



Environments Change Over Time

What I Will Be Learning In This Mastery Badge:

In this mastery badge we will discover how environments change.

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:

- An environment is made up of the living and non-living things in a particular area.
- Environments are often in a state of equilibrium or balance.
- Sometimes they are thrown out of balance and can change, becoming very different.

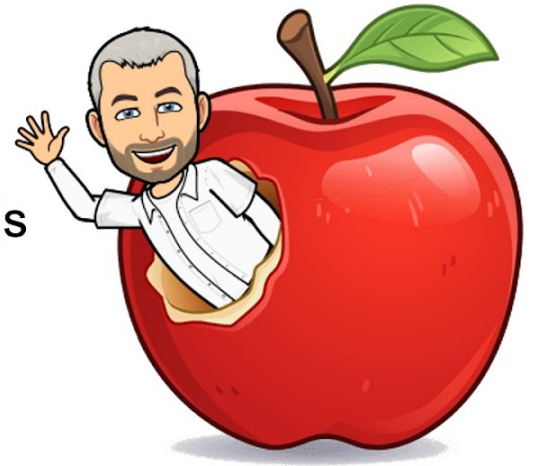
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Discovering Lab

Learning Through Hands
On Activities



Discovering Environments

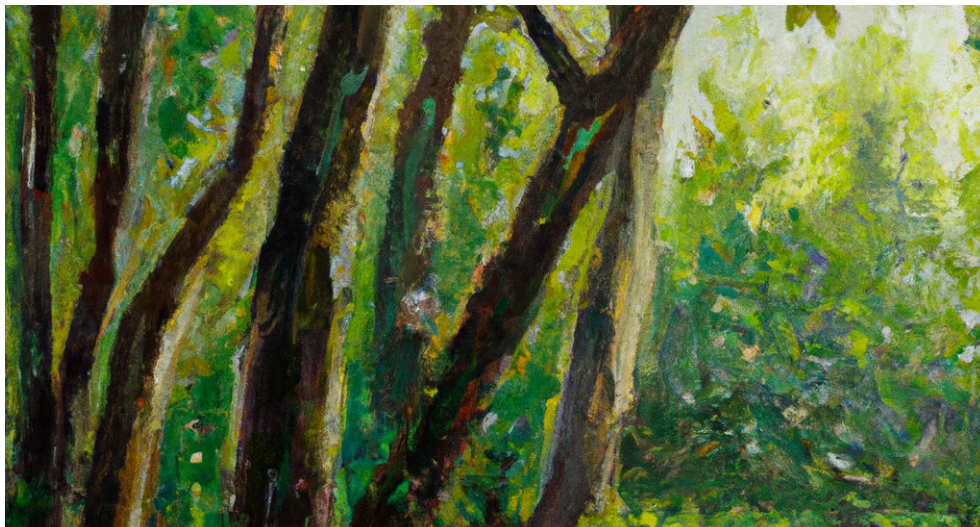
Making your own discoveries.

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



Changing The Environment

In order to better understand what they are seeing in nature, scientists often create experiments in the lab. In this activity, you will recreate a forest, and then watch how it changes over time, as a result of changing conditions.



Supplies:

For this lab you will need a plastic bin, sand, water, and small trees which you can make out of branches, or which can be purchased from a hobby shop.



Step 1: Create A forest

1. Fill the plastic bin with sand.
2. Place your trees in the top of the bin to make a forest.

Your Forest Is In Homeostasis

Observe your forest for a few minutes and notice that it is in balance. Notice that nothing changes.

Why do you think nothing is changing in your forest? Be detailed.

If all the conditions in your forest remain the same (temperature, water, sunlight, etc) how long will the forest remain the way it is? Explain your answer. Why do you think nothing is changing in your forest? Be detailed.

Step 2: Let's Shake Things Up

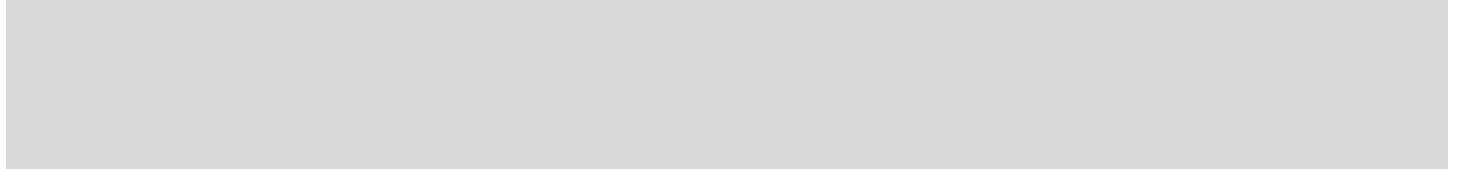
In order to change the environment we have to disrupt the equilibrium of your forest so that it is no longer in homeostasis. This means that we are going to have to shake things up.

1. Cut a 2-3 inch hole in the side (near the bottom) of your bin.
2. Place your bin outside such as in a backyard.
3. Put a hose on the top of the bin, and turn it on, but just enough to allow only a trickle of water to run.

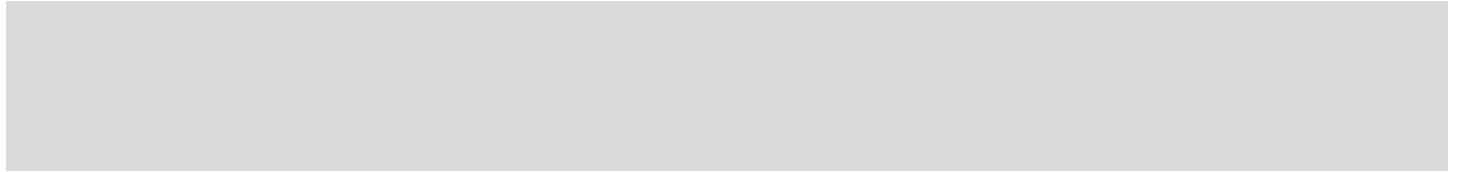
Your Forest Is No Longer In Homeostasis

We have altered the conditions in your forest by adding a river. Observe your forest for several minutes and record what happens.

How did your forest change? Be detailed.



Why do you think changing the conditions eventually changed the forest?

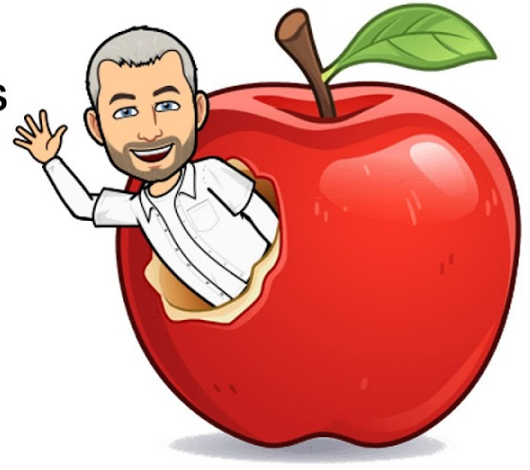


What can we learn about the real world from your experiment? What happens to actual environments when the conditions in those environments change?



Video Instruction

Reviewing The Teacher's
Instruction At My Own
Pace



Handsome Science Teacher One Take Videos



Good Job On Completing The Discovering Lab!
Now let's connect your discoveries to the vocabulary.
Mr. Bertoch has created a video for you to watch.

Take Your Time, Pause And Rewind As needed
You are not in a hurry! It is more important that you understand the video than that you finish it quickly. Take your time. If you don't understand something, pause the video and discuss with an adult.

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 Video For This Mastery Badge Can Be Opened Using This QR Code

This Mastery Badge includes one video:



Watch The Assigned Science Video

Scan This QR Code To Open And Watch The Assigned Video For This Mastery Badge

Check Point

I watched the video carefully, and understood what Mr. Bertoch taught me.
(If not, that is okay. Watch the video again, and discuss it with an adult)

What I Learned From This Video



One very powerful way to help yourself remember what you learned from the video is to summarize it in your own words and in the form of pictures.

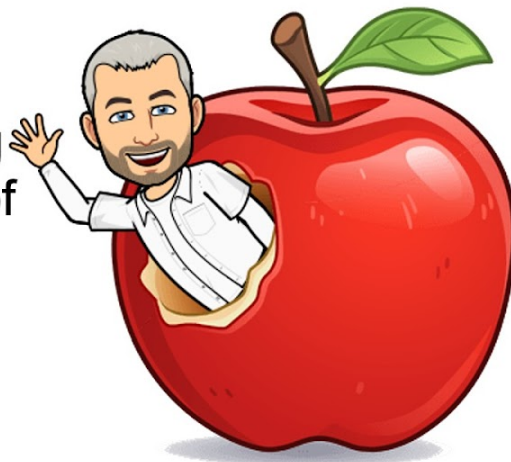
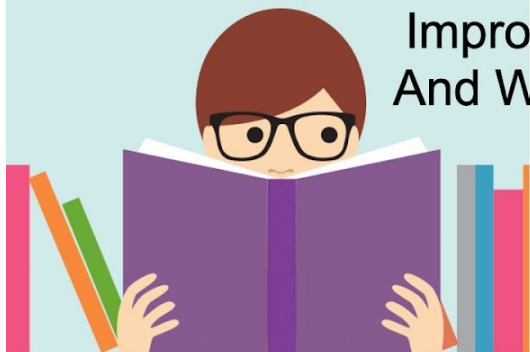
Write one sentence in your own words explaining what you learned from the video. Then draw a picture of something you learned from the video.

What I learned from this video (One Sentence):

A picture of something I learned from the video:

Literacy Practice

Improving Our Reading
And Writing In Search of
Knowledge



Activity: Reading And Writing



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.



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.



Read The Assigned Article Carefully For Understanding.

<https://handsomescienceteacher.com/Online-science-classes-kids/enviroments-sometimes-change/>

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 sentences will understand them easily.

Writing Prompt: Write two sentences describing how environments sometimes change when the conditions in the environment change.

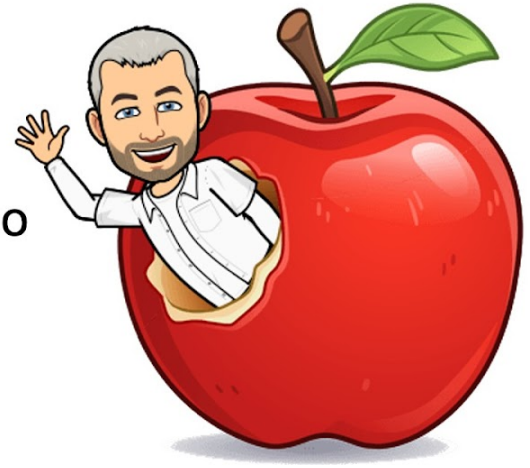
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Applying Lab

Proving That We Can Do
It Ourselves



Applying Environments

Applying What We Have Learned.

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



Can You Save The Fluffunians?



The Fluffunians have lived in the forests of the planet Fluffnia for many generations. They have always been a peaceful species, preferring to frolic and skip through life. Lately they have been so busy frolicing and brushing their hair, that they haven't noticed the conditions in their forest changing. Their sun has gotten a little bit hotter, and as a result, each year their forests are getting less and less rain.

The Trees Are Dying

Without water, the trees of the forest will eventually die, and the land will become more arid. If the Fluffunians are to survive they will need to move away and find a new home in a more healthy forest.

You must convince the Fluffunians to move!

Make A Sign To Hang In The Forest

Fluffunians are WAY too busy frolicing (and brushing their hair) to listen to some crazy alien from another planet (you) telling them about how their forest is dying. Talking is no use. You will have to make a sign, and place it along the path where they will see it as they frolic and skip past it.

Your Sign Should Be Convincing

Make your sign stand out so they will notice it. To do this, it is recommended that you use a lot of bright colors! Also make it informational by explaining how their forest is about to change into a desert. Fluffunians are usually so busy playing that they don't read long paragraphs. Some words are okay, but be sure to use a lot of pictures and diagrams to help them understand how environments change over time, when the conditions in those environments change.

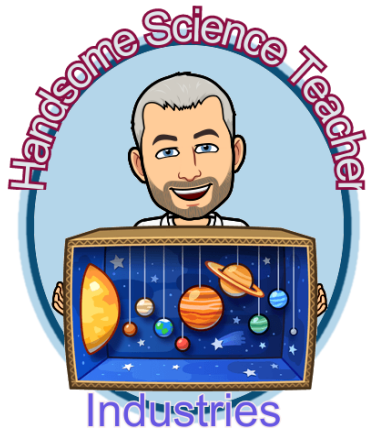
Extra Credit

Okay, not really since this is homeschool, and homeschool doesn't work like that, let's call it a dare instead...

Hang your sign on your street, in your apartment hall, or somewhere else where others will see it, and confuse your neighbors!

Okay, you don't have to do this part, but confusing neighbors is always fun! (Make sure you have parental permission if you do actually do this)





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.



The certificate is enclosed in a decorative, ornate border. On the left side, there is a circular logo featuring a cartoon man with a beard and glasses, wearing a white shirt and tie, holding a tablet. The tablet displays a colorful solar system with planets and stars. The text 'Handsome Science Teacher' is written in a pink, curved font above the man, and 'Industries' is written in a blue, curved font below the tablet.

Mastery Badge Certificate

Topic: Environments Change Over Time

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



A smaller version of the logo is located in the bottom right corner of the certificate.