



Biotic & Abiotic Factors

What I Will Be Learning In This Mastery Badge:

In this mastery badge we will be learning about the biotic and abiotic factors that are found in an environment. We will also learn about the relationship between predators and prey, which is an example of a biotic factor.

What This Packet Includes:

It is important that you complete all aspects of this packet so that you gain the knowledge and skills that we are working on.

- I. **Discovering Lab**
A discovering lab is a fun, introductory lab, where we discover the knowledge on our own.
- II. **Video Instruction**
You will watch a video presented by Mr. Bertoch, and answer questions about it.
- III. **Literacy Practice**
Reading and writing are critical life skills, and also very important to science. You will read the assigned article and complete a writing prompt.
- IV. **Applying Lab**
An applying lab is how you pass off the Mastery Badge. It serves as the quiz. It is a hands on demonstration that you have mastered the skills and content of this badge.

Key Things We Will Learn In This Mastery Badge

Some of the most important things we will learn in this mastery badge:

- Biotic factors in an environment
- Abiotic factors in an environment
- Examples of each
- Predators and prey
- What happens when there are too many predators?
- What happens when there isn't enough prey?

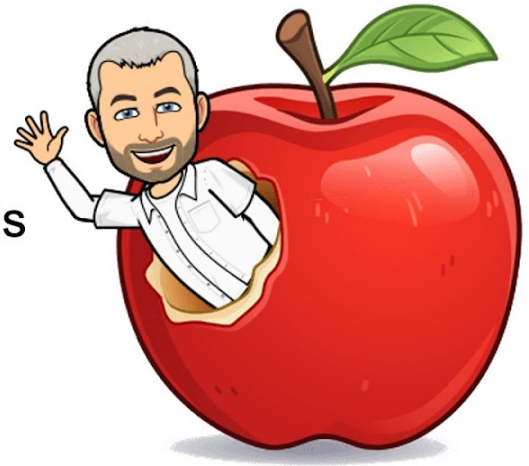
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Discovering Lab

Learning Through Hands On Activities



Activity: Discovering Biotic And Abiotic Factors

Directions: Find ten things around your home or neighborhood and record them in the chart below. For each item list whether they are living, once living (dead), or nonliving, and explain how you know.



Video Instructions Available For This Assignment. Watch this video to learn how to do this assignment, and why it is important.

Scan This QR Code To Watch Mr. Bertoch Give You Directions For This Assignment

Goal: To learn as much as you can about the difference between living and nonliving things.

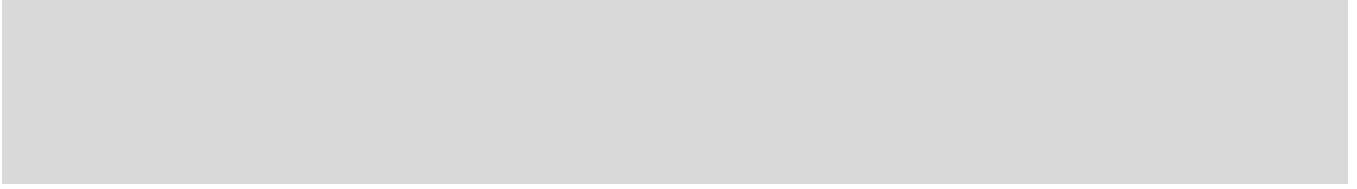
Complete the chart below based on your own observations of things around your home and neighborhood.

Object Name	Living, Once Living, or Nonliving	How do you know?
Fallen log	Once living	Because it was once alive, but after falling down, it died.
Rock	Nonliving	
Insect		

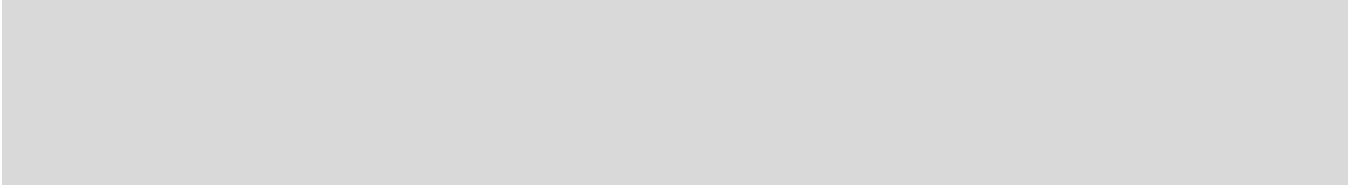
Thinking Questions

Scientists think about the world around them and do their best to explain their conclusions to others. As a scientist, you will need to learn to support any conclusions you draw with evidence. Answer each thinking question using complete sentences. Do your best to explain your thoughts so that your answers will make sense to someone else who reads them.

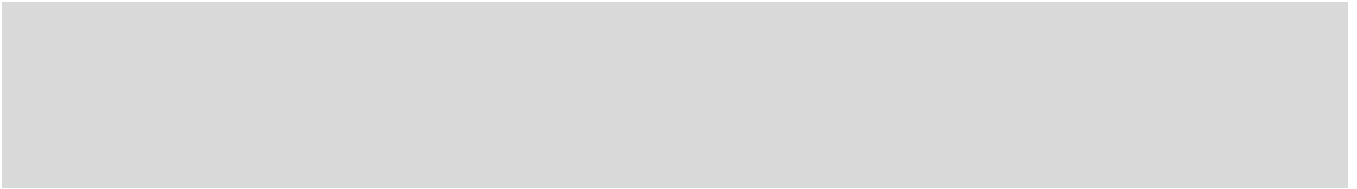
1. What do you think makes living things different from non-living things? Be detailed.



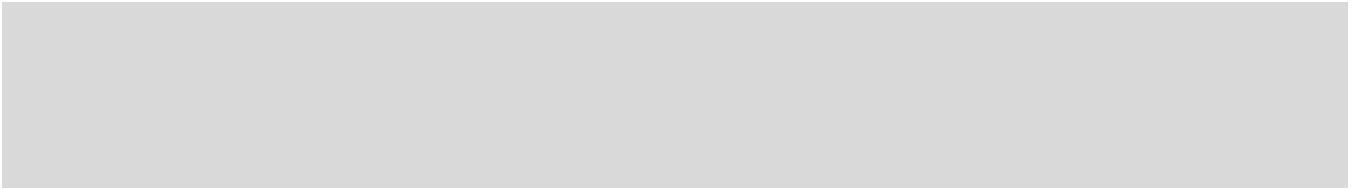
2. Do you think a dead thing is the same as, or different from a non-living thing? Explain your answer.



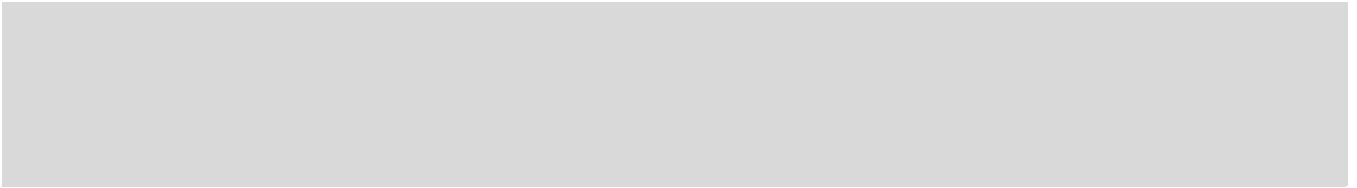
3. How can you tell if something is alive?



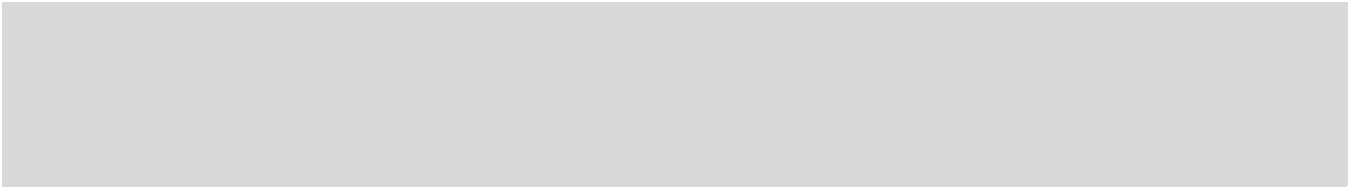
4. How can you tell if something is dead?



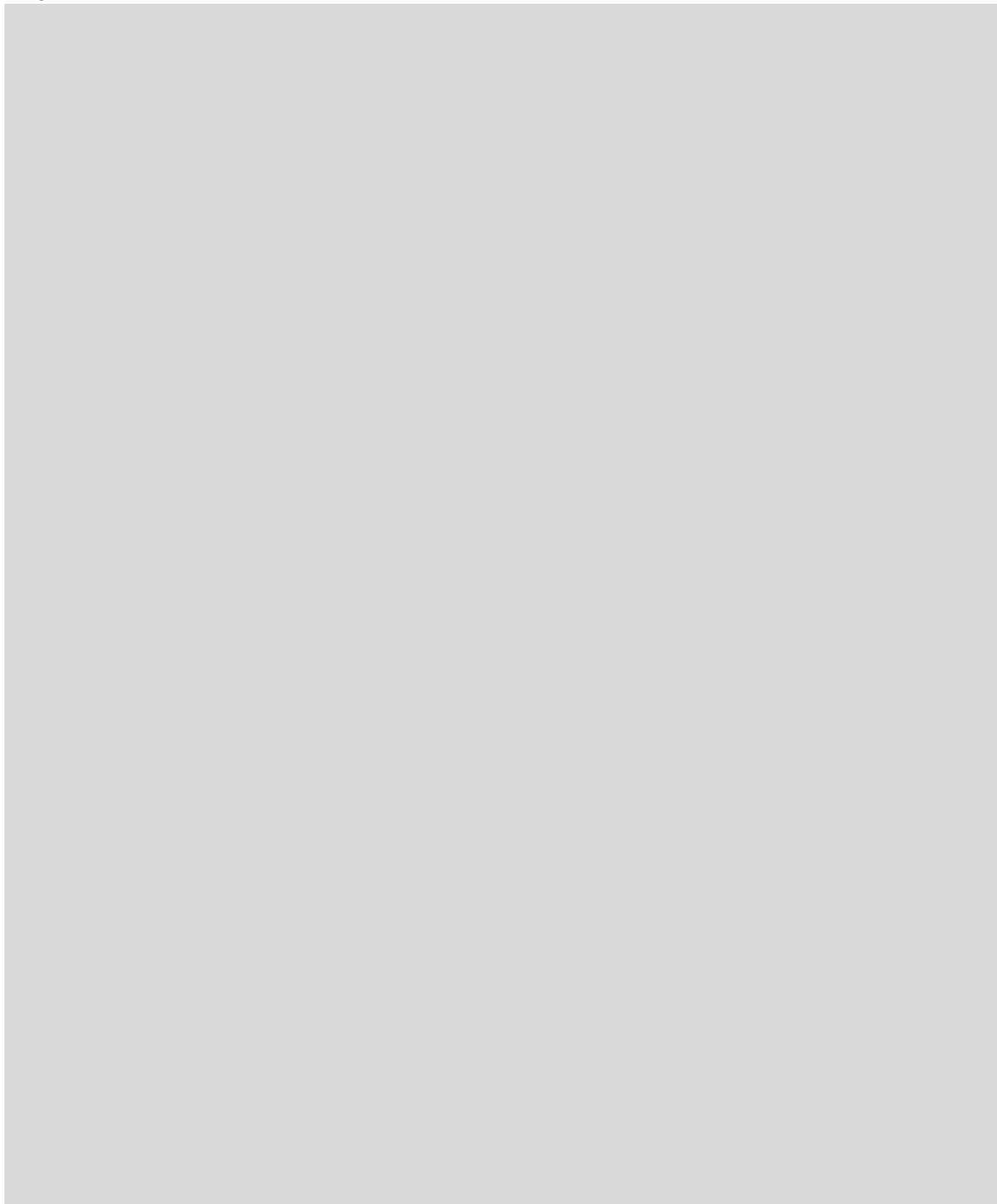
5. How can you tell if something is non-living?



6. As you completed the chart above, were any of the things you observed difficult to classify? Explain your answer.

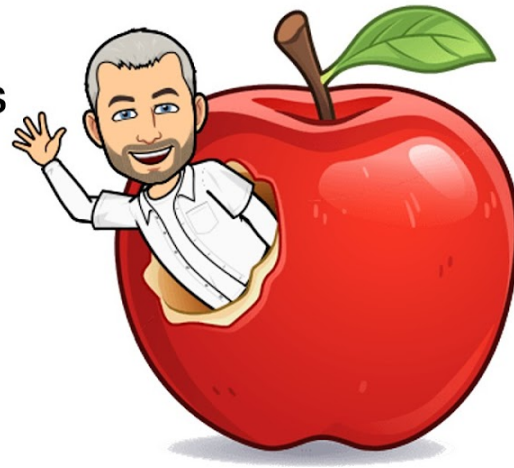


7. Draw a picture of an environment showing at least three living things, three nonliving things, and three once-living things.



Video Instruction

Reviewing The Teacher's Instruction At My Own Pace



Handsome Science Teacher One Take Videos

Now that you have completed the Discovering Lab let's watch the video that goes with it. In this video Mr. Bertoch will help connect the discoveries that you made during the lab to the broader concepts covered under this badge, and will also introduce the vocabulary that goes with these concept.

Take Your Time, Pause And Rewind As needed

You are not in a hurry! It is more important that you understand the concepts in this video than that you finish it quickly. Take your time. If you don't understand something, pause the video and use the Internet or other resources to look up the concept that has you confused.

When you finish this video, you should have a good understanding of the concepts that have been taught. If you find yourself confused, rewind, and rewatch.

The Videos For This Mastery Badge Can Be Opened Using These QR Codes

This Mastery Badge includes two videos:



Watch The Assigned Science Videos

Scan These QR Codes To Open And Watch The Assigned Videos For This Mastery Badge

Check Point

Let's make sure that you really did take your time and watch the video carefully! Remember that it is important to hold yourself accountable to a high standard and to take pride in your own success as a learner.

I watched the video carefully, and paused to look up anything I didn't understand.

Recording Your Learning

On the next page, you will record your learning and connect it to things you already know.

Ten Things I Learned From This Video

A powerful tool to help you retain what you learn is to take notes. Notes give you something that you can look back at later, to quickly remind your brain reinforcing the memories for the concepts you have learned. Record ten things that you learned or that you perhaps already knew that were discussed in this video.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

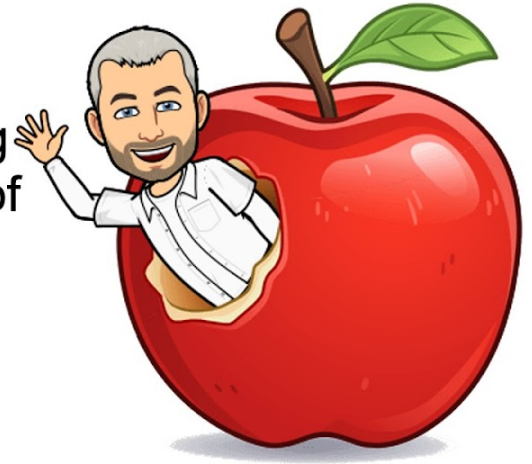
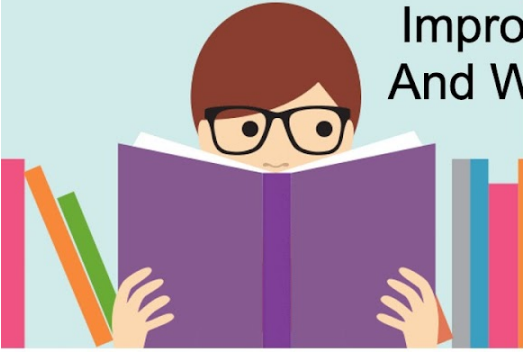
Now, Let's Connect These New Concepts To Things You Already Knew

Another great way to help your brain retain new things is to connect these new concepts to other things that you already know. This gives your mind a place to store the new knowledge. Imagine that you are placing the new knowledge on a shelf in your brain next to facts that are already in there.

Write a paragraph explaining how the concepts taught in this video relate to things you already knew. There are no wrong answers. What are some things that you already knew that this video reminded you of?

Literacy Practice

Improving Our Reading
And Writing In Search of
Knowledge



Activity: Reading And Writing Predators And Prey

Directions: Reading and writing are very important life skills. Good scientists must be able to learn through reading and communicate their own discoveries through writing.



Video Instructions Available For This Assignment. Watch this video to learn how to do this assignment, and why it is important.

Scan This QR Code To Watch Mr. Bertoch Give You Directions For This Assignment

1. Practice Reading For Understanding

Read the article below **for understanding**. Reading for understanding means that you take your time and monitor your own learning. If you get to the end of a sentence and you do not remember or understand what you read, **re-read it**.

2. Practice Writing To Communicate

Complete the writing prompt below. Do your very best to write clearly so that others will understand what you are saying. This means using correct spelling, grammar, and writing, taking your time to think about the best ways to clearly communicate to others the main ideas that you are trying to get across to them.

Article:



Read The Assigned Article Carefully For Understanding.

<https://handsomescienceteacher.com/Online-science-classes-kids/biotic-and-abiotic-factors/>

Scan This QR Code To Open And Read The Article That Goes With This Mastery Badge

Check Point

Let's make sure that you really did read for understanding! Remember that it is important to hold yourself accountable to a high standard and to take pride in your own success as a learner.

I Read For Understanding. I did not skim the article. I understood the material that the article discussed.

Quiz Time

Complete the quiz at the end of the article and post your score in the box below. Your goal is to get at least 75% on the quiz. Did you accomplish this goal?

%

Now Let's Write To Communicate

Remember that when you write to communicate you are taking your time, and explaining the topic in a detailed and concise way. Don't rush! You are not in a hurry. Think about what you are going to say, and plan how you will say it. So that someone else who reads your paragraphs will understand them easily.

Writing Prompt: Write two paragraphs in your own words explaining how biotic and abiotic factors interact in an environment.

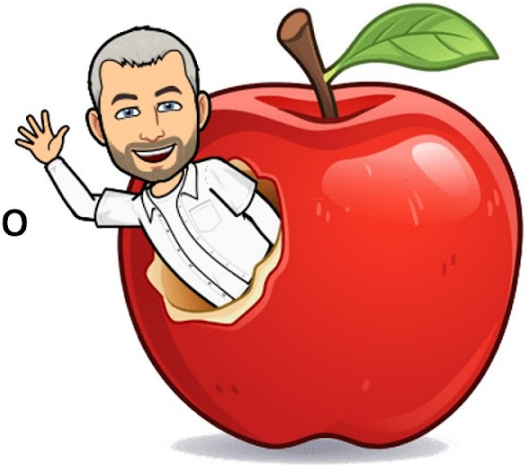
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Applying Lab

Proving That We Can Do It Ourselves



Activity: Applying Predator And Prey

Directions: Find ten things around your home or neighborhood and record them in the chart below. For each item list whether they are living, once living (dead), or nonliving, and explain how you know.



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Goal: To learn as much as you can about the difference between living and nonliving things.

A local forest has seen a dramatic increase in the number of bunnies foraging through the forest floor. These bunnies are eating all of the natural vegetation that grows along the basin of the forest, and have begun to leave the forest in search of food. Which has resulted in these bunnies being spotted in the yards and gardens of local townspeople.

You have been appointed by the mayor to find out what is occurring and to propose a solution to the problem.

Observation Before Data:

Scientists often make observations using their best judgment, based on what they perceive with their own senses, such as sight and sound. What are your initial observations? What do your senses tell you occurs in an environment when predators, prey, and plants interact with each other that might result in the problems being seen in this community? Be detailed and specific.

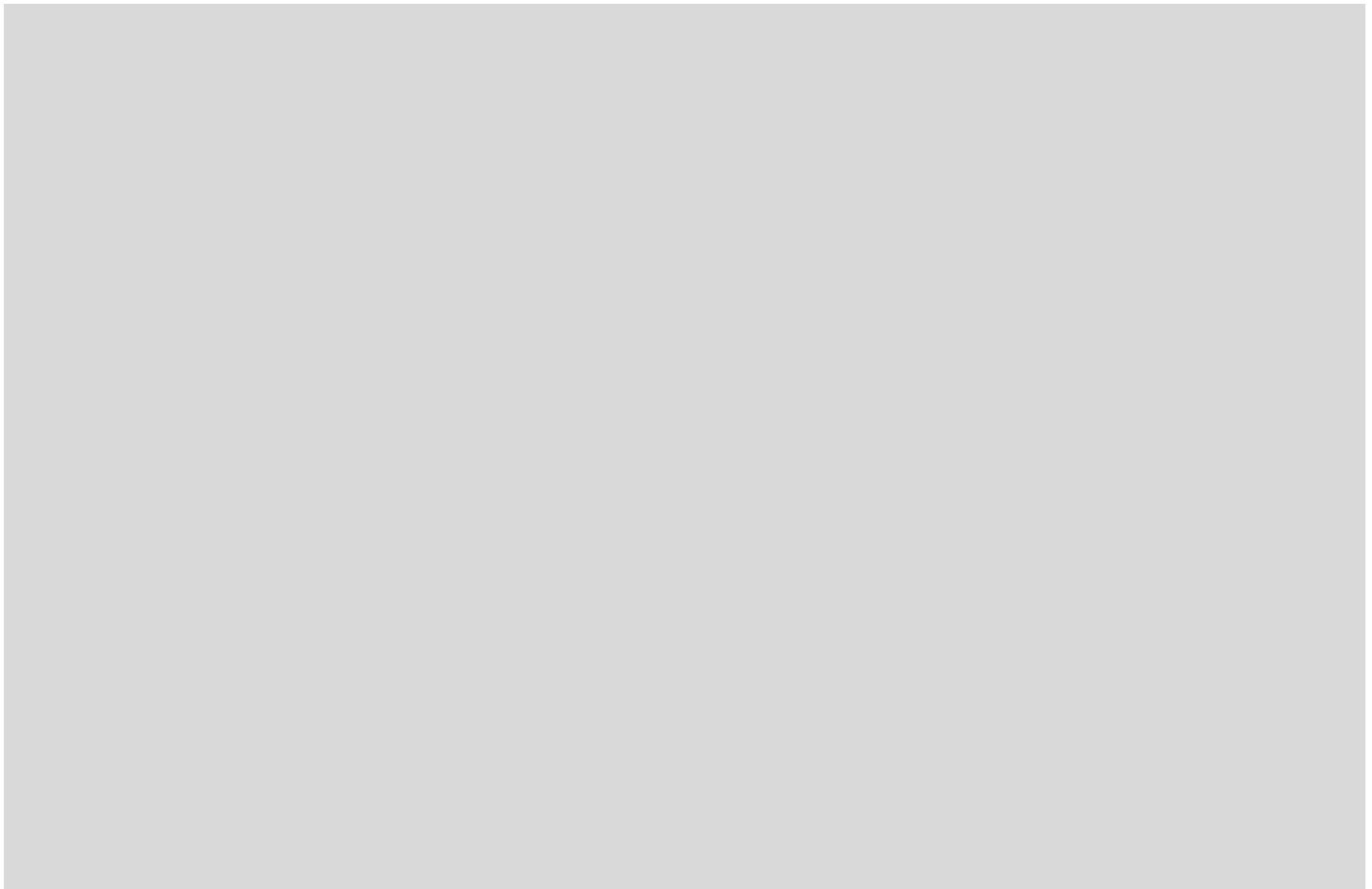
Supporting Your Observations With Data And Evidence:

Scientists must back up their conclusions using data and evidence to prove that they are right. Without evidence, your conclusions are just opinions. Using the Internet or books, do some research. Find evidence in the form of studies, simulations, or articles that support your earlier conclusions about why the rabbit population might be increasing. Then share at least two of the sources you found. Summarize each source below.



Final Conclusions:

Write a short explanation for why the population of rabbits is increasing in the forest, that could be submitted to the mayor. In your explanation share evidence from your research to help strengthen your arguments.





Congratulations! You Have Completed The Entire Mastery Badge

You have worked really hard to earn this mastery badge. More importantly, you have worked hard to earn your knowledge!

Time To Evaluate Your Work

Check each of the following to evaluate your work:

1. Did you do every assignment?
2. Did you read the assigned article?
3. Did you watch the assigned video?
4. Did you answer all the questions using complete sentences?
5. Are your answers accurate?

My Self-Evaluation:

Based on the criteria listed above, I believe I have passed off this Mastery Badge because...
(Be detailed and specific)

Mastery Badge Counselor Evaluation:

I have reviewed this student's work. Based on the criteria listed above I hereby certify that they have passed off the Mastery Badge because... (Be detailed and specific) Note: Any adult may serve as a Mastery Badge Counselor, so long as they are committed to ensuring the highest standards of excellence.

Student's Signature

Date

Signature of Mastery
Badge Counselor

Date

Certificate For Your Homeschool Records

The following certificate which has been awarded through self-evaluation by the student, and also certified by a mastery badge counselor proves that the student listed thereon has completed all the work and has mastered all the concepts for the specified topic.

Keep this on file as evidence of your successful completion of this topic.

If audited by the State, these certificates stand as evidence that you have worked on and successfully completed a rigorous science curriculum.



Handsome Science Teacher Industries

Mastery Badge Certificate

Topic: Biotic, Abiotic & Predator, Prey

Student Name: _____

This certificate certifies that the person named above has completed all of the requirements to earn this Mastery Badge.

MASTERY BADGE COUNSELOR SIGNATURE

DATE AWARDED

