

# Sixth Grade



## Mastery Badge 1 Packet

### Welcome to Sixth Grade Mastery Badge 1!

Biotic & Abiotic Factors in an Environment

#### What I Will Be Learning In This Mastery Badge:

By the end of this mastery badge I will be able to explain how different parts of an environment are categorized as biotic and abiotic. I will be able to identify which parts of an environment are biotic, and which parts are abiotic. I will be able to use data to show how predators and prey are impacted by these biotic and abiotic factors, and to prove that there is a connection between predators and prey.

#### The Science And Engineering Practice I Will Be Working on in This Mastery Badge:

In this mastery badge I will be working to improve my ability to analyze and interpret data. This means that I will collect data and use it to draw my own conclusions. This is important because intelligent people know how to use data to verify the truth of what others are telling them.

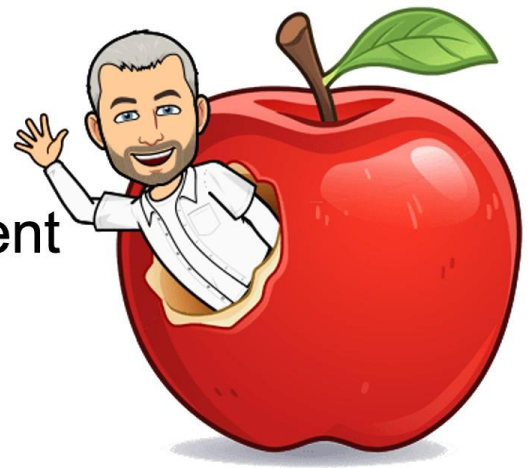
#### What This Packet Includes:

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. **Live Conference / Presentation of Knowledge**  
Mr. Bertoch will teach you the content and answer any questions that you have in a live Zoom conference.
- II. **Discovering Lab**  
A discovering lab is a fun, introductory lab, where we discover the knowledge on our own.
- 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. **Video Instruction**  
You will watch a video presented by Mr. Bertoch, and answer questions about it.
- V. **Live Conference / Interactive Game**  
A live conference where we will play a game together to review what we have learned.
- VI. **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.



## Live Conference Presenting The Content



### Live Conferences Included For All Students Enrolled In Live Classes



Live conferences take place on Zoom, through the Outschool.com platform. If you have purchased this packet from **HandsomeScienceTeacher.com** directly and are not taking a live class, then you can skip to the next section. Live conferences with the teacher allow you to ask questions, to interact with other students from around the world, to make friends, and to receive direct instruction. To sign up for live classes, that include all packets, videos, and live conferences, go to Outschool.com by using this QR code.

### How Do I Access My Live Conference With Mr. Bertoch?

For students who are enrolled in a live class, you can access the live conferences by logging into Outschool.com and then navigating to our online classroom. There is a link at the top of the classroom for the next live conference.

### Live Conference Agenda

In this conference we will cover the following information.

- Getting to know your teacher.
- Getting to know each other.
- Classroom Expectations
- What does it mean to analyze and interpret data? Why is this important?
- Biotic vs abiotic factors in an environment
- Predators and prey
- Go over expectations for the Discovering Lab

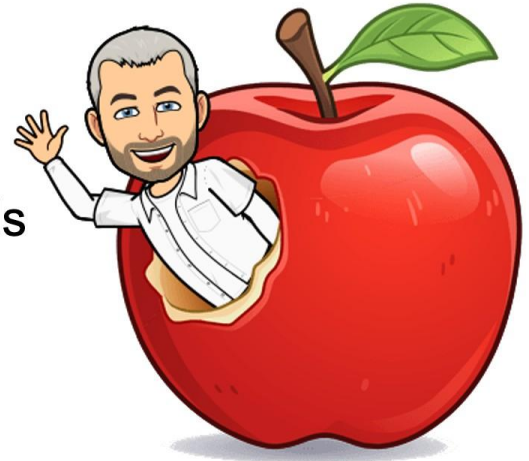
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# Discovering Lab

Learning Through Hands  
On Activities



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## 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.

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

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**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. Right now, you are going to act like a scientist. Answer each thinking question using complete sentences. Do your best to explain your thoughts so that they 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 why.

3. How can you tell if something is alive?

4. How can you tell if something is dead?

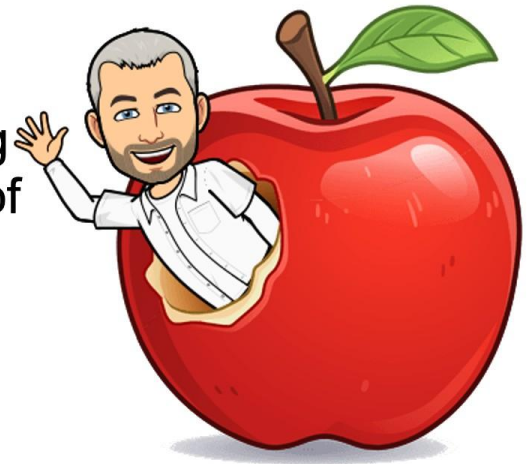
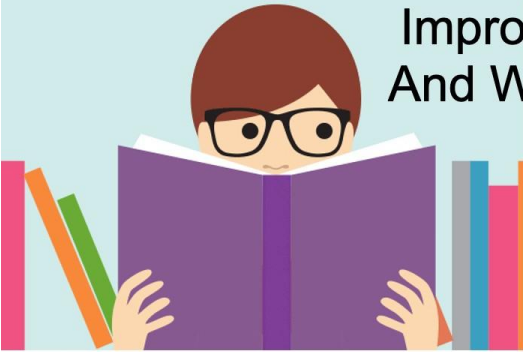
5. How can you tell if something is non-living?

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

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

# Literacy Practice

Improving Our Reading  
And Writing In Search of  
Knowledge



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## 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.

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.

**Goal:** To learn new things by reading for understanding, and to communicate what you have learned with others by writing for communication.

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Article: <https://necsi.edu/predator-prey-relationships>

Writing Prompt: Write two paragraphs in your own words explaining how predators and prey affect each other.

# Video Instruction

## Reviewing The Teacher's Instruction At My Own Pace



### **Handsome Science Teacher One Take Videos**

Remember that our goal is to help you both understand and also retain what you learn from this mastery badge. To do this, we must repeat and review our learning. In these Handsome Science Teacher One Take Videos, Mr. Bertoch teaches the concepts that we learned during the live conferences. These videos help to cement your learning. More importantly, they allow you to pause, rewind, and rewatch them as many times as you need to.

### **How Do I Access The Handsome Science Teacher One Take Videos For This Mastery Badge?**

The videos are posted in our online classroom at [Outschool.com](https://www.outschool.com), as well as on [HandsomeScienceTeacher.com](https://www.HandsomeScienceTeacher.com) and YouTube.

### **Which Handsome Science Teacher One Take Videos Am I Watching For This Mastery Badge?**

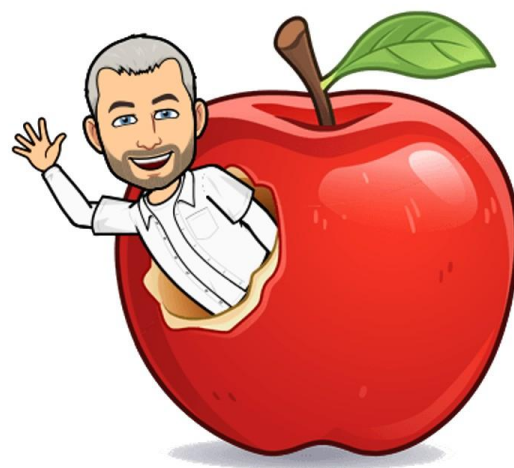
This Mastery Badge includes two videos:

- Biotic vs Abiotic Factors in an Environment
- The Relationship Between Predator And Prey

### **Recording Your Learning**

It is important to record your learning whenever you listen to someone else teach. Writing helps you to be able to later recall what the speaker said. Write down 5-10 things that you heard Mr. Bertoch say in the videos.





### **Live Conferences Included For All Students Enrolled In Live Classes**



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### **How Do I Access My Live Conference With Mr. Bertoch?**

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### **Live Conference Agenda**

In this conference we will cover the following information.

- Answer any questions or concerns that students may have.
- Check on student progress towards completing this packet and passing off the mastery badge.
- Discuss the Applying Lab expectations.
- Play a game to review what we have learned.

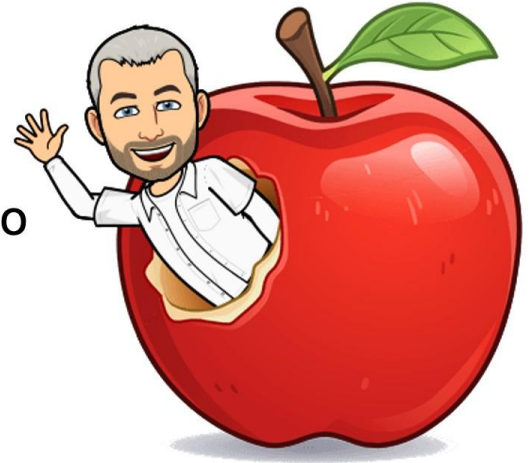
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# Applying Lab

## Proving That We Can Do It Ourselves



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### 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.

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

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#### Go to the following simulation:

<http://www.shodor.org/interactivate/activities/RabbitsAndWolves/>

This simulation shows green squares representing food, as well as tiny rabbits and wolves. Click on the button at the top of the screen that says “**Start Simulation.**”

#### Observation Before Data:

Scientists often make observations using their best judgement, 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? Be detailed and specific.

#### Supporting Your Observations With Data:

Scientists must back up their conclusions using data to prove that they are right. Use data from the simulation to prove that the observations you discussed above are correct. You can get this data by clicking on the button at the bottom of the simulation that says “**View Population Graph.**” There is no wrong way to present this data. You can draw a graph, give raw numbers, or any other form that you prefer.



### Explaining Why:

Why do you think predators, prey, and plants interact in the ways that you observed in the simulation?

### Thinking Questions

Scientists think about the world around them, and do their best to explain their conclusions to others. Right now, you are going to act like a scientist. Answer each thinking question using complete sentences. Do your best to explain your thoughts so that they will make sense to someone else who reads them.

1. How do you think biotic and abiotic factors might influence plants?

2. How do you think biotic and abiotic factors might influence prey?

3. How do you think biotic and abiotic factors might influence predators?

4. What might happen to an ecosystem if the biotic or abiotic factors in that ecosystem were changed?



#### Submit Your Work To Earn The Mastery Badge

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

#### Get Your Accomplishment Recorded

You can submit this packet through [Outschool.com](https://www.outschool.com) by posting it in a message to Mr. Bertoch. Once it is received, **Mr. Bertoch will grade the Apply Lab Only**. Everything else is Practice. The Applying Lab is where you prove that you know the material.

#### Mr. Bertoch Will Send You Either A Mastery Badge or Personal Feedback

After grading your work, Mr. Bertoch will send you either a digital file with your mastery badge included, or he will send you personal feedback explaining why you didn't quite pass off the badge, and encouraging you in what you still need to do in order to complete it.