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Group Roles & Descriptions

Group Roles & Descriptions

During the year you may be assigned one or all of these roles. Please be sure you meet the requirements for your assigned role.

Facilitator: • Is the leader and spokesperson for the group •
Makes sure group is on task and working quietly. Encourages everyone to participate the whole time. Keeps track of time and reports for the group.

Scribe: • Is responsible for the writing of the group •
Writes answers and strategies used by the group. Records data and observations for the group during experiments.

Narrator: • Is responsible for all reading for the group •
Reads directions, problems, and text selections aloud for the group. Helps to clarify vocabulary when needed.

Materials Manager: • Is responsible for all materials for the group. •
Retrieves and returns any papers, equipment or supplies; as well as prepares and cleans up the materials the group uses. This includes the supply box.

***Team Player:** • Is responsible for helping the group •
Participates in all activities the group does together. Helps to fill in if a member is absent and can not perform their responsibilities.

Unit Vocabulary Options

Unit Vocabulary Assignment Options

What works for you?

Each unit you will use vocabulary strategies that work best for you and complete two assignments from the options below. The purpose of the assignments is to prepare for each quiz by learning your vocabulary. Both assignments must be turned in before the vocabulary quiz.

1. Make vocabulary flash cards with the words on one side and the definitions on the other.
2. Make a foldable that includes at a minimum the words and definitions.
3. Make a word search and a crossword on the computer. You must complete both.
4. Rewrite the words and definitions on a sheet of paper.
5. Make a picture booklet using your words.
6. Make a word web that includes the word, definition, picture, and sentence for each.



2 assignments per unit

Due before ~~the~~ ~~quiz~~

Folder

I bring a folder to class everyday.

A folding cover or holder made of stiff material to hold papers

Technology Vocab Unit Ø³

Technology Vocabulary

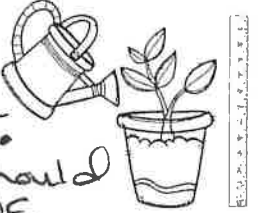
- **(EDP) Engineering Design Process** - the process engineers use to develop a new technology
- **Ask** - Ask a question or find a problem that needs solving
- **Imagine** - Imagine the possible answers/solutions
- **Plan** - Draw a diagram/blueprint and make a list of materials
- **Create** - Make a prototype and test your theory!
- **Improve** - Modify your design; repeating steps 1-4 until your prototype is working correctly
- **Technology** - The products and processes that are designed to serve our needs
- **Engineering** - The process of creating technology
- **Prototype** - A test model of the product
- **Independent Variable** - this is the variable that is changed or controlled in an experiment
- **Dependent Variable** - this is the variable that is the result
- **Controlled Variable** - this is the variable that stays the same

Mrs. J said
I do one
assignment. It is
due by 8/14/18.

Variables

I N D E P E N D E N T


The factor that I change during an experiment.

Example:  There should only be ONE.

What factors could you change in this setup to create a valid experiment?

D E P E N D E N T

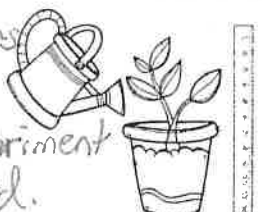
The outcome we get because of the independent variable.

Example:  "result"

What are you most likely measuring in this experimental setup?

C O N T R O L L E D

The factor that remains the same (constant) to

Example:  make your experiment valid.

What types of things would need to stay constant in this experimental setup?

S
C
I
E
N
C
E
V
A
R
I
A
B
L
E
S

Should be measurable

6

Engineering Design Process



You Tube
Video
Inventeen : A Highschool
Engineering Design
Challenge

1. What is engineering?
2. How would you explain the engineer design process? How would you use the engineer design process?
3. Draw an engineer at work. Under your picture, describe in words, what the engineer is doing.
4. What would the world be like without engineers? You can draw and/or write your thoughts

8

Energy Vocabulary Unit 1

Energy Vocabulary

1. Energy – the ability to do work
2. Work – the transfer of energy
3. Kinetic – energy an object has due to its motion
4. Gravitational Potential Energy - energy an object has due to its mass and height
5. Energy conversion – a change from one form of energy to another
6. Friction – a force that opposes motion between to objects that are touching
7. Law of Conservation of Energy – states that energy cannot be created or destroyed but it can be changed from one form to another
8. Closed system – a group of objects that transfer energy only to each other
9. Electric Energy - energy of moving electrons
10. Thermal Energy - sum of the Kinetic energy of particles



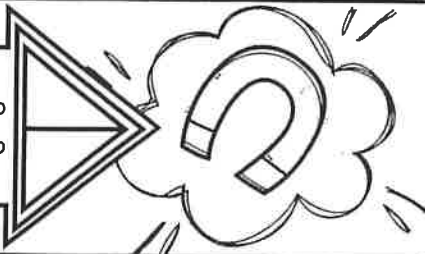



Two vocab assignments
up an object.

Energy

- * Energy is the ability to do work.
- * Work is done when a force causes an object to move.
- * Kinetic energy is the energy of motion.

Thermal energy is all the kinetic energy due to the motion of the particles that make

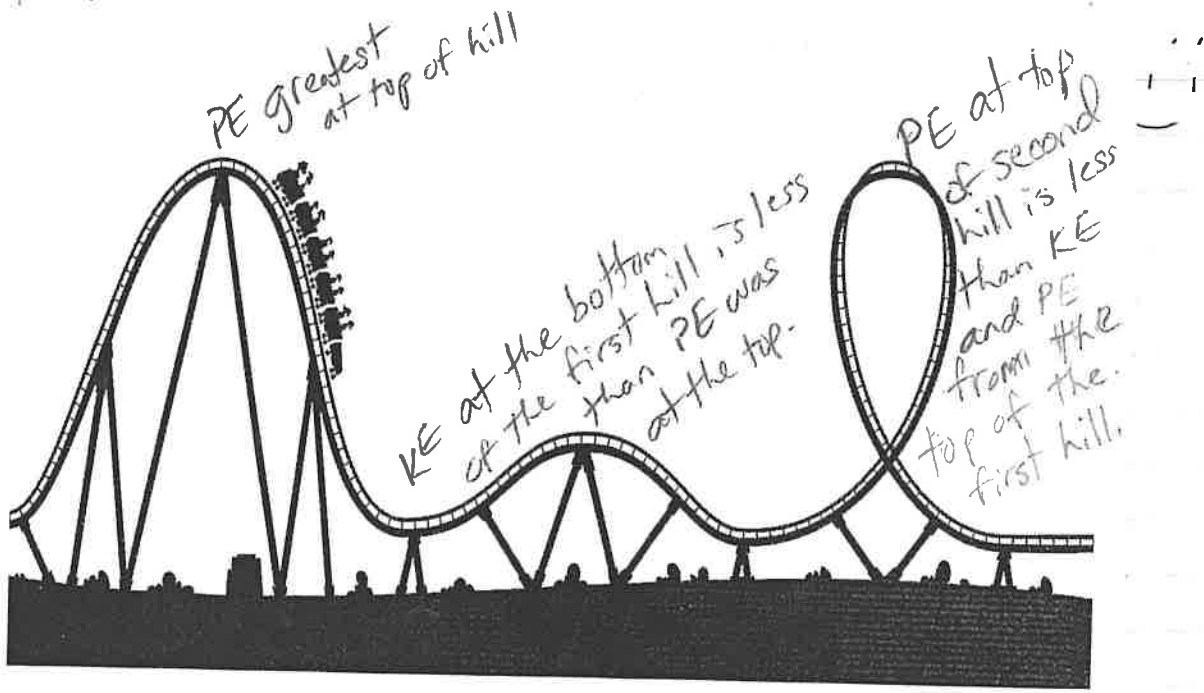
POTENTIAL ENERGY

	<p>The energy stored in an object due to its <u>position</u>, <u>mass</u>, and other <u>factors</u></p>
	<p>The energy an object has due to its <u>position</u> above <u>Earth</u>, energy due to its <u>height</u> gravitational</p>
<p>magnetic The energy a magnetic object has due to its _____ and _____ to other _____ objects.</p>	
	<p>The energy an electrically charged object has due to its <u>position</u> near other <u>charged</u> objects. electrical</p>
<p>chemical The energy an object has due to its <u>chemical bonds</u>. It is released during <u>reactions</u> or <u>phase changes</u>.</p>	
	<p>The energy an object has due to the <u>stretching</u> or <u>compression</u> of an <u>elastic</u> object. elastic</p>

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Forms of Kinetic Energy Notes

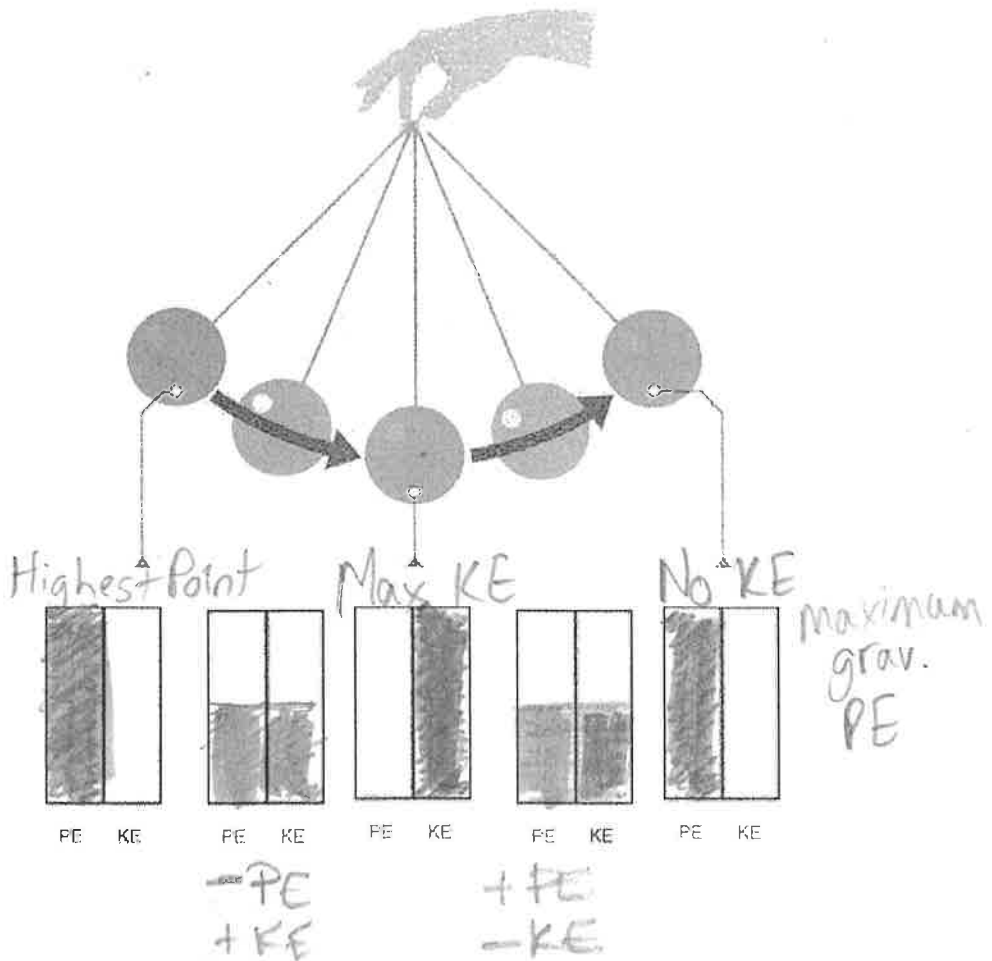
- **Kinetic energy** is the energy of motion. If something is moving it has KINETIC ENERGY.
- **Mechanical energy** is an object's potential and kinetic energy combines. Mechanical energy can be all potential, all kinetic, or some of each.
- **Thermal energy** is all the kinetic energy due to random motion of the particles that make up an object. Particles move faster at higher temperatures than at lower temperatures. The faster the particles move, the greater the kinetic energy and the greater the object's thermal energy.
- **Chemical energy** is the energy of a compound that changes as its atoms are rearranged. We get chemical energy from the food we eat.
- **Electrical energy** is the energy of moving electrons. Electrical energy (power) for your home comes from a power plant.
- **Sound Energy** is caused by an object's vibration; Consists of vibrations carried through the air.
- **Light energy** is produced by the vibration of electrically charged particles.
- **Nuclear Energy** is the energy that comes from changes in the Nucleus of an atom. The energy given off by the sun comes from nuclear energy.



- * The Law of Conservation of Energy says that energy is not created or destroyed. It is transferred.
- * You start and end with the same amount.

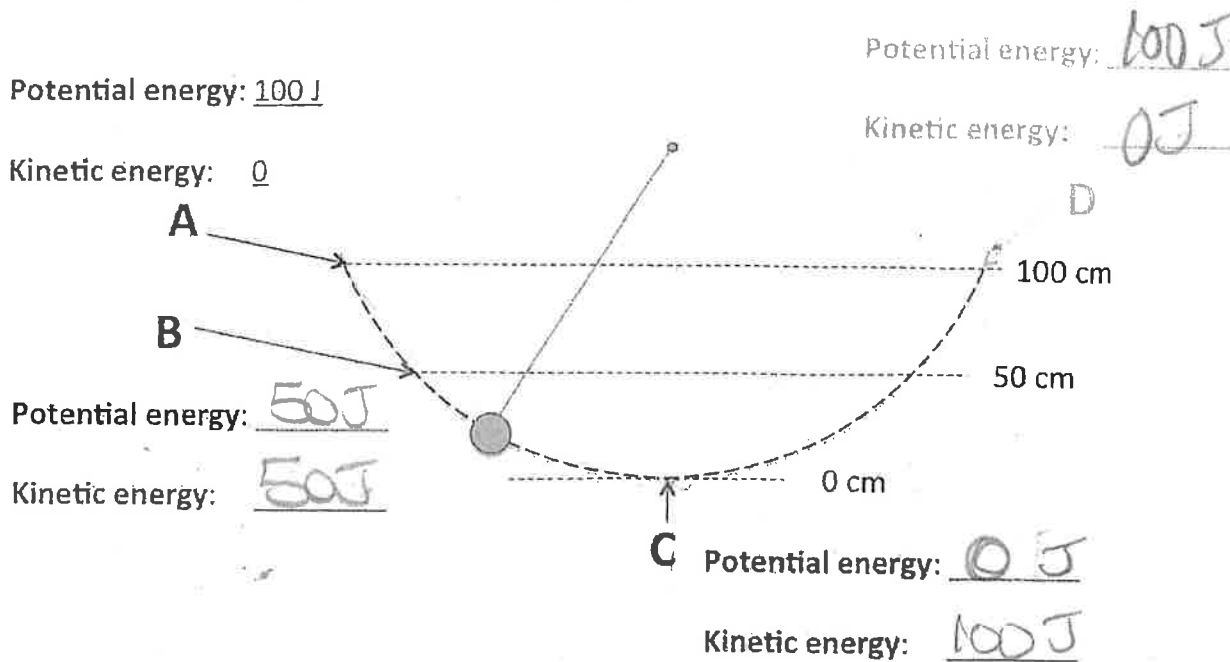
Law of Conservation of Energy

Energy is neither created nor destroyed. It can be transferred from one form to another or changed from one type to another.



A pendulum starts at Point A and swings smoothly through points B, C, and D as shown below. Potential and kinetic energy quantities are shown for Point A.

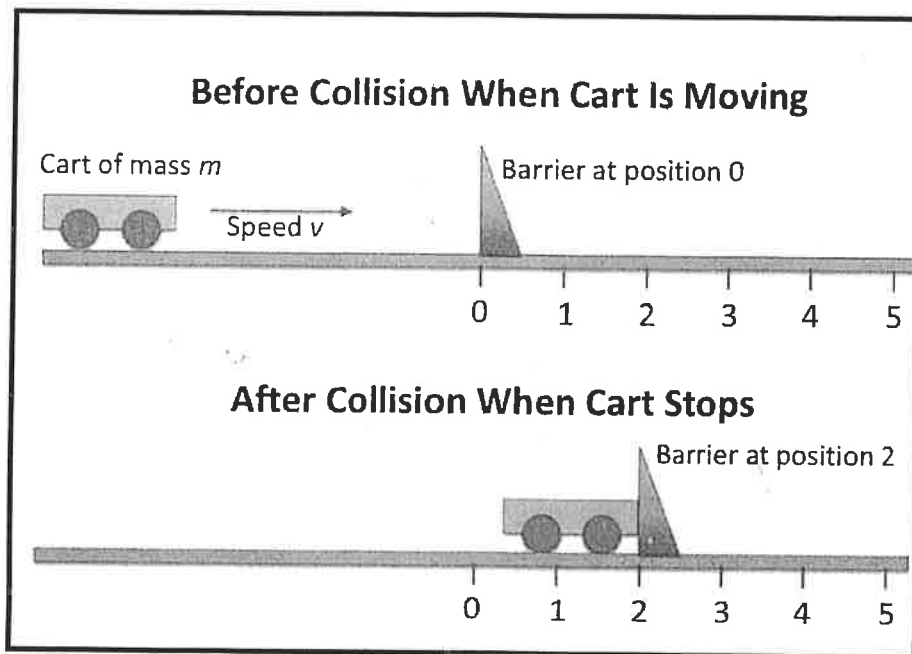
Swinging Pendulum



Point	Observable Properties		Energy Type	
	Height of Pendulum (cm)	Speed of Pendulum	Potential Energy (J)	Kinetic Energy (J)
A	100	zero	100	0
B	50	middle	50	50
C	0	fastest	0	100
D	100	zero	100	0

Kinetic Energy Lab

Some students are investigating kinetic energy. The students set a cart of mass, m , in motion at a speed, v , down a level track and into a sliding barrier. The cart sticks to the barrier and pushes it along the track until the cart and barrier both stop. The figure below illustrates the experimental set-up.



The track is calibrated so that the labeled positions represent the amount of kinetic energy originally possessed by the cart, in Joules. For example, when the cart pushes the barrier from position 0 to position 2 as shown above, this means the cart originally had 2.0 Joules of kinetic energy.

The students have weights they can add to the cart to change its mass. They also have a special launching device for the cart, which can set the cart in motion at a precise speed. The students perform many experiments with different masses and different speeds, and they collect their data into tables for you analyze.

Your job is to use the data in the tables to describe how the kinetic energy of the cart varies with mass and with speed.

Energy Conversions

An **energy conversion** is a change from one form of energy to another. Often one form of energy changes into **more than one** form of energy.

*Consider the source of the energy and the energy it transfers into for each of the examples.

1. Alarm Clock Radio

electrical > sound
Source light
thermal

2. Hair Dryer

electrical > sound
Source thermal
mechanical

3. Lighter

chemical > light
Source thermal

4. Lamp

electrical > light
Source thermal

5. Flute/Harmonica

kinetic > sound
Source thermal

6. Flat Iron

electrical > thermal
Source _____

7. Flash Light

chemical > electrical
Source light
thermal

ENERGY CONVERSIONS