



## The Layers of The Earth

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

In this mastery badge you will learn about the layers of the Earth, the names of each layer, and how these layers have sorted themselves naturally by their density.

### 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:

- Review density
- The layers of the Earth are sorted by density.
  - Inner Core
  - Outer Core
  - Mantle
  - Crust
  - Oceans
  - Atmosphere
- The characteristics of each layer

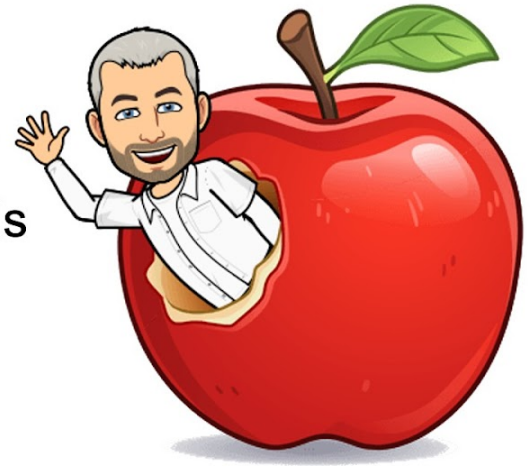
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# Discovering Lab

## Learning Through Hands On Activities



### Activity: Discovering The Layers of The Earth

**Directions:** For this lab, you are going to write a short story. You will first need to gather information and do research.



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 each of the layers of the Earth.

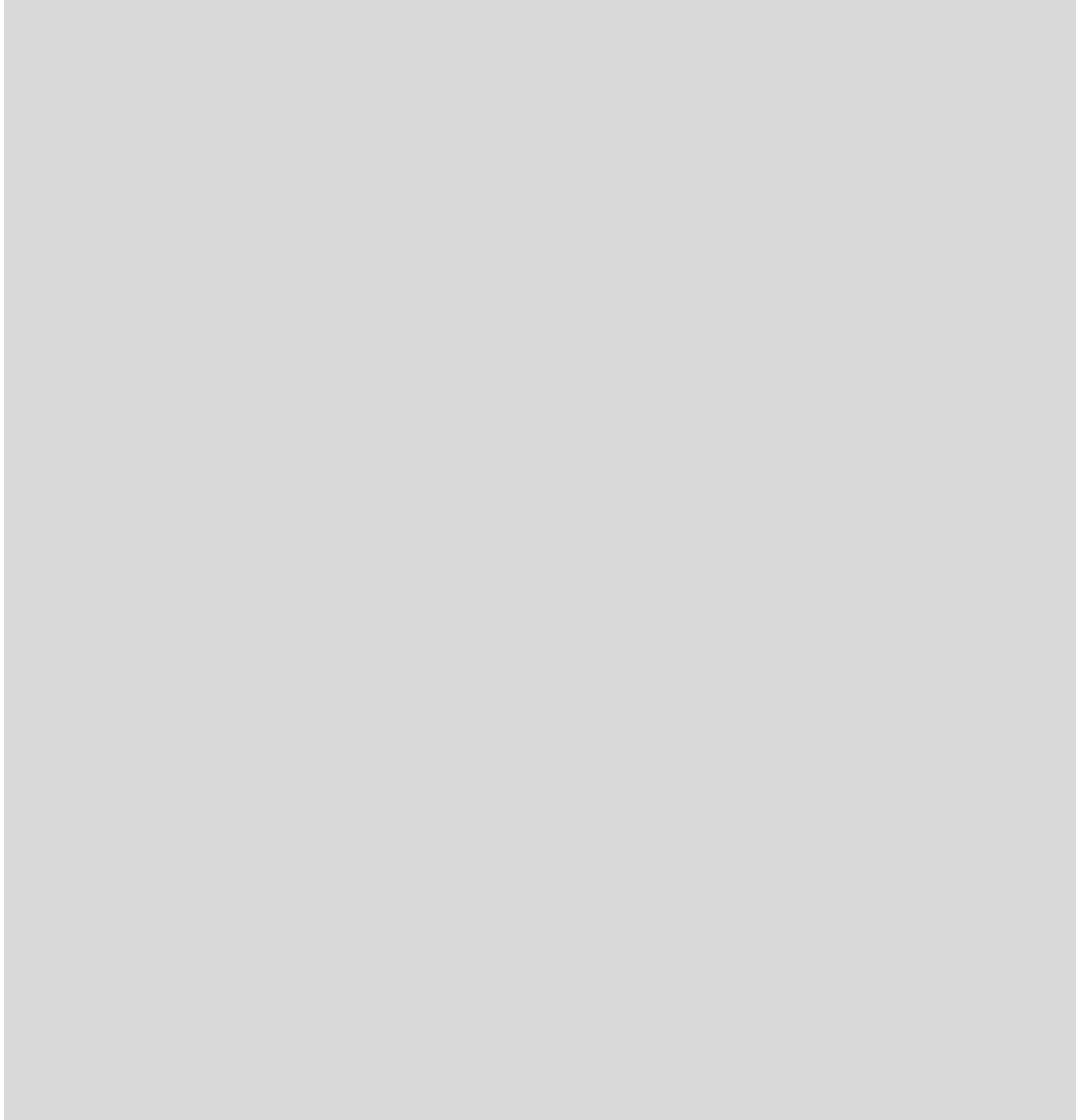
Research online, in books, or use other resources available to you to fill out this data table.

Layer of the Earth	What is this layer like? Where is it located? How Can I Remember it?
Inner Core	
Outer Core	
Mantle	
Crust	
Ocean	
Atmosphere	

## **Journey to the Center of the Earth Short Story**

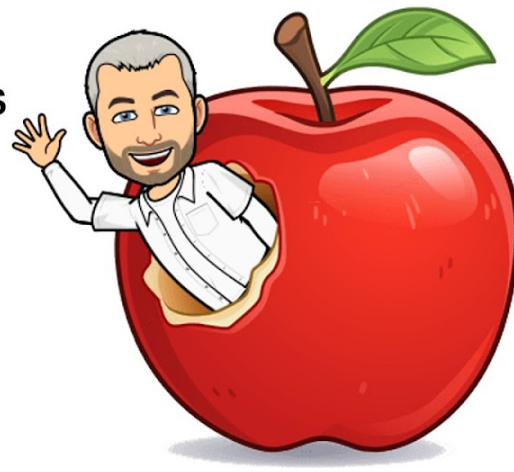
Now that you have completed your research, let's turn it into a story! Write a short story describing a hypothetical (but accurate) journey to the center of the Earth. The layers of the Earth must be accurate, but you can create fictional characters that do the traveling.

### **My Story**



# 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 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

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

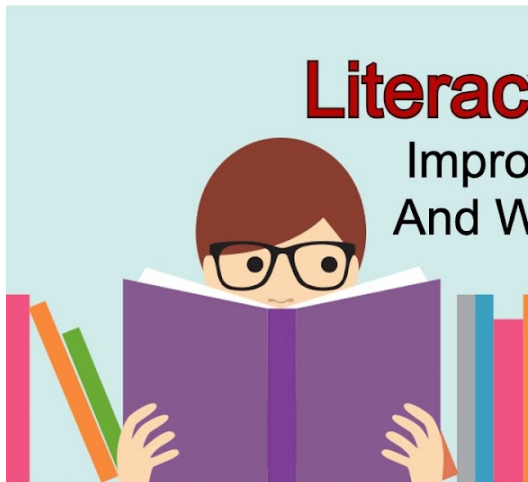
A powerful tool to help you retain what you learn is to take notes. Notes give you something that you can look back at later, to quickly remind your brain reinforcing the memories for the concepts you have learned. Record ten things that you learned or that you perhaps already knew that were discussed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

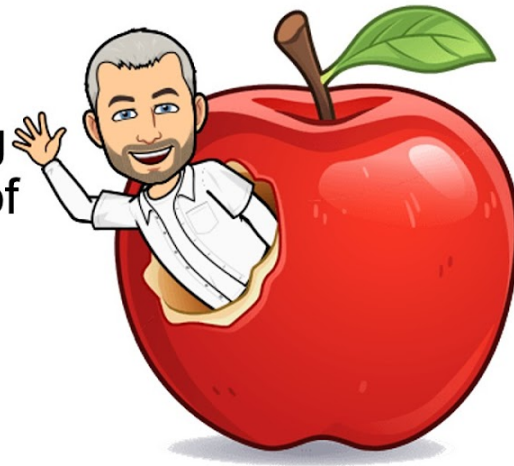
Another great way to help your brain retain new things is to connect these new concepts to other things that you already know. This gives your mind a place to store the new knowledge. Imagine that you are placing the new knowledge on a shelf in your brain next to facts that are already in there.

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



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## 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.



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.

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## Article:



Read The Assigned Article Carefully For Understanding.

<https://handsomescienceteacher.com/Online-science-classes-kids/the-layers-of-the-earth/>

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 describing each layer of the Earth.



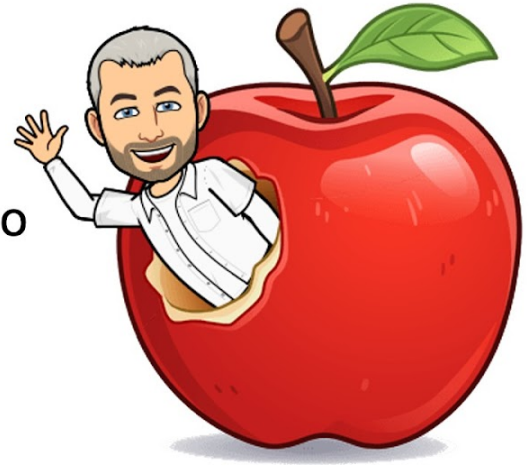
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Date: \_\_\_\_\_



# Applying Lab

## Proving That We Can Do It Ourselves



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### Activity: Applying The Layers of The Earth To Solve A Problem

**Directions:** Follow the instructions below to create a model of the layers of the Earth.



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 demonstrate your understanding of the layers of the Earth.

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#### Scenario:

An angry army of aliens plan to attack the Earth and steal its molten core in order to power their spacecrafts. Stealing the core will destroy the Earth and all life on it.

Unfortunately the annoying humans are fighting back, and creating problems for these hard working aliens. The aliens need to work quickly so that they can finish destroying the Earth before the humans defeat them. To increase their speed and finish the destruction of the Earth more rapidly the Aliens need a detailed map of the layers of the Earth.

Your team has been hired by the aliens to develop a model of the Earth's interior that they can then use to destroy it. In exchange for your valiant service to the aliens they have promised to reward you with your very own tropical island... on the planet that you just helped destroy... Hooray!

#### Problem:

Design a model of the Earth's interior using the supplies that you find around your home. Your model must be accurate!

#### Possible Supplies That You Might Use:

Paper, glue, scissors, Clay, Play Dough, Foam Ball, or any other random stuff

#### Brainstorm (3-5 Minutes):

Spend a few minutes brainstorming how you will use your supplies to solve the problem. Write a detailed description of what supplies you will use, and how you will use them.



**Describe the supplies you intend to use to create your model and how you will use them.**

**Model Must Include:**

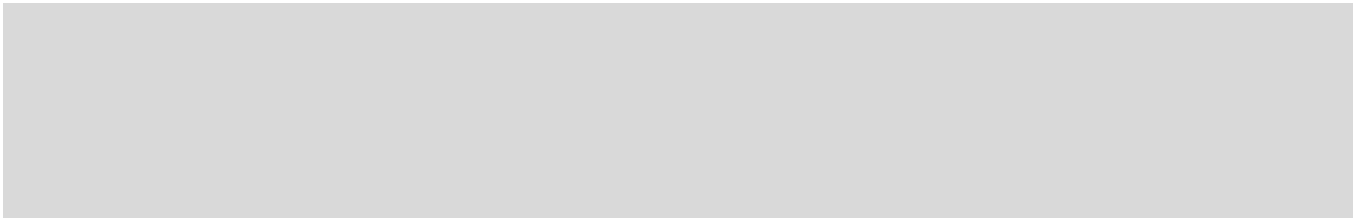
The model you build must include all of the following:

- Model is the correct scale
- All layers are shown
  - Inner Core, Outer Core, Mantle, Crust, Oceans, Atmosphere
- All layers are labeled
- You have at least three facts about each layer written down somewhere. These facts might include the following:
  - Materials in each layer
  - Temperature of each layer
  - Density of each layer
  - State of matter of each layer (Solid, Liquid, Gas)

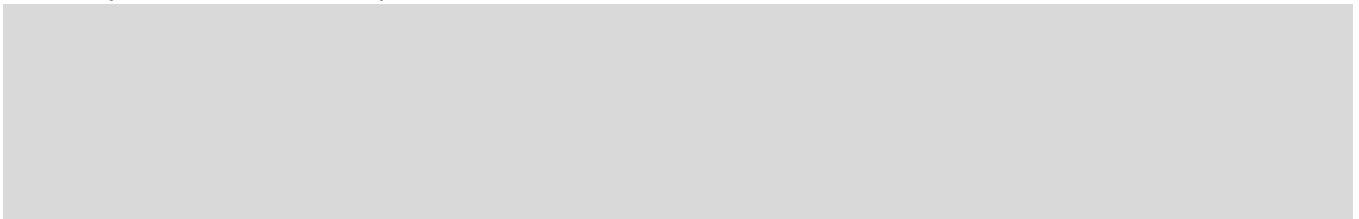
**Final Questions:**

Answer each of the following questions using complete sentences.

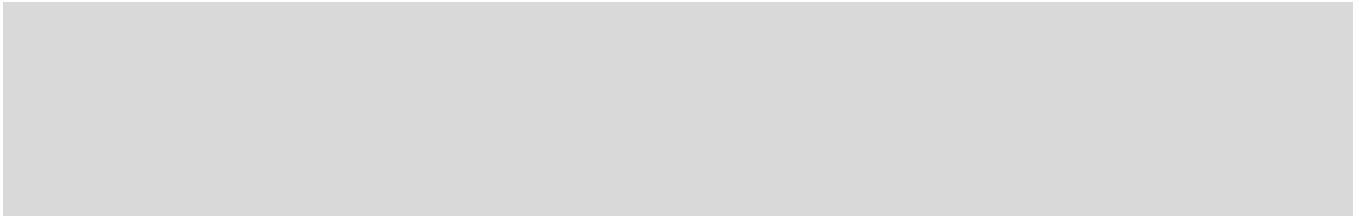
1. Which layers of the Earth are solid?



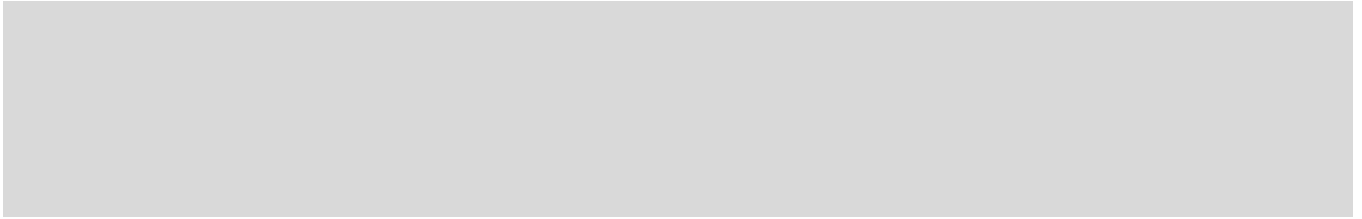
2. Which layers of the Earth are liquid?



3. Which layers of the Earth are squishy?



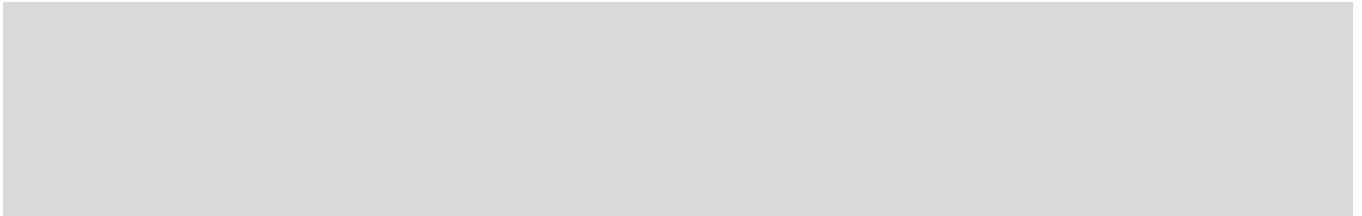
4. Which layers of the Earth are gassy?



5. Which layer of the Earth is the densest?



6. Which layer of the Earth is the least dense?



7. What materials are found in each layer?

Inner Core:

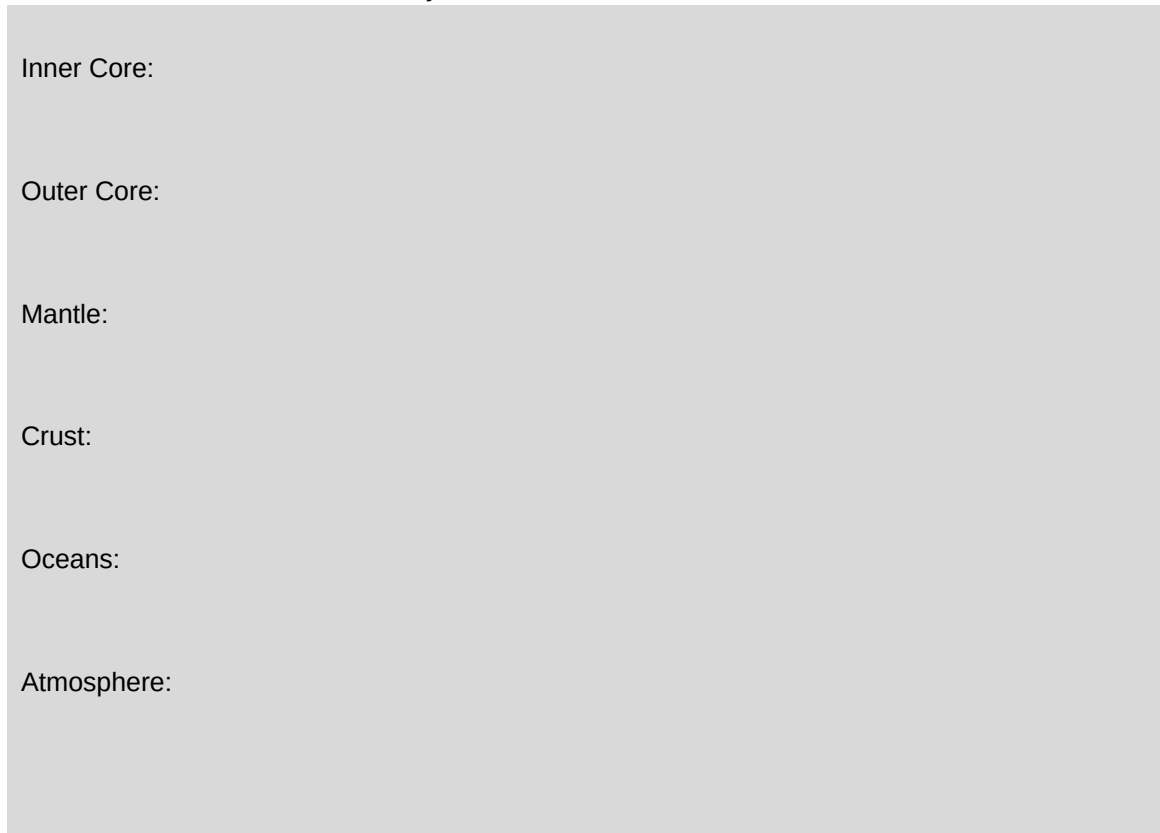
Outer Core:

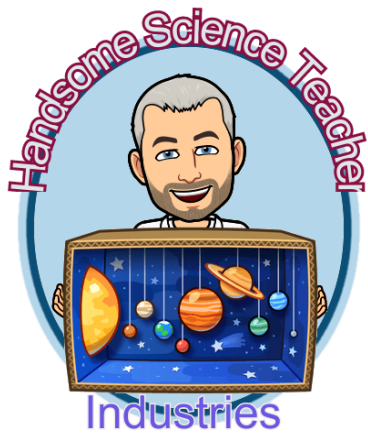
Mantle:

Crust:

Oceans:

Atmosphere:





**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. In the top-left corner, there is a circular logo featuring a cartoon man with a beard and glasses, wearing a white shirt, holding a tablet that displays a solar system with various planets. 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 man.

# Mastery Badge Certificate

Topic: The Layers of The Earth

**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 described above is located in the bottom-right corner of the certificate.