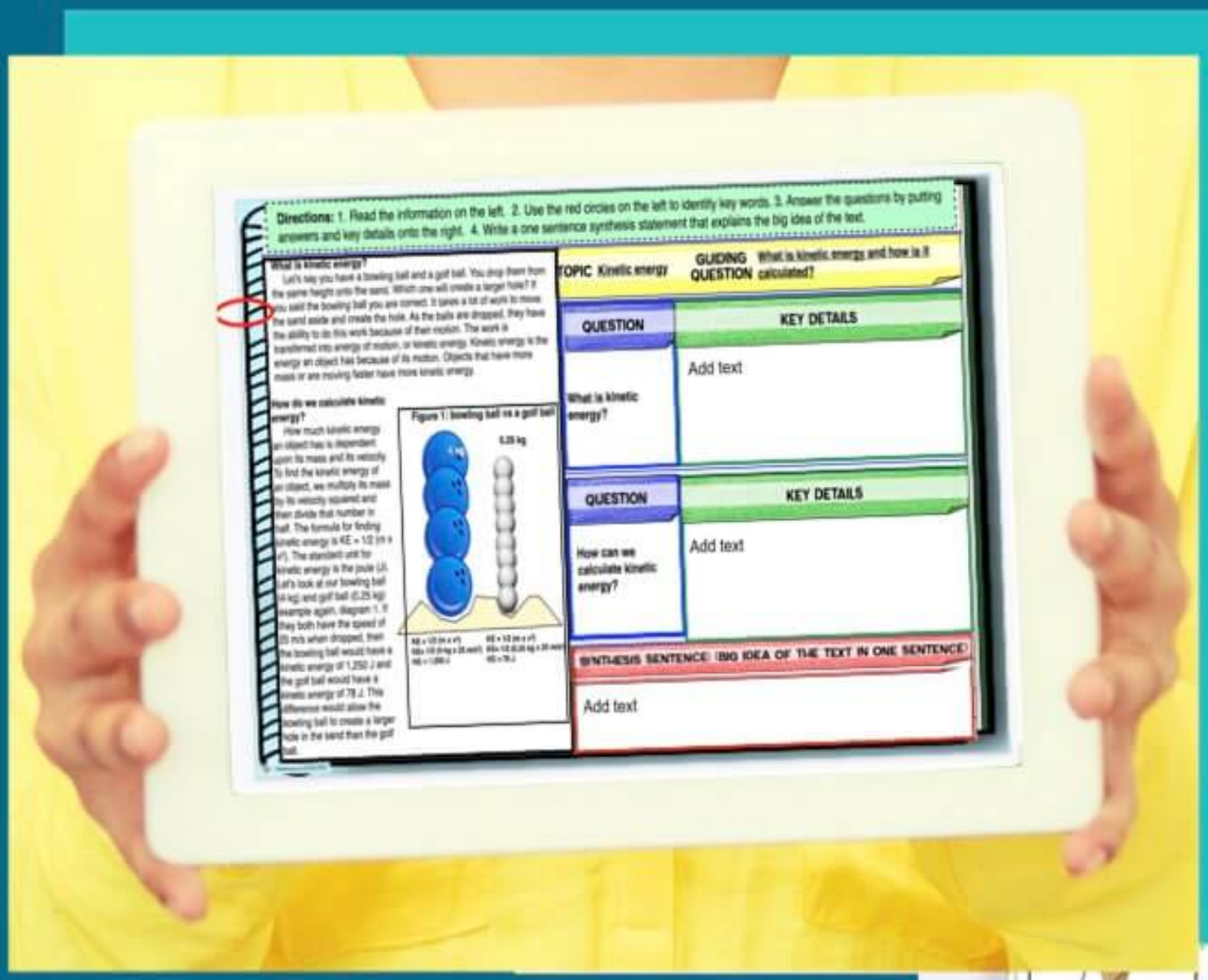
Energy Reading



Print AND Digital

3 comprehension passages

Guided Note templates

worksheets

Kinetic Energy

Big Idea Question: What is kinetic energy and how is it calculated?

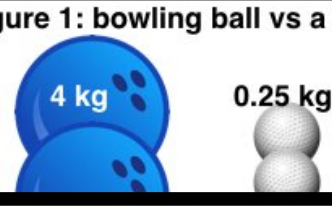
What is kinetic energy?

Let's say you have a bowling ball and a golf ball. You drop them from the same height onto the sand. Which one will create a larger hole? If you said the bowling ball you are correct. It takes a lot of work to move the sand aside and create the hole. As the balls are dropped they have the ability to do this work because of their motion. The work is transferred into energy of motion or kinetic energy. Kinetic energy is the energy an object has because of its motion. Objects that have more mass or objects that are moving faster have more kinetic energy.

How do we calculate kinetic energy?

How much kinetic energy an object has is dependent upon its mass and its velocity. To find the kinetic energy of an object we multiply its mass by its velocity squared and then div… that number in half. The formula kinetic energy is KE= 1/2 (m … standard unit for kinetic ener… joule (J). Let's look at our bo… (4 kg) and golf ball (0.25 kg) … again, figure 1. If they both h… speed of 25 m/s when dropp… bowling ball would have a kin… energy of 1,250 J and the go… would have a kinetic energy … This difference would allow th… ball to create a larger hole in … than the golf ball.

Figure 1: bowling ball vs a golf ball



Interesting Facts about kin…

Here are some interestin…

1. An objects kinetic e…
2. Two objects with th… matter which directi…
3. When an objects sp… car going 60 m… 30 mph.
4. An ob… less…
5. The…

Potential Energy

Big Idea Question: Describe potential energy and the different types of potential en…

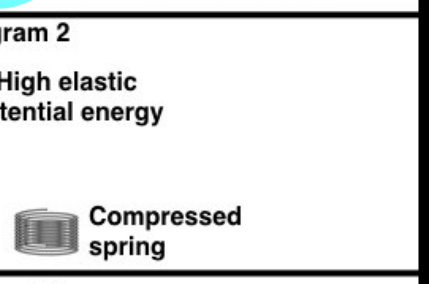
What is potential energy?

You place one ball at the bottom of a hill and another at the top of the hil… later an earthquake happens. The ball at the bottom of the hill rolls on… whereas the ball at the top of the hill rolls all the way down the hil… the balls act so differently? The reason is that they both had … energy to start with. Potential energy is the energy that … motion. The higher the object is the more potenti… converted into kinetic energy when it starts to …

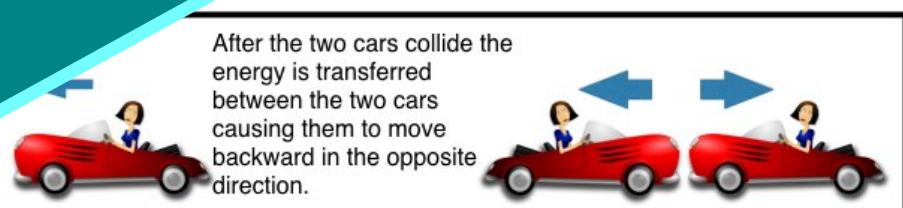
Diagram 1

…occurs b… …emical bonds … …ergy there is betw… …is less. This is why str… …igh potential energy.

Diagram 2

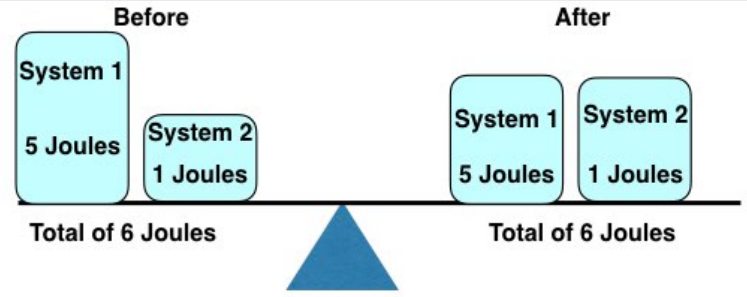


…your car moves a little … …er car gets transferred to your car … …nsfer of energy is called the … …**ergy** states that energy cannot be created or … …g to another.



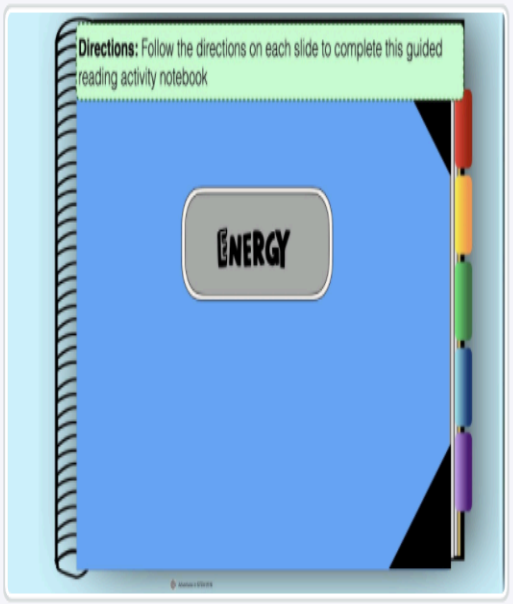
In a closed system, or a system in isolation, the total amount of energy between two objects before they interact and after they interact is the same or equal to each other. To simplify this, we will make each car a system. The first car,system one has an energy of 5 Joules and the second car, system two has an energy of 1 Joules. Joule is the unit for energy. Combined the two systems have a total of 6 Joules of energy. When they interact some of the energy between the systems is transferred. System one after the interaction now has 3 Joules and system two after the interaction now has 3 Joules. Combined the two systems have a total of 6 Joules after the interaction. This transfer of energy can be transferred into heat energy, mechanical energy, electrical energy, light energy, or chemical energy. Look at diagram 2 for a visual understanding of this concept.

Diagram 2

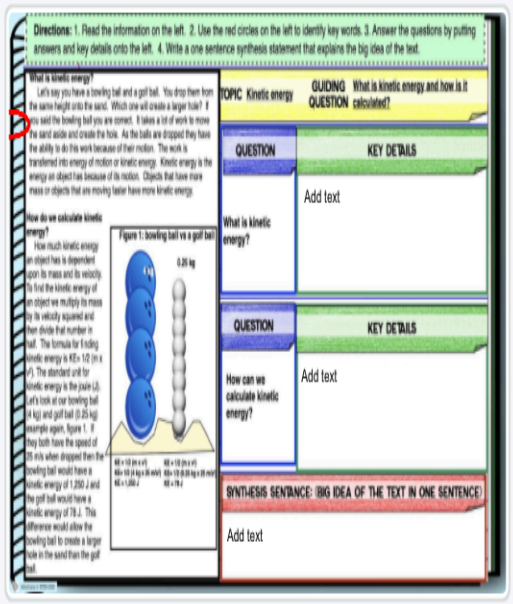


In physics we see the conservation of energy as an object rolls down the hill. At the top of the hill the object has a lot of potential energy. As it rolls down the hill the amount of potential energy is transferred into kinetic energy. We also see the conservation of energy in chemical reactions. As the bonds between compounds are broken the energy used to hold the atoms together is transferred. Some of the energy is used to create new bonds and others are transferred into heat energy.

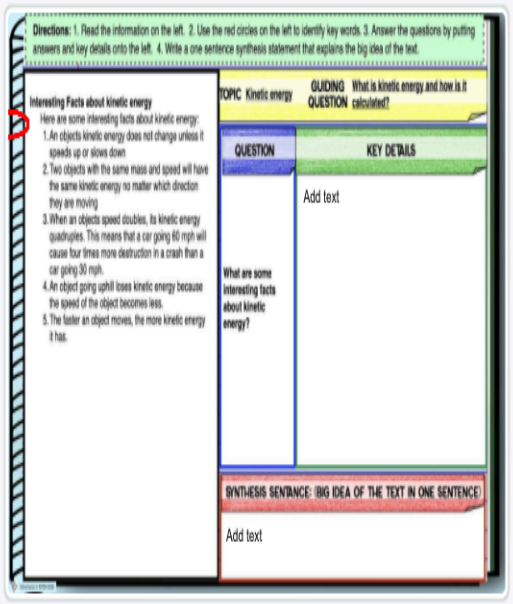
Short passages with Guided Notes



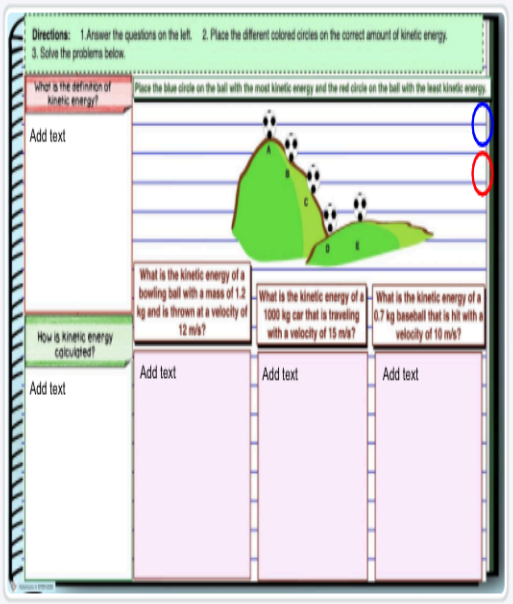
1



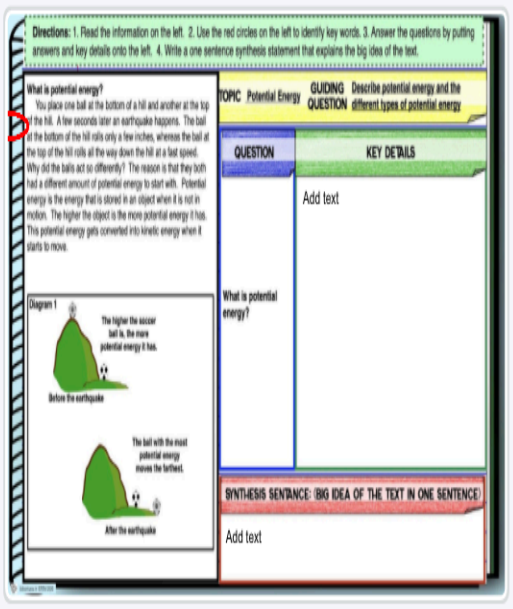
2



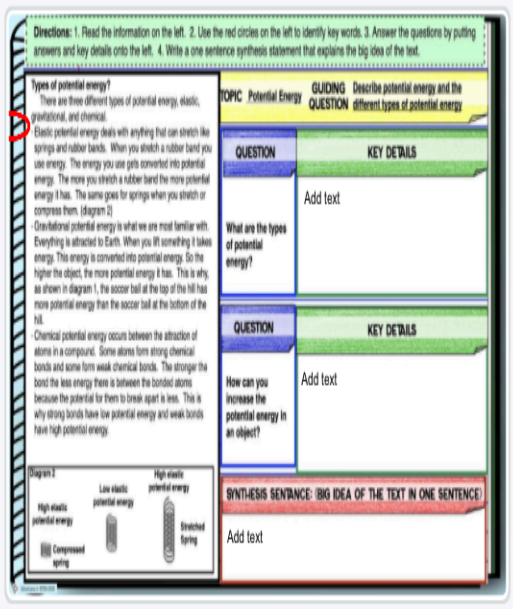
3



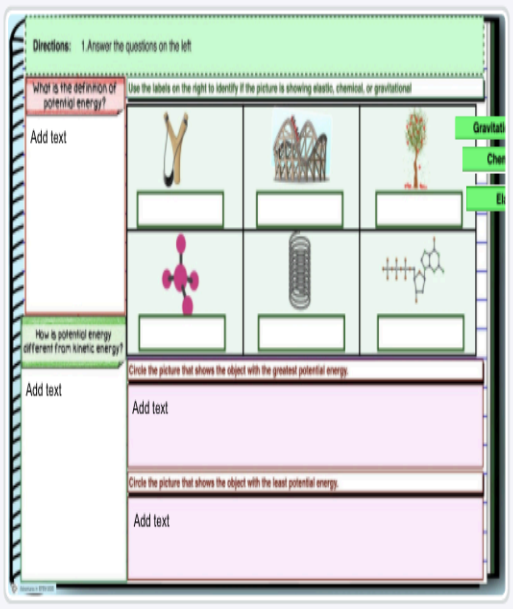
4



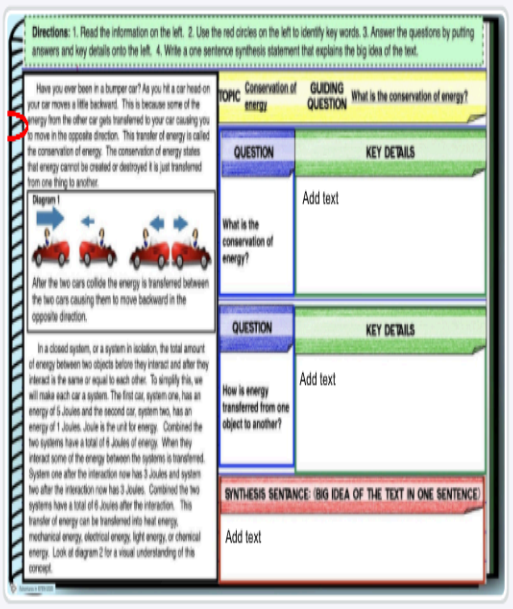
5



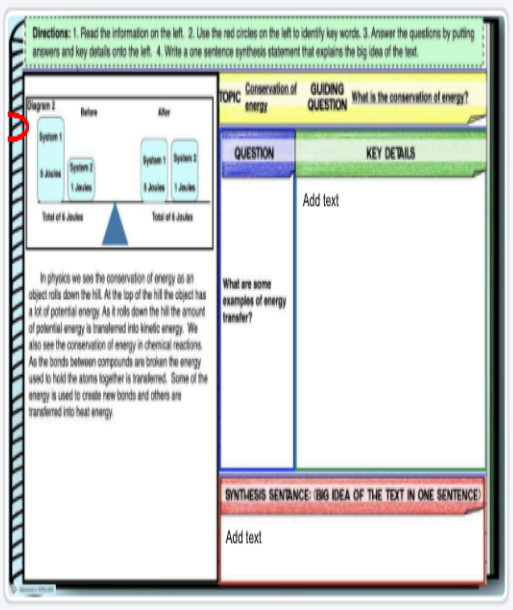
6



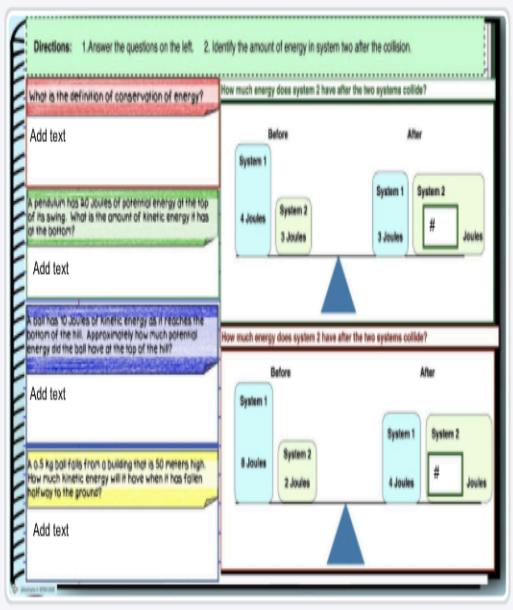
7



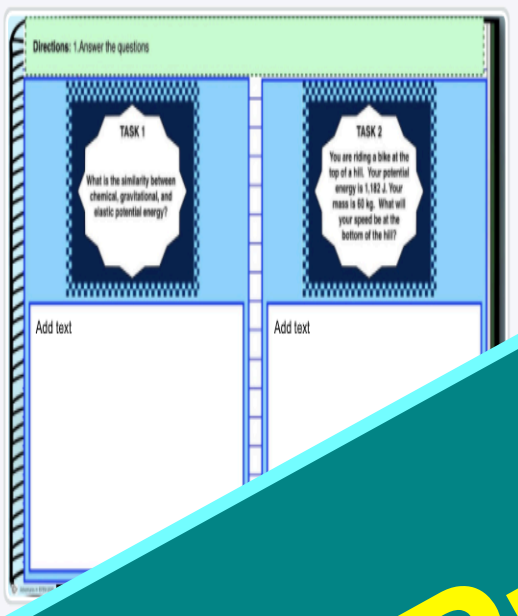
8



9



10



Name: _____ **Class:** _____

Topic: Conservation of energy **Date:** _____

Big Idea Question: What is the conservation of energy?

Questions	Notes
What is the conservation of energy?	
How is energy transferred from one object to another?	
What are some examples of energy transfer?	

Summary:

Kinetic Energy

Define and describe:

1. What is the definition of kinetic energy: _____

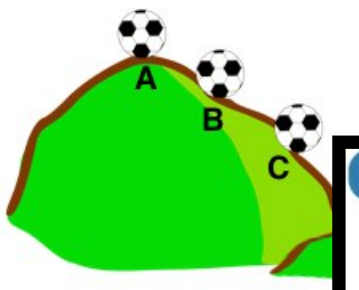
_____

_____

2. How is kinetic energy calculated? _____

_____

Identify: This diagram show a ball rolling down a hill



3. Which letter shows the ball wit

4. Which letter shows the ball wit

Calculate:

5. What is the kinetic energy of a
of 12 m/s?

6. What is the kinetic energy of a

7. What is the ki

Potential Energy

Define and describe:

1. What is the definition of potential energy: _____

_____

_____

2. How is potential energy different from kinetic energy?_____

_____

Identify:

3. Which type of potential energy is in the picture (elastic, chemical, gravitational)

Elastic / Chemical / Gravitational

/ Gravitational

hows t

Conservation of Energy

Define and describe:

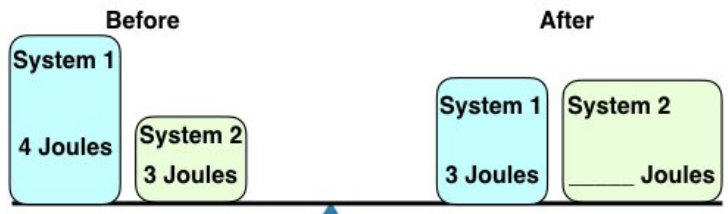
1. What is the definition of conservation of energy? _____

_____

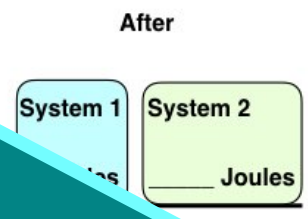
_____

Identify:

2. How much energy does system 2 have after the two systems collide?



ergy does system 2 have after the two systems collide?



t is the amount of

ll. Approximately

uch kinetic energy will it

© Adventures in ISTEM 2016

www.adventuresinISTEM.com

Comprehension Worksheets with answer key

Extension Task Cards

TASK 1

What is the similarity
chemical, gravitatio
elastic potential e

TASK 2

You are rid bike at the
top of potential
Your
t will
he

How d
an object aff
potential en

TASK 4

A roller Coaster that is moving 20 m/s down the top of a 60 m hill weighs 950 kg. What type of energy does the moving coaster have how much of this energy does it have?

Teaching STEM Through Inquiry

Thank You

Thank You for taking the time to visit my store and downloading one of my products. I hope you find this resource a useful tool for your classroom. I appreciate your support and look forward to your feedback.

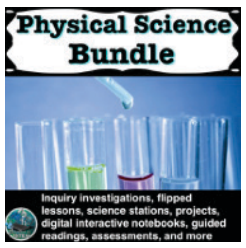
Giving Back

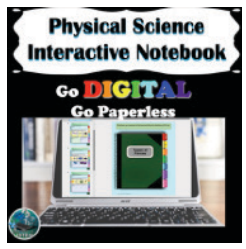
Cancer affects not only the person but everyone they know. A portion of the proceeds of this product are going to the organization LLS which helps to fund treatments and find a cure.

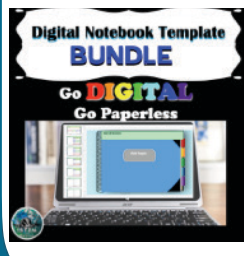
Have a Question?

I do my best to insure that this product is free from issues and mistakes. However, Sometimes links change and mistakes are missed by even the best editors, if you are experiencing any issues with this product please contact me first at kristi@adventuresinistem.com

You Might Also Like







Join the Newsletter

Get weekly tips, strategies, ideas, and freebies when you join the newsletter.

Sign Up Today

Terms of Use

The purchase of this resource entitles the purchaser to share with students, print, photocopy for single classroom and personal use only and may not be put on the internet, sold, or distributed in any form. If you would like to share this with your colleagues, please purchase multiple licenses from the product page on Teachers Pay Teachers.

Copying any part of the product and / or placing it on the internet in an unsecured platform (school sharing site, school website, personal website…) is strictly forbidden and is a violation of the Digital Millennium Copyright Act (DMCA)

Free Gift

I would like to know how I can best support you and your needs. Please fill out this feedback survey and receive a bonus gift.
Click HERE for the survey

Special Thanks

Pixabay