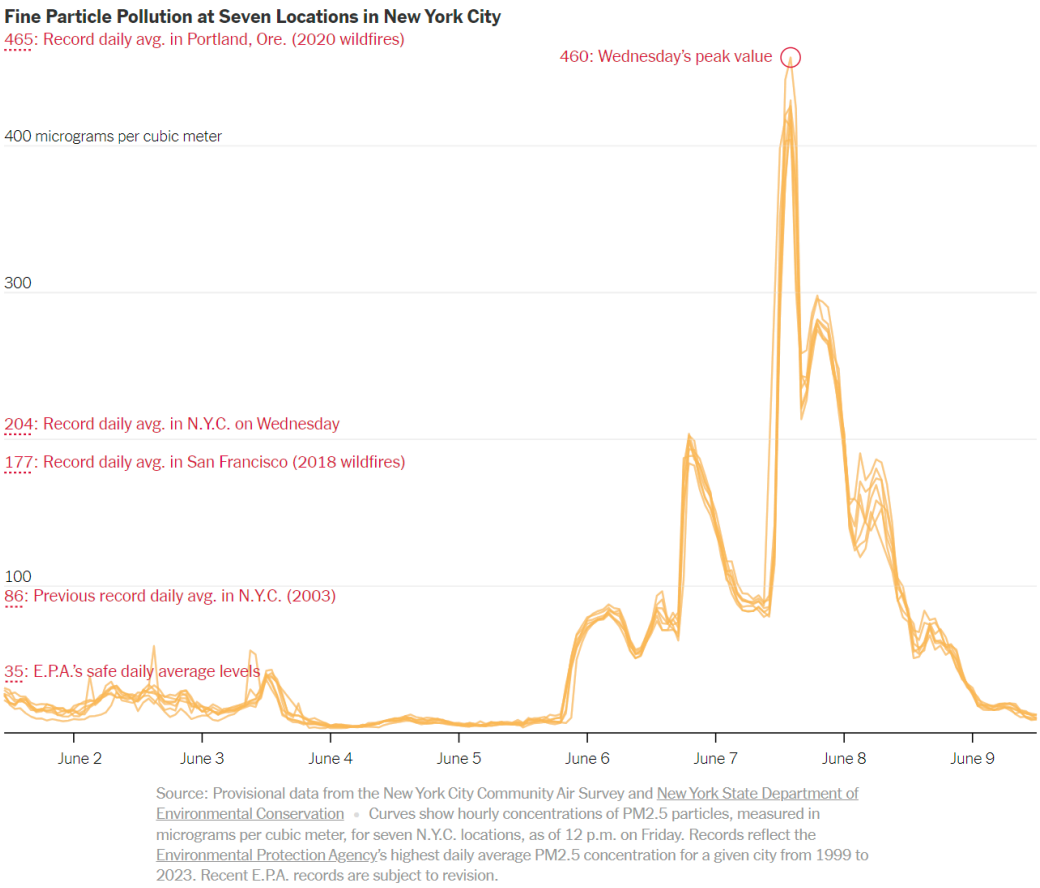
In June of 2023, New York State and other northeastern states were covered in smoke that blew into the United States from burning forests in Canada. Wildfires are a natural part of the life cycle of a forest. Recently wildfires have burned much bigger and longer than the natural cycle. This impacts both wildlife and human society. Wildlife may lose habitat or food sources. Buildings in the path of fire may burn down. Even far beyond the location of the fires, humans can be impacted. Because of the massive size of the Canadian forest fires this summer, places like New York State that normally would not be impacted by large-scale forest fires, were covered in a smoky haze for multiple days at a time. We are expected to see more of these large wildfires affecting more and more people in the future due to longer regional droughts and less intermittent rain. Wildfire smoke is a form of air pollution. Exposure to wildfire smoke can cause stinging eyes, irritated nose, coughing, headaches, and itchy skin. Problems for people that already have lung or heart issues can be even worse.

British Columbia Wildfire Service

A fire burning in British Columbia, Canada. More than 27 million acres of forest had burned between early June to mid-July of 2023.

DOUG WILLIAMS/CBS2

A scene of Manhattan, NY on June 6, 2023.



The chart above shows the amount of a dangerous kind of air pollution measured by the New York City Community Air Survey and NY State's Department of Environmental Conservation from sensors around the city.

Questions:

1. What is the problem that affects wildlife and humans? Explain.

2. As a solution to this problem, brainstorm…
   - ☐ an **object** or **tool** that could help lessen the impact of this natural Earth process on humans:
   - ☐ a **process** that could help lessen the impact of this natural Earth process on humans:
   - ☐ a **system** that could help lessen the impact of this natural Earth process on humans:

3. Circle your favorite solution above (a, b, or c).

4. Find a partner and compare your favorite solution with their favorite solution. Check off the following directions as you complete each one:
    - ☐ Explain your solution and listen while they explain theirs.
    - ☐ Write one of your solutions in the box where it says “Solution 1” and the other one where it says “Solution 2”.
    - ☐ Check a box next to each criterion to decide which solution may be best for solving this problem. (choose Solution 1 or Solution 2 for each criteria)
        - ☐ Then describe some reasons in that box for why you think that solution best meets that criteria.

Solution 1:	**Criteria**	**Solution 2:**
☐	Which solution will likely cost less?	☐
☐	Which solution is most realistic?	☐
☐	Which solution has the least impact on everyday life?	☐
☐	Which solution keeps the most animals and humans safe?	☐
☐	Which solution can be done the fastest?	☐
☐	Which solution do you think people will like the most?	☐

5. Which solution did you decide would be best and why?

Water Bottle Gunk Cleaning Solution

Oh no! You forgot to rinse your reusable water bottle over the weekend, and now the inside is stained. Your friend suggests using denture cleaning tablets (*Image 1*), tablets which are used to clean artificial teeth (*Image 2*).

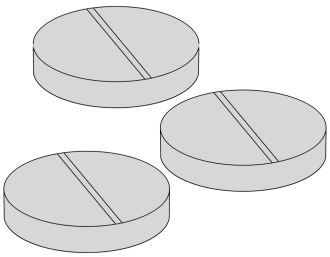


Image 1 - Denture Cleaning Tablets

Image 2 - Dentures (artificial teeth)

Your friend claims that when mixed with warm water, these tablets produce a new substance as they react to clean your water bottle gunk. To test your friend's claim, you decide to see what happens if you add the tablet to water.

You weigh a tablet, 50 ml of warm water, and a plastic zip top bag. The total mass of the substances and the bag is 60 grams.

1. What do you expect the mass of the bag and its contents to be after the reaction?

_____ grams

You add the water to the bag along with the tablet, and seal the bag quickly, making sure that there is no extra air trapped in the bag. You notice lots of fizzing sounds and see bubbles forming, and notice that the tablet begins to disappear. By the end of the reaction, you notice that that bag has filled with a clear gas and that the contents of the bag feel cold.

You weigh the bag and its contents again after the reaction is complete, and observe that the total mass is now 59.8 grams.

2. a. Was a new substance formed during your investigation?

Circle one: Yes No

b. Using the observations described as evidence, give a reason to support your claim.

_____

_____

3. Why did the mass decrease in the bag from 60 grams to 59.8 grams?

a. Choose the best claim based on scientific reasoning (choose 1):

- **Claim 1**: Matter in the bag disappeared.
- **Claim 2**: A small amount of matter, in the form of the gas, escaped the bag due to human error.

b. Use scientific reasoning to support your claim:

_____

_____

_____

You notice the reaction happens quickly, and wonder if you can speed it up even more. You decide to try the same investigation with a whole tablet, a tablet broken into 4 pieces, and a tablet broken into 8 pieces.

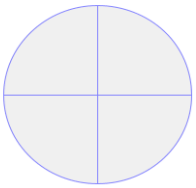
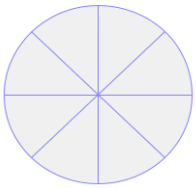
The table below shows the time it took for pieces to dissolve in minutes and seconds. Convert each of these to seconds in the table.

1 minute = 60 seconds

Number of Pieces	**Time it took for pieces to dissolve**	**Time (in seconds)**
Whole tablet	1 minute 20 seconds	
4 pieces	1 minute 5 seconds	
8 pieces	45 seconds	

You want to know if your results were reliable, so you ask 10 of your classmates to repeat your experiment. You calculate the average amount of time it took for the tablet to dissolve. The data is shown in the table below.

Average amount of time it took for the tablet to dissolve

Whole	4 Pieces	8 or more pieces
		
2 minutes 8 seconds	1 minute 19 seconds	1 minute 11 seconds

4. **Make a claim:** Write a sentence describing the pattern you notice between **the number of pieces** and the time it took for them to dissolve.

_____

_____

5. **Make a claim:** Write a sentence describing the pattern you see between **the size of the pieces** and the time it took for them to dissolve.

_____

_____

6. To arrive at your averaged data set, you asked 10 classmates to repeat your experiment. Explain why, in any scientific investigation, performing multiple trials is important in collecting data.

_____

_____

7. You decide to take your investigation a step further.

a. Make a Prediction: Suggest at least one more method that you might try in order to speed up the reaction.

_____

_____

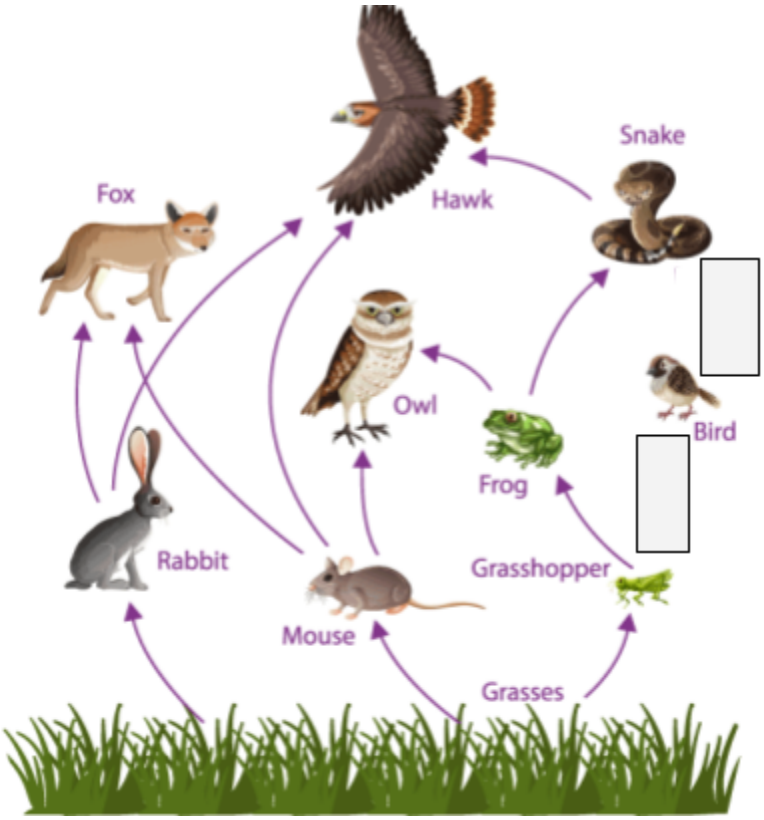
b. Describe the **evidence** that would show your method worked:

_____

_____

Minnewaska State Park Food Web

The model below is a food web showing the movement of energy within an ecosystem in Minnewaska State Park in New York.



1. Complete the food web by adding arrows into the gray boxes to represent how energy is transferred between the grasshopper and the bird and between the bird and the snake.

2. All the energy in this ecosystem comes from one non-living source.
    - Add an image to this model to indicate the original source of energy.
    - Add an arrow to connect your image to a specific organism in the ecosystem to show the movement of energy.

3. Fact 1: In this ecosystem, energy is transferred from the hawk to the mouse.
   Fact 2: Decomposers help to recycle materials in this ecosystem back into the soil.
   Fact 3: In this ecosystem, the grass converts energy from the sun in order to make matter to grow.
   Fact 4: If new organisms were introduced into this ecosystem, it would *not* affect the stability of the food web.

   Which of the following facts about how energy and matter move through this ecosystem are true?
   a. Facts 1 and 2
   b. Facts 2 and 3
   c. Facts 3 and 4
   d. Facts 4 and 1

4. At a park meeting, one community member speaks up and says, “I’m worried that snakes are biting people and dogs. I think we should set up traps and try to remove the snakes from the park.”

   Using <u>your understanding of the flow of energy and cycling of matter in a system</u>, explain why you agree or disagree with this community member.

   Agree or disagree (circle one)

   Explanation:

   _____

   _____

   _____

   _____

Earth's Resources and Environment: How Do We Protect It?

Below is a brochure (click here to print) from the Department of Environmental Conservation on Harmful Algal Blooms (HABs). Read this summary of HAB's and explore this NYHABS map.

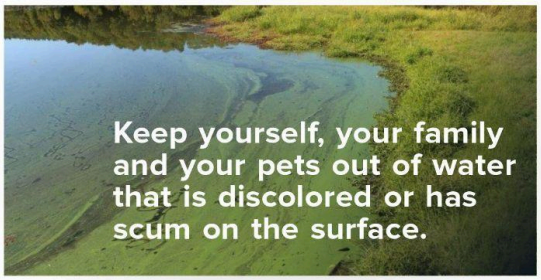
Harmful Algal Blooms
Know it, Avoid it, Report it!

NEW YORK STATE | Department of Environmental Conservation
www.dec.ny.gov

KNOW IT!

WHAT ARE HARMFUL ALGAL BLOOMS (HABs)?

Most algae are harmless, but exposure to toxins and other substances produced by *harmful* algal blooms can make people and animals sick. HABs can impact drinking water, and cause discolored water, floating scums, and unpleasant odors that can reduce the value of a lake or river. HABs are sometimes called *blue-green* algal blooms even though they can be various colors.



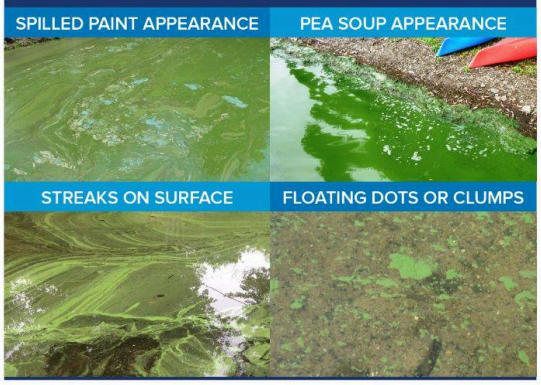
CAUSES, PREVENTION & RESPONSE

Scientists do not fully understand the exact causes of HABs. They occur most often in waters high in phosphorus and/or nitrogen. New York State has many programs and activities to reduce phosphorus and nitrogen from entering the water from surrounding lands.

DEC's HABs Program, in cooperation with the NYS Department of Health and the NYS Office of Parks, Recreation and Historic Preservation, works to identify and respond to HABs. DEC and DOH investigate HABs reports, sample blooms and conduct research to learn more about HABs.

WHAT DO HABs (USUALLY) LOOK LIKE?

The appearance of HABs can vary. Colors can include shades of green, blue-green, yellow, brown, red, or white



WHAT TO DO

AVOID IT!

It can be hard to tell a harmful algal bloom from a non-harmful algal bloom, so it is best to avoid swimming, boating, fishing or other recreation in discolored water that looks like it might have a bloom. Avoid eating fish caught from areas with a bloom. Never drink, prepare food, cook, or make ice with untreated surface water, even if there is no visible bloom.

IF CONTACT OCCURS

- Rinse thoroughly with clean water.
- Stop using the water.
- Seek medical attention if vomiting, nausea, diarrhea, skin, eye or throat irritation, allergic reactions or breathing difficulties occur.
- Report symptoms to local health department or the NYS Department of Health.
- Take care to remove algae from pet fur.

REPORT IT!

If you think you see a harmful algal bloom, fill out a **Suspicious Algal Bloom Report Form** and submit it with any pictures to: on.ny.gov/habform.
-or-
call: **518-402-8179**

If you experience any health effects from a HAB, report them to your local health department:
-or-
email: harmfulalgae@health.ny.gov

CONTACT & LINKS

For updates about the location and status of HABs from spring through fall, see www.dec.ny.gov/chemical/83310.html
-or-
sign up for DEC's email newsletter **Making Waves** at www.dec.ny.gov/about/661.html

For information on the NYS HABs Initiative and funding opportunities, see: https://on.ny.gov/HABsAction

DEC: on.ny.gov/hab

NYSDOH: www.health.ny.gov/environmental/water/drinking/bluegreenalgae

EPA: https://www.epa.gov/cyanohabs

NYS Department of Environmental Conservation
Division of Water
625 Broadway, Albany, NY 12233-3508
Phone: (518) 402-8179 | email: HABsinfo@dec.ny.gov

Optional Resource: 2016 Podcast 'A Government-Sponsored Disaster': Florida Asks For Federal Help With Toxic Algae (play until 1 min 27 seconds)

1. After reading the brochure and exploring the map, what is your biggest question about Harmful Algal Blooms (HABs)?

_____

_____

2. As you look for information to answer your question and learn more about Harmful Algal Blooms (HABs), you receive this Snapchat from your friend that is also researching HABs:

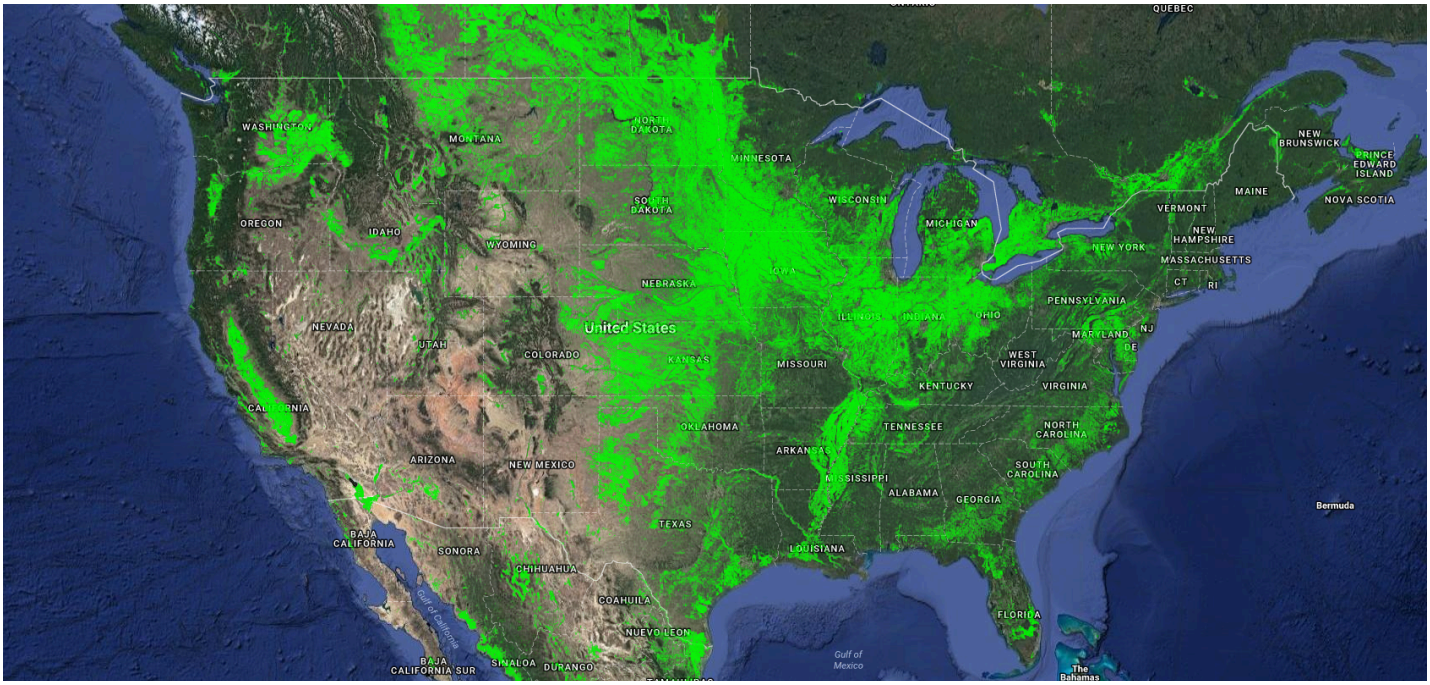
Is this a reliable resource? What steps could you take to find out?

_____

_____

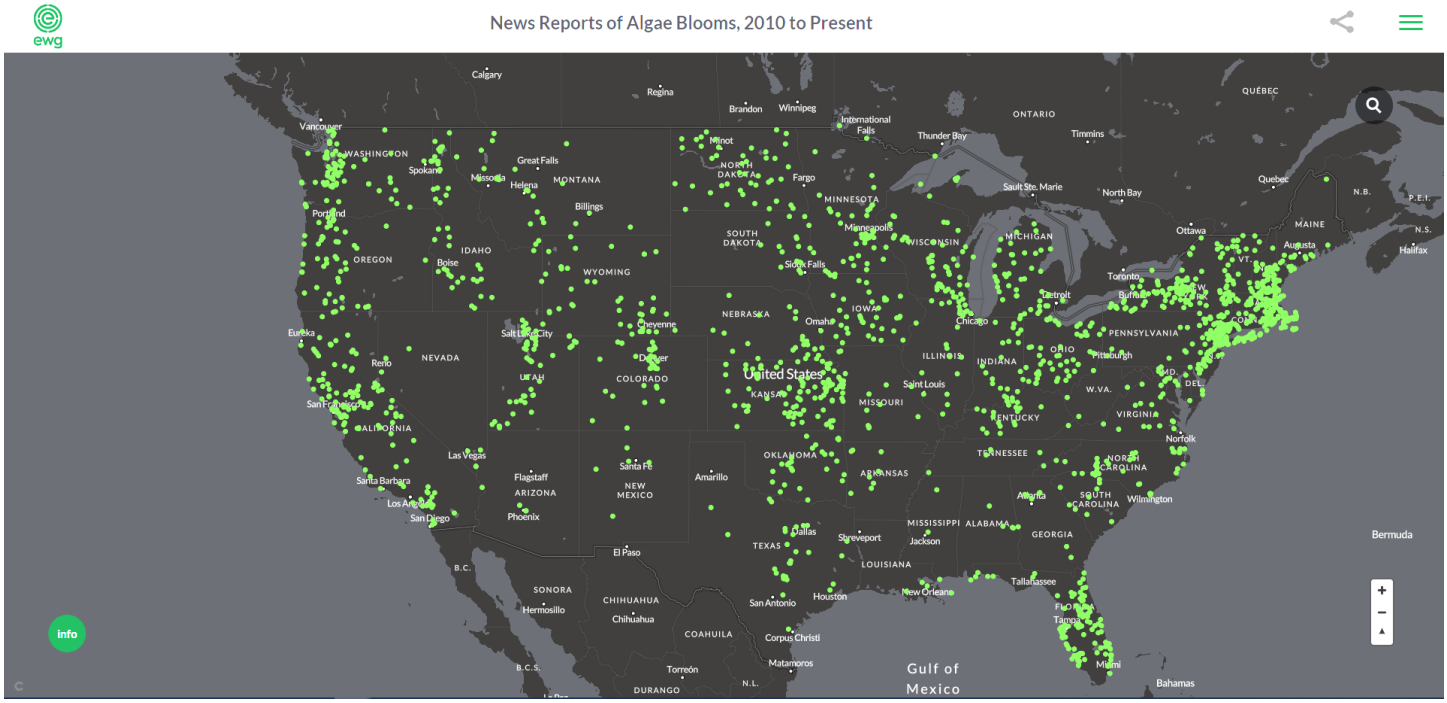
3. As you conduct further research on HABs, your research leads to this claim about the cause of Harmful Algal Blooms (HABs):
Harmful Algal Blooms (HABs) form from water pollution from farms.

To support your claim, you present these maps as evidence:



[Map of Croplands [farmland] in the United States from the USGS]

(Note: coloring green areas with highlighter on black and white copy may be helpful)



[News Reports of Algal Blooms, 2010 to Present]. The locations on the map show both toxic and non-toxic algal blooms.

3a. Based on these two maps, what evidence supports your claim that "**Harmful Algal Blooms (HABs) form from water pollution from farms."?**

3b. What additional evidence might you collect to support your claim?

3c. Consider the idea that people and animals need to eat food, often produced by farms, yet pollution from farming is the most common cause of Harmful Algal Blooms (HABs).

What action(s) might you take to:

- Spread public awareness about Harmful Algal Blooms (HABs)
- Propose a solution to protect the environment from Harmful Algal Blooms (HABs)
    - Consider both farmers and individuals affected by HABs

Harmful Algal Bloom at Saratoga Lake: 06/20/2023

4. Scenario: Your best friend tells you that they and their family will be going camping at Saratoga Lake in Saratoga Springs, New York this summer. Your friend's family loves to go swimming in lakes, rivers, and the ocean. Your friend's family also owns two golden retrievers that will jump into any water they see if allowed. After exploring the NYHABS map, you noticed that a harmful algal bloom has been reported at this lake currently and in the past. What might you tell your friend?

Space Systems: Patterns in Our Solar System

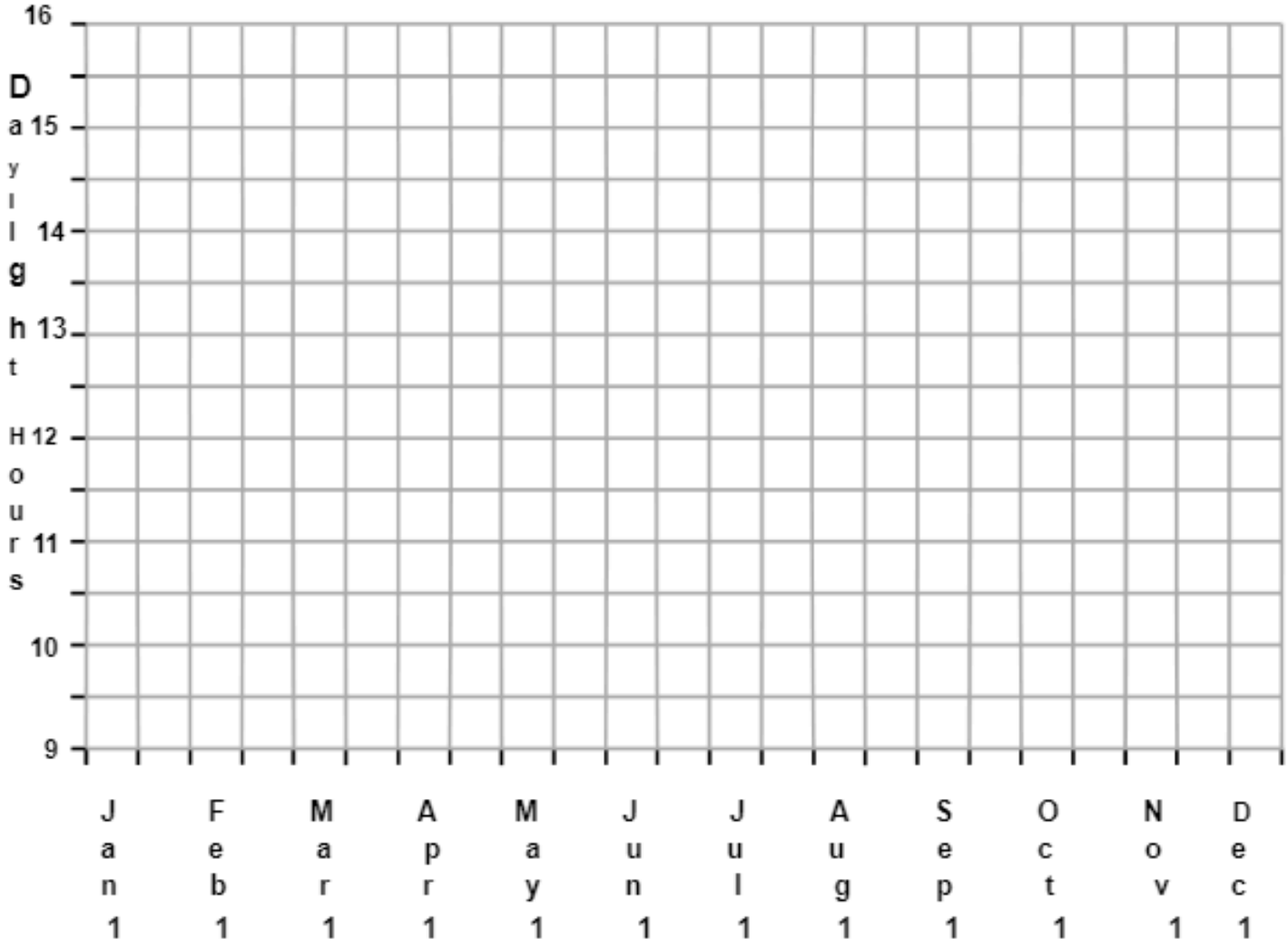
As a young scientist in your 5th grade class, you are asked to find data regarding a phenomenon in our solar system and graph it as part of a presentation to the class. Your task includes sharing any patterns that you notice. You collect the following data on the length of daylight where you live in Albany, NY for a year:

Year: 2023

Date	**Length of Daylight**
January 1, 2023	9 hours 7 minutes
February 1, 2023	9 hours 58 minutes
March 1, 2023	11 hours 13 minutes
April 1, 2023	12 hours 43 minutes
May 1, 2023	14 hours 5 minutes
June 1, 2023	15 hours 6 minutes
July 1, 2023	15 hours 16 minutes
August 1, 2023	14 hours 29 minutes
September 1, 2023	13 hours 10 minutes
October 1, 2023	11 hours 45 minutes
November 1, 2023	10 hours 19 minutes
December 1, 2023	9 hours 17 minutes

Plot the data points from the table below. Draw bars to create a bar graph:

Hours of Daylight in Albany, NY by Month



1. What pattern(s) do you notice in the data you collected and graphed?

_____

_____

_____

2a. During which two months will there be 12 hours of daylight and 12 hours of darkness?

_____ and _____

b. What evidence from your graph supports this?

_____

_____