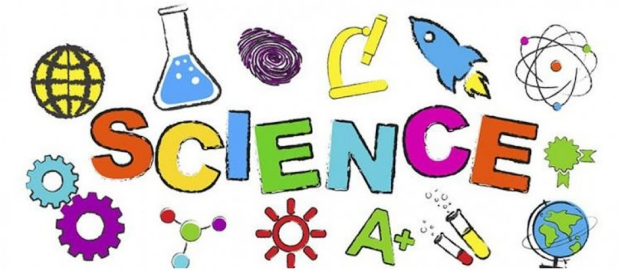
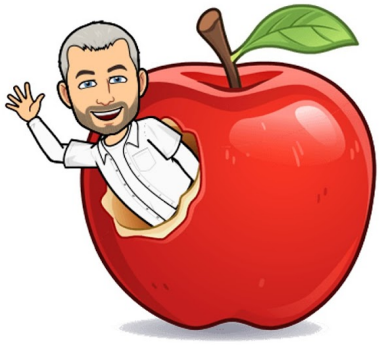




Newton's First Law of Motion

What I Will Be Learning In This Mastery Badge:
In this mastery badge we will learn about Newton's First Law of Motion.

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:

- Issac Newton
- The Laws of Motion
- What is Inertia?
- The First Law of Motion
- Objects at rest, objects in motion.

Name:_____ Date:_____

Discovering Lab

Learning Through Hands On Activities

Activity: Discovering Newton's First Law of Motion

Directions: Follow the directions below to learn about buoyancy

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 Newton's First Law of Motion

Science provides us with tools for learning about how the Universe operates. Sometimes we think of science as a bunch of rules, laws, and theories that we have to memorize. But what it really is, is a way of making good and reliable discoveries. In order for a discovery to be valid it must be repeatable, and it must be based on solid, unbiased principles. Our goal is never to try to obtain an outcome we want, but instead to simply see what happens and record the results truthfully.

In this lab, you are going to work to discover how objects move through the Universe. A long time ago, another scientist named Issac Newton did similar experiments and discovered what he later named "Newton's Three Laws of Motion." Today, you will be discovering some of these laws for yourself, and so we will call them _____'s Laws of Motion. (Place your own name on the blank line). Since you are making these discoveries on your own, you get credit for what you find out.

Plan And Carry Out An Investigation

Scientists plan and then carry out investigations. To do this, they first think about a problem that they are trying to solve and then come up with a detailed step-by-step plan.

Problem:
How does motion work?
This seems like a simple enough question, but can you come up with rules that explain why moving things start moving, and why they stop moving? What causes them to begin moving, and then once they start moving, what causes them to stop?

Hypothesis:
By this point in your life you have seen enough of the world to come up with some educated guesses about why things start moving and why they stop moving.

Based on your experience, create a hypothesis (an educated guess) for what you think causes things to start moving, and what might cause them to stop moving. Record your hypothesis below:

Brainstorm:
How can you test your hypothesis? If you are uncertain, ask an adult for help. What experiments could you perform to figure out why things start moving, and why they stop moving?

Write Your Procedures:
Before you carry out your investigation it is important to write detailed step-by-step instructions. This is your experiment. You are the lead scientist. Which means that you and only you can decide how many steps your procedures should include. Just make sure that your steps are detailed eough so that someone else can follow them and get the same result as you.

Write detailed step-by-step instructions for the experiment you will perform:

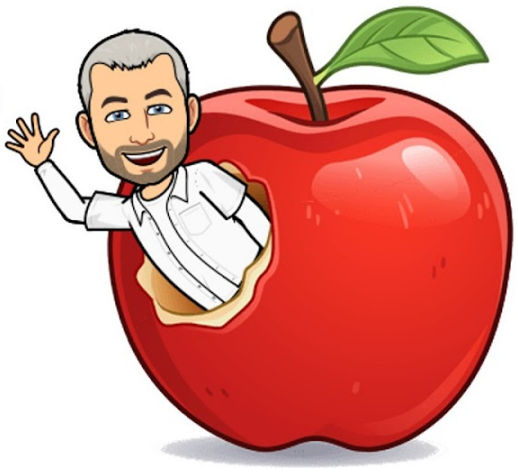
Record Your Results:
After completing your experiment it is important to record accurate results. Use the space below to record your results.

Based on your experimentation, why do things start moving?

Based on your experimentation, why do things stop moving.

Create Your Own Law of Motion

_____'s Law of Motion:
Write a law that describes what causes things to start moving and what causes them to stop moving. Name the law after yourself, since you discovered it.



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

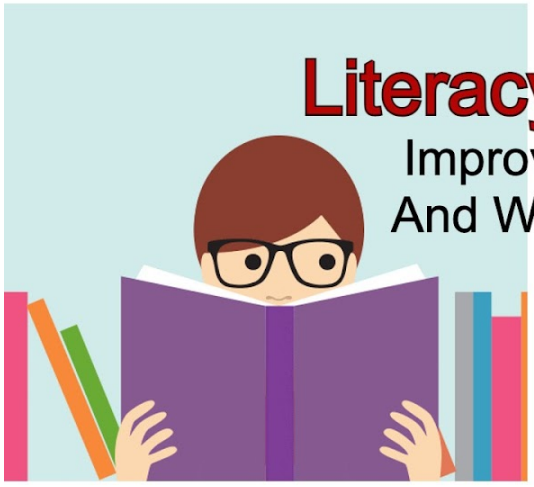
A powerful tool to help you retain what you learn is to take notes. Notes give you something that you can look back at later, to quickly remind your brain reinforcing the memories for the concepts you have learned. Record ten things that you learned or that you perhaps already knew that were discussed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

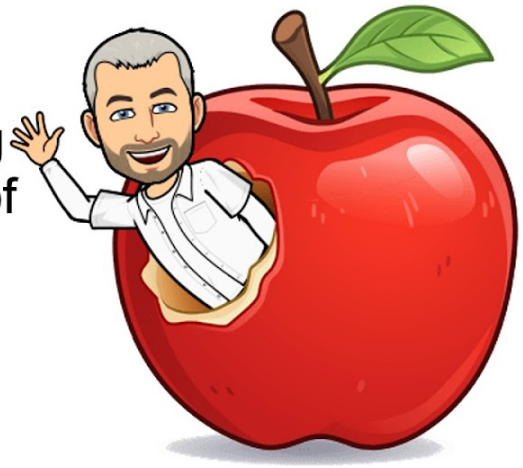
1.
2.
3.
4.
5.
6.
7.
8.
9.
10.

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?





Activity: Reading And Writing About Lunar Phases

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/newtons-first-law-of-motion/

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

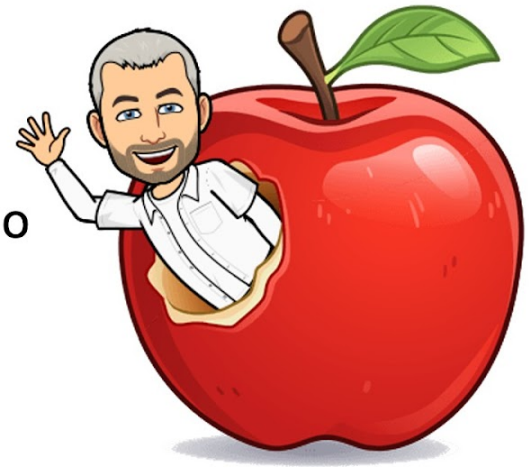
Remember that when you write to communicate you are taking your time, and explaining the topic in a detailed and concise way. Don't rush! You are not in a hurry. Think about what you are going to say, and plan how you will say it. So that someone else who reads your paragraphs will understand them easily.

Writing Prompt: Write two paragraphs in your own words explaining Issac Newton's First Law of Motion.

Name:_____ Date:_____

Applying Lab

Proving That We Can Do It Ourselves



Directions: Follow the steps outlined below to demonstrate your understanding of Newton's First Law of Motion

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 Newton's First Law of Motion.

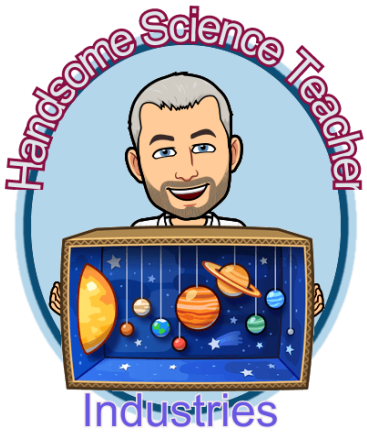
Look up in the sky. What is that? Is it a plane? Is it a bird? No, it's, it's, It's an ASTEROID!"

"We interrupt this science lab sheet with an important announcement. An asteroid is headed toward the Earth. More specifically it is headed toward your town! Everyone should immediately start running in circles screaming. Scientists assure us that this will help."

Since everyone else is currently busy running in circles screaming, you are the only person left to save humanity. What will you do to stop the pending disaster? How can you stop an Asteroid from hitting your town?

Create A Proposal

Write a one-page proposal to your town council explaining what can be done to either stop or alter the course of the Asteroid. In your proposal discuss Newton's First Law of Motion. Explain to the town council what Newton's First Law tells us about object in motion, and how we can use our understanding of this law to save the town.



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 ans 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.