

# Interactive Science Notebook (ISN)



**This book belongs to \_\_\_\_\_ if found please  
return to Mrs. C.D. Hood Rm. 825 Stockbridge Middle School.**





# L intro: Science Journal Entry Intro

Add.....

Today you will present bioglyphs

We will review language of science

We will begin “Penny Observations”

# Quiz

- You have an incredibly easy assessment now!
- It will take you no longer than 5-10 minutes.
- Have a seat!
- Clear your desk.

# L intro: Science Journal Entry Intro

Add.....

Today I will finish my Penny Lab

I will also have an exit slip

4/6/2014

Christina Hood Stockbridge Middle  
School 2013-2014.

# Exit Slip R intro

1. Was your hypothesis correct?
2. Which type of water allowed you the most drops on the penny?
3. Which type of water allowed you the least number of drops on the penny?
4. Why did one type of water give more drops on the penny than the other?
5. What observations did you make throughout the course of the activity?



# Welcome! 8/12/13

- Pick up a science notebook booklet from the shelf.
- Pick up your composition notebook from the shelf.
- There is an important development about your pretest we will discuss.
- I will give you an assignment in your book.

# Agenda Entry 8/12

- Get quiz signed and corrected (if failing)

# To Do List!

- Today we will have your first pre-assessment
- Clear your desks!
- Sharpen pencils before the exam begins.
- Pick up a strip of notebook paper and a handout from the side table.
- After the pre-assessment I will put up your science journal entry #1 for today.
- No one will leave/get up/talk for any reason !

# L1: SJE#1: Exploring Physical Science

*Last night before you went to bed you remembered that you needed to charge your cellphone. You put the plug in the bottom of your phone and plugged the charger into the electrical outlet and waited. The phone appeared to be charging and looks like it is working, but when you awake in the morning and attempt to power “on” your phone it does not respond.*

**Make a list of reasons the phone did not turn on. Then write the steps you could take to locate the problem.**

# Agenda Entry 8/13/13

- Get quiz signed (everybody)
- Get quiz corrected (if failing)

# To Do List 8/14/13!

- We will bubble in our answers on our bubble sheet.
- We will read Chapter 1.1 and complete pages 1-4 in your science notebook.
- We will Review the summary and terms from the section.
- We will complete the R1: Questions!

# Exploring Physical Science

## USING KEY TERMS

In your own words, write a definition of the following terms in the space provided.

### 1. Science

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### 2. Physical science

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# Section Summary

- \_\_\_\_\_ is a process of gathering knowledge about the \_\_\_\_\_.
- \_\_\_\_\_ is the study of \_\_\_\_\_ and \_\_\_\_\_.
- Physical Science is divided into the study of \_\_\_\_\_ and \_\_\_\_\_.
- \_\_\_\_\_ studies the \_\_\_\_\_ and \_\_\_\_\_ of matter and how matter changes.
- \_\_\_\_\_ looks at energy and the way that \_\_\_\_\_ affects \_\_\_\_\_.
- A knowledge of \_\_\_\_\_ science is important for many areas of science such as \_\_\_\_\_ and \_\_\_\_\_.



# R1: Exploring Physical Science Review

- Scientists ask questions to learn \_\_\_\_\_, \_\_\_\_\_, or \_\_\_\_\_ something \_\_\_\_\_.
- A \_\_\_\_\_ is a possible explanation for observation that is supported by many \_\_\_\_\_.
- A \_\_\_\_\_ describes a \_\_\_\_\_ but does not explain \_\_\_\_\_ things happen.
- A \_\_\_\_\_ is composed of \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ that \_\_\_\_\_ with each other.
- Science is divided into \_\_\_\_\_ branches → \_\_\_\_\_ science, \_\_\_\_\_ science, and \_\_\_\_\_ science.
- \_\_\_\_\_ is the application of science in our everyday lives.

# R1: Exploring Physical Science Review

- Scientists ask questions to learn \_\_\_\_\_, \_\_\_\_\_, or \_\_\_\_\_ something \_\_\_\_\_.
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- \_\_\_\_\_ is the application of science in our everyday lives.

# L2: SJE#2: Scientific Method

**How can you prove that the world is not flat?  
Do you need special tools? Can you prove it  
using observation and logic?**

# Agenda Entry 8/15/13

- Match the words with the definitions on the top half of your R 2 page.

# Understanding Key Ideas UKI

1. What does it mean to make an inference?
  - a. Make observations
  - b. Draw a conclusion
  - c. Replace
  - d. Test
2. Which of the following is not an example of a scientific hypothesis?
  - a. Earthquakes happen because of stress along continental plates.
  - b. Some animals can detect ultrasound frequencies cause by earthquakes.
  - c. Paintings are prettier than sculptures.
  - d. Lava takes different forms depending on how it cools.

# To Do List 8/16/13!

- We will be finishing up with Scientific Method today.
- We will read Chapter 1.2 and complete pages 5-7 in your science notebook.
- If we finish before class ends we will move onto SJE #3 and begin lab.

# Instructional Focus Assignment 8/20

- Reread Chapter 1 Section 3: Models in Science
- Take out a sheet of notebook paper (Do not tear out of your composition notebook)
- Complete the two reading check questions spaced throughout the section.
- Complete the Self Check questions on page 26 1-5.
- Write all of the questions.
- Answers should be in a complete sentence.
- This is due @ 9:40 and will be graded!

# Phys Sci To Do List

- Review Chapter 1 Section 3
- Discuss Section Summary and Vocabulary Terms
- Brainpop video on Sci Theory vs. law
- Scientific Theory vs. Law foldable
- Understanding Key Ideas R3
- Table of Contents Update.



# Chapter 1 Section 3: Scientific Models

## VOCABULARY

In your own words, write a definition of the following terms in the space provided.

1. model

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2. theory

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3. law

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## SECTION SUMMARY

Read the following section summary.

- A \_\_\_\_\_ uses \_\_\_\_\_ things to describe \_\_\_\_\_ things.
- \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ models are commonly used in science.
- A scientific \_\_\_\_\_ is an explanation for many \_\_\_\_\_ and \_\_\_\_\_.
- A scientific \_\_\_\_\_ summarizes experimental \_\_\_\_\_ and observations. It describes \_\_\_\_\_ happens but not \_\_\_\_\_.

# Section 3 Review : Scientific models

## SECTION VOCABULARY

**law** a descriptive statement or equation that reliably predicts events under certain conditions

**model** a pattern, plan, representation, or description designed to show the structure or workings of an object, system, or concept

**theory** a system of ideas that explains many related observations and is supported by a large body of evidence acquired through scientific investigation

1. **Explain** What are some ways that scientists use models?

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2. **Identify** What are the three types of models used by scientists?

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3. **Identify** A model of a molecule can help you imagine what a molecule looks like. What are two ways that this model is different from the object it represents?

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4. **Compare** What is the difference between a scientific theory and a scientific law?

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5. **Explain** How can theories change over time?

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# R3: Understanding Key Ideas UKI

1. Which kind of model would you use to represent a human heart?

- a. Mathematical model
- b. Physical model
- c. A conceptual model
- d. A natural model

2. Explain the difference between a theory and a law.

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# Instructional Focus Assignment 8/21

Reinforcement Activity

# Phys Sci To Do List 8/21/13

- Reinforcement Sheet R3
- StudyJams video on Sci Theory vs. law
- Quiz!!!!
- Read Chapter 1 Section 4 Scientific Explanations
- Complete Science Notebook pages 11,12, and 13.

# Phys Sci To Do List 8/22/13

- Quiz makeups
- Quiz distribution
- Review Science Notebook pages 11,12, and 13.

# Agenda Entry 8/21/13

- Science Workbook pages 11-13
- Read Chapter 1 Section 4

# Agenda Entry 8/22/2013

- Get R3 quiz and R intro quiz signed / corrected
- Signed Syllabus
- Rewrite incorrect questions and answers



# Physical Science 8/27/13

- Put labs in the blue box on the front table.
- Pick up a  $\frac{1}{2}$  sheet from the green box
- Pick up one coach book for you and your partner.

# Science Journal Entry #4

## L4: Tools, Measurement, and Safety

1. List 5 laboratory tools that scientists use and their functions . (DO not include safety glasses, gloves, and aprons.)
2. How does a standard system of weights and measures make life easier?
3. Safety is very important in science class. List 3 safety rules you must always follow.

# Phys Sci TDL 8/29/13

- ~~Grade Coach Book Lesson~~
- Grade Homework
- Work on Lab Tool functions
- Back side of R4 Handout
- List of Test Topics

# Agenda Entry 8/28/13

- Complete problems 20-24 on the Metric Mania handout.

# Agenda Entry 8/29/13

- Finish Handout all sides L4/R4
- Study for Unit 1 Posttest
- Test topics: lab tools, Scientific Method (steps), Scientific Explanations, safety, metric measurements, conversions, measuring, models, data analysis and conclusion.

# Phys Sci TDL 8/30/13

- Grade Homework Lab Tool Functions
- Update T.O.C.
- Fix notebook
- Glue Notebook Check paper to inside front cover
- Pick up your answer sheet
- Posttest

# Science Journal Entry #6

## Introduction to the Atom

- In order to understand matter more lets discuss atoms.
- Match the following:

**Proton**

- 0 charge/neutral; No net charge

**Neutron**

- Positive charge (+)

**Electron**

- Negative charge (-)

# L6 Notes to Add

- Atomic number = protons or electrons
- Atomic mass = protons + neutrons
- How to calculate neutrons?
  - Atomic mass - # of protons = neutrons
  - Mass #- atomic # = neutrons



# Agenda Entry 9/10/13

- Finish The Atoms Family Handout Chart

# R6: Intro to the Atom Q's

- \_\_\_\_\_ is anything that occupies space and has \_\_\_\_\_.
- \_\_\_\_\_ is made up of \_\_\_\_\_.
- \_\_\_\_\_ are made up of smaller parts called \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
- \_\_\_\_\_ are the building blocks of matter.
- An \_\_\_\_\_'s atomic \_\_\_\_\_ tells how many \_\_\_\_\_ its atoms contain.
- Atomic \_\_\_\_\_ tells the average mass of its atoms.
- \_\_\_\_\_ are two or more \_\_\_\_\_ of the same \_\_\_\_\_ that have \_\_\_\_\_ numbers

# R6: Intro to the Atom Answers

- Matter is anything that occupies space and has mass.
- Matter is made up of atoms.
- Atoms are made up of smaller parts called protons (+), neutrons (0), and electrons (-).
- Elements are the building blocks of matter.
- An element's atomic number tells how many protons (+) its atoms contain.
- Atomic mass tells the average mass of its atoms.
- Isotopes are two or more atoms of the same element that have different numbers of neutrons.

# L7: Science Journal Entry #7

## “Elements”

1. How are atoms related to matter?

2. How are elements related to atoms?

3. How are elements related to matter?

Define the following terms in no more than 5 words.

- Atom
- Molecule
- Element
- Pure Substance
- Compound

# R7: Elements

# L8: Law of Conservation of Matter/Mass Redo

## Procedure - Part 1:

1. Using your graduated cylinder measure 25 mL of vinegar.
2. Add the vinegar to your 125 mL Erlenmeyer flask.
3. Stretch your balloon out for about a minute so that it will inflate easily.
4. Using the white plastic spoon, add 1 level teaspoon of baking soda to your balloon. Use the paper funnel to avoid spilling.
5. Keep the baking soda in the balloon, put balloon over the opening of the flask (tight seal.) The balloon will hang to the side of the flask. Record/draw observations.

# L8: Law of Conservation of Matter/Mass (Redo)

6. Using an electronic scale find the mass of the closed system. (Flask, vinegar, balloon, and baking soda) Record the mass in the data table.
7. Lift balloon so that the baking soda mixes with the vinegar hold the seal.
8. Record/draw all observations.
9. Remove the balloon and reweigh.
10. Record all observations.

# R8: Law of Conservation of Matter/Mass (Redo)

RESULTS → Schematic Drawing Before and After, Label. Record Observations.

Before	After
Observations:	Observations:

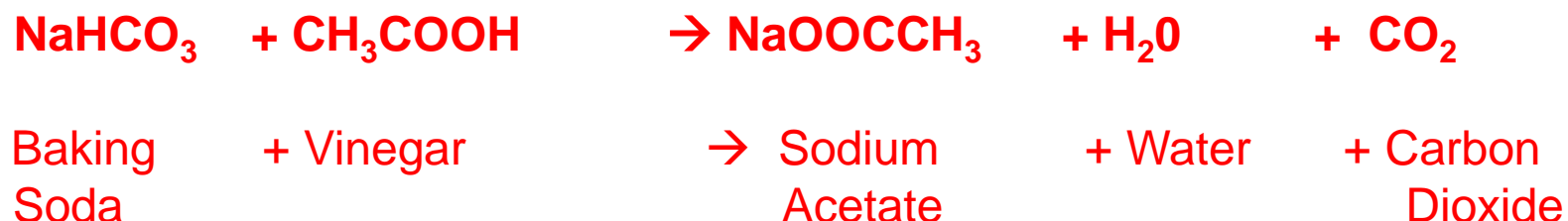
## DATA TABLE

<b>Initial Mass (g)</b>	<b>Final Mass (g)</b>	<b>Change in mass (g) (Final -initial)</b>	<b>Mass after gas release</b>
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# L9: Law of Conservation of Matter/Mass Lab Analysis and Results

Look at the chemical equation below:



1. Name the reactants (chemical formula and common name)
2. Name the products (chemical formula and common name)
3. Name the gas produced (chemical formula and common name)

## Analyzing Results

1. **Compare the mass of the closed system before and after the reaction. Explain your results.**
2. **Were any new elements introduced into the closed system? Where did the gas come from? Explain.**

# R9: Law of Conservation of Matter/Mass Lab Analysis/Conclusion

**3. What evidence did you observe to indicate that a chemical reaction took place?**

**4. After the gas was released, what happened to the mass of the system and why?**

**5. Did your results support this statement? Why/Why Not?**

**Conclusion:**

**2-3 sentences on what you learned in this experiment.**

# L9: Law of Conservation of Matter/Mass (4<sup>th</sup> Period)

1. How do you determine whether or not a chemical reaction is occurring?
2. What does the law of conservation of mass/matter state?

## Vocabulary Chart

<b>Term</b>	<b>Definition</b>
<b>Chemical reaction</b>	
<b>Reactant</b>	
<b>Product</b>	
<b>Chemical equation</b>	
<b>Endothermic reaction</b>	
<b>Exothermic reaction</b>	

# R9: Chemical Formulas and Equations

1. What does a chemical equation tell chemists?
  2. What is a reactant? Where are they located?
  3. What is a product? Where are they located?
  4. What is the common name for vinegar?
  5. What is another common name for baking soda?
  6. What does a change in the color of autumn leaves indicate?
  7. Write the chemical equation for the reaction between baking soda and vinegar?
  8. By whom and when was the principle known as the law of conservation of mass first stated?
  9. What does the law of conservation of mass state?
  10. How do you balance a chemical equation
- Bonus: What type of chemical reaction is burning?**

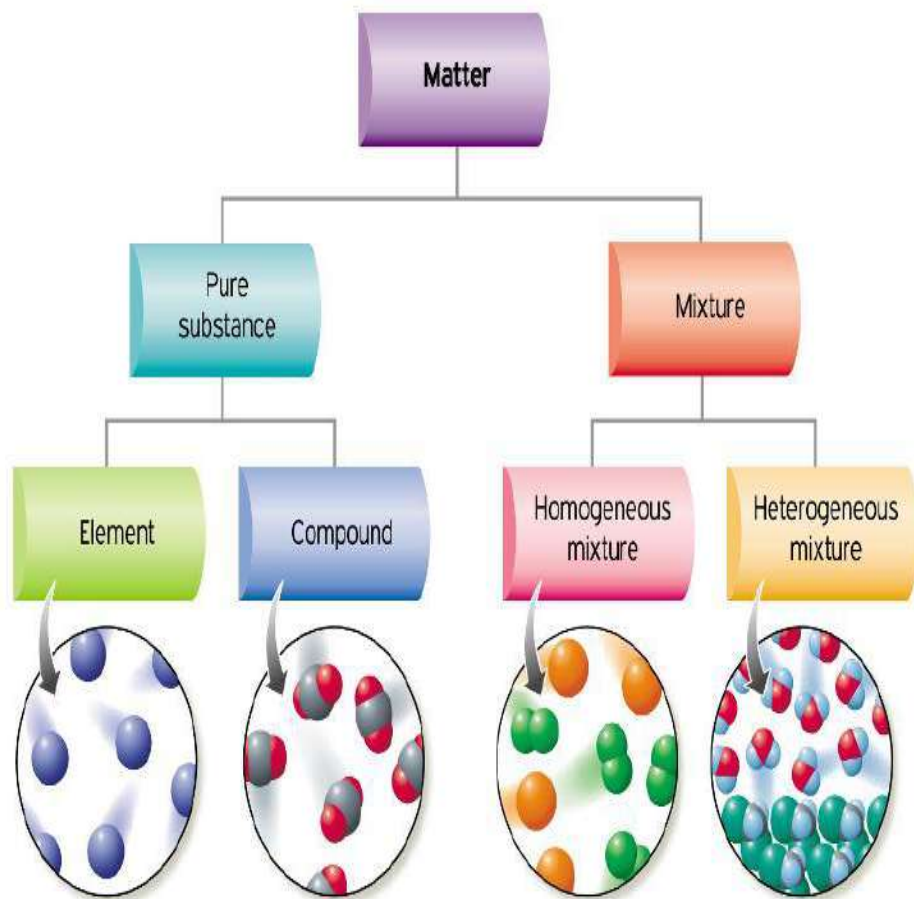
When finished complete Science

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Workbook Pages 71-74

# L10: SJE#10: Elements, Compounds, and Mixtures (S8P1b) chp. 8.1

1. How are substances and mixtures different?
2. What are the two types of mixtures? (Describe)
3. How do solutions form?
4. What are the different types of solutions?



# R10: Chromatography Lab

1. What is chromatography?
2. What is a mixture?
3. Why did we use filter paper?
4. What are the two types of mixtures?
5. What type of mixtures were the markers? How do you know?

## Chromatography

All chromatographic techniques flow the mixture, that is to be separated, through a material that **retains some components more than others.**

This causes different components to flow through the material at different speeds, so they separate.



# Class 3<sup>rd</sup> Period Results of RF Value

Red		Yellow		Blue	
0.56	0.67	0.43	0.40	0.70	0.45
0.48	0.52	0.43	0.77	0.50	0.81
0.68	1.00	0.56	0.50	0.67	0.83
0.68	3.50	Lipsey/CS	0.80	0.63	0.40
0.71	0.56	0.62	1.40	0.64	1.10
1.83		3.60		2.20	
0.63		0.58		0.65	
0.50		0.43		0.54	
1.71		0.83		0.83	
0.36		0.50		0.58	

# Class 4<sup>th</sup> Period Results of RF Value

Red		Yellow		Blue	
1.90	0.45	0.55	0.36	0.75	0.36
0.79	0.50	0.74	0.43	0.79	0.43
0.57	0.60	0.43	0.64	0.57	0.70
0.44	0.46	0.38	0.57	0.55	0.57
0.52	0.66	0.50	0.50	0.50	0.66
0.36	0.50	0.36	0.33	0.45	0.50
0.50	0.78	0.50	0.71	0.50	0.78
0.75		0.68		0.75	



# Class 5<sup>th</sup> Period Results of RF Value

Red		Yellow		Blue	
1.00	0.50	0.89	0.49	0.95	0.55
0.64	0.53	0.31	0.44	0.46	0.45
0.51	0.52	0.44	0.53	0.50	0.58
0.61	0.48	0.74	0.49	0.76	0.63
0.21	0.50	0.43	0.35	0.56	0.31
0.61	0.56	0.53	0.52	0.66	0.61
0.50	0.59	0.48	0.56	0.45	0.57
0.71	0.42	0.63	0.41	0.69	0.49

# SJE#11: Periodic Table of Elements

9/26

1. What is the table used to organize and arrange elements in an orderly way based on their properties called?
2. What do the periods (rows) in the periodic table represent?
3. What do the groups (columns) in the periodic table represent?
4. What three general categories do all elements fall into?
5. By what are the elements in the periodic table organized?
6. What three people are instrumental in the development of the periodic table?

**Periodic Table of the Elements**

The periodic table is organized into groups (columns) and periods (rows). The groups are labeled at the top: 1 (IA), 2 (IIA), 3 (IIIB), 4 (IVB), 5 (VB), 6 (VIB), 7 (VIIB), 8 (VIII), 9 (VIII), 10 (VIII), 11 (IB), 12 (IIB), 13 (IIIA), 14 (IVA), 15 (VA), 16 (VIA), 17 (VIIA), and 18 (VIIIA). The periods are labeled on the left: 1, 2, 3, 4, 5, 6, and 7. The Lanthanide Series (elements 57-71) and Actinide Series (elements 88-103) are shown below the main table. A legend at the bottom identifies the color-coded categories: Alkali Metal (blue), Alkaline Earth (purple), Transition Metal (green), Basic Metal (orange), Semimetal (yellow), Nonmetal (light green), Halogen (red), Noble Gas (pink), Lanthanide (light blue), and Actinide (dark blue).

# Agenda Entry (9/26/13)

- Label each element (except for synthetics) as solid, liquid, or gas.
- Number/label the columns
- Number/label the rows
- Label the Lanthanide and Actinide Series

# Periodic Table of Elements

10/1

Attached: (R11: Nothing Written)

- Bohr Atomic Models
- Study Guide/Periodic Table of Elements
- Rainbow Lab

# SJE #12 4.1 States of Matter (S8P1c)

10/14

- What are the four states of matter?
- For each state of matter give two examples and place them in the chart below.

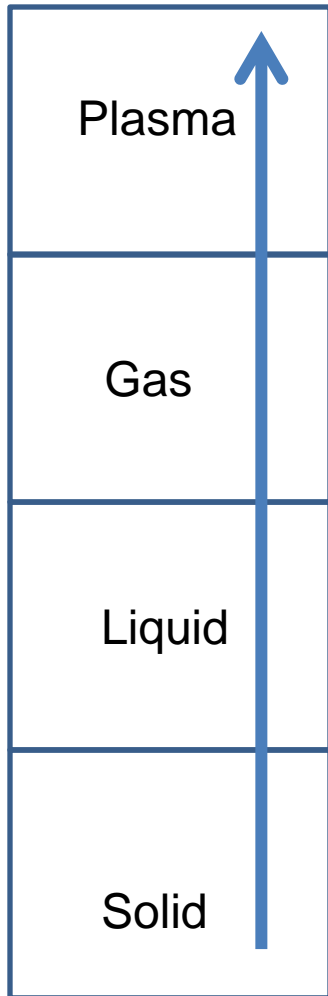
Solid	Liquid	Gas	Plasma

Vocabulary Tent Cards: States of Matter, Gas, particles, plasma, solid , surface tension, liquid, viscosity

# 4.1 States of Matter (S8P1c)

R12  
Output

10/15



What is it called?	Heat added or removed ?	Particle Slowing or speeding	Energy increase or decrease	What's the state of matter?
Freezing				
Sublimation				
Condensation				
Evaporation				
Melting				

# SJE 13: States of Matter Review

10/17

## Science Journal Entry #13: Chapter 4: States of Matter/Change of State/Behavior of Fluids

The three most familiar states of matter are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. The fourth state is \_\_\_\_\_. All \_\_\_\_\_ is made up of tiny particles called \_\_\_\_\_ and \_\_\_\_\_ that attract each other and move \_\_\_\_\_. A \_\_\_\_\_ has a \_\_\_\_\_ shape and volume. A \_\_\_\_\_ has a \_\_\_\_\_ volume but not a \_\_\_\_\_ shape. The gas and plasma states of matter do not have a \_\_\_\_\_ shape or \_\_\_\_\_. \_\_\_\_\_ energy measures the total \_\_\_\_\_ and \_\_\_\_\_ energy in a sample of matter. When thermal energy moves from a \_\_\_\_\_ object to a \_\_\_\_\_ object it is known as \_\_\_\_\_. When an object \_\_\_\_\_ thermal energy its temperature \_\_\_\_\_. When an object \_\_\_\_\_ thermal energy its temperature \_\_\_\_\_. The \_\_\_\_\_ point is the \_\_\_\_\_ at which a substance changes from a \_\_\_\_\_ to a \_\_\_\_\_.

# States of Matter Review

R13  
Output

10/18

## Section Review

### 4.2 (Changes of State) and 4.3 (Behavior of Fluids)

What are two properties of matter that will determine its state.

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For each pair of terms explain how the meanings are different.

Melting and Freezing

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Condensation and Evaporation

---

The change from a solid directly to a gas is called \_\_\_\_\_.

Describe how the motion and arrangement of particles in a substance changes as it freezes. \_\_\_\_\_

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Explain what happens to the temperature of an ice cube as it melts.

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How are evaporation and boiling similar? Different?

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The temperature of water in a beaker is 25 C. After adding a piece of magnesium (Mg) to the water, the temperature increases to 28 C . Is this an endothermic or exothermic reaction? Explain your answer. \_\_\_\_\_

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# SJE#14: Properties/Changes of Matter: Physical (S8P1d)

10/21

If you were asked to describe an orange to someone who had never seen an orange before what would you tell the person? How would you describe a grapefruit? A lemon? How do you distinguish between similar objects?

Physical Property

Physical Change

Physical Property

Physical Change

# Properties/Changes of Matter: Physical (S8P1d)

R14  
Output

10/22

1. Mass divided by volume is the formula for which physical property?
2. Which type of property includes color, shape, size, and state?
3. Snow melting in the sunshine is an example of which type of change?
4. What is a physical property of a base?
5. What physical property changes when water evaporates?
6. What is the density of a 45 Kg sample of magnesium (Mg) that has a volume of 43m<sup>3</sup>?
7. What is the volume of a sample of gold (Au) that has a mass of 4.54 g and a density of 11.35g/cm<sup>3</sup>?
8. What is the mass of a sample of lead (Pb) that has a volume of 15mL and a density of 13.55g/mL?

**¼ sheet Section Review/Summary of Physical properties is attached to this page.**

# SJE#15: Properties/Changes of Matter: Chemical (S8P1d) 10/23

1. What is the chemical change that is occurring (in the picture below) ?
2. Describe three instances where you have seen examples of this chemical change.
3. What do all three of your examples have in common?

Chemical Property

Chemical Change

Chemical Property

Chemical Change

# Properties/Changes of Matter: Chemical (S8P1d)

R15  
Output

10/24

- I. \_\_\_\_\_ properties describe substances based on their ability to \_\_\_\_\_ into new substances that have \_\_\_\_\_ properties.
- II. \_\_\_\_\_ properties can be observed only when a \_\_\_\_\_ change might happen.
- III. Examples of chemical properties are \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
- IV. \_\_\_\_\_ substances form as a result of a \_\_\_\_\_ change.
- V. Unlike a \_\_\_\_\_ change, a \_\_\_\_\_ change does not alter the identity of a substance.
- VI. Distinguish between chemical change and chemical property
- VII. Rusting is an example of a \_\_\_\_\_ change.
- VIII. List three examples of physical changes.
- IX. What does the term reactivity refer to ?
- X. How do you know if a chemical change/reaction has occurred?
- XI. How do you distinguish between physical and chemical properties?

**Complete page 155 Questions 23,24,25**  
**Please write the question and draw the table**

# SJE#16: Physical and Chemical Changes Review (S8P1d)

10/24

1. What is matter?
2. What are the four states of matter?
3. What are physical properties?
4. What are chemical properties?
5. What is a chemical change?
6. What is a physical change?

# Physical and Chemical Changes Review

10/28

## S8P1 (Essential Questions)

- 1. What is matter and the law of conservation of matter?**
- 2. How are atoms and molecules related?**
- 3. How are elements, compounds, and mixtures related?**
- 4. How are elements organized in the periodic table?**
- 5. How are physical and chemical properties different?**
- 6. How do particles behave in the four states of matter?**
- 7. How does matter change from state to state?**

Attached: R16

- Physical and Chemical Properties Lab
- Physical and Chemical Changes Video Qz..etc.
- Study Guide for Assessments in Science
- Chapter 4 exam

# SJE#17: What is matter and metrics? (S8P1 review/S8CS review)

10/29

1. What is the metric system?
2. What are the four basic units in the metric system?
3. What does a liter measure?
4. What does a meter measure?
5. What does a gram measure?
6. What does a degree measure?
7. How would you calculate the number of kilometers in a meter and the number of centimeters in a meter? Explain.
8. What are four examples of matter that can be measured using these four units (one example per unit)?

# What is matter and metrics? (S8P1 review/S8CS review)

R17  
Output

10/31

Attached:

- ❑ Handout 4x4/ F&B “Review of Measurement”
- ❑ Why does matter.. Matter? Handout
- ❑ Chapters 1-5 CRCT Prep On Notebook Paper



# SJE#18: Conservation of Energy (S8P2a)

11/11

In your textbook find the sections that discuss Friction and Law of Conservation of Energy.

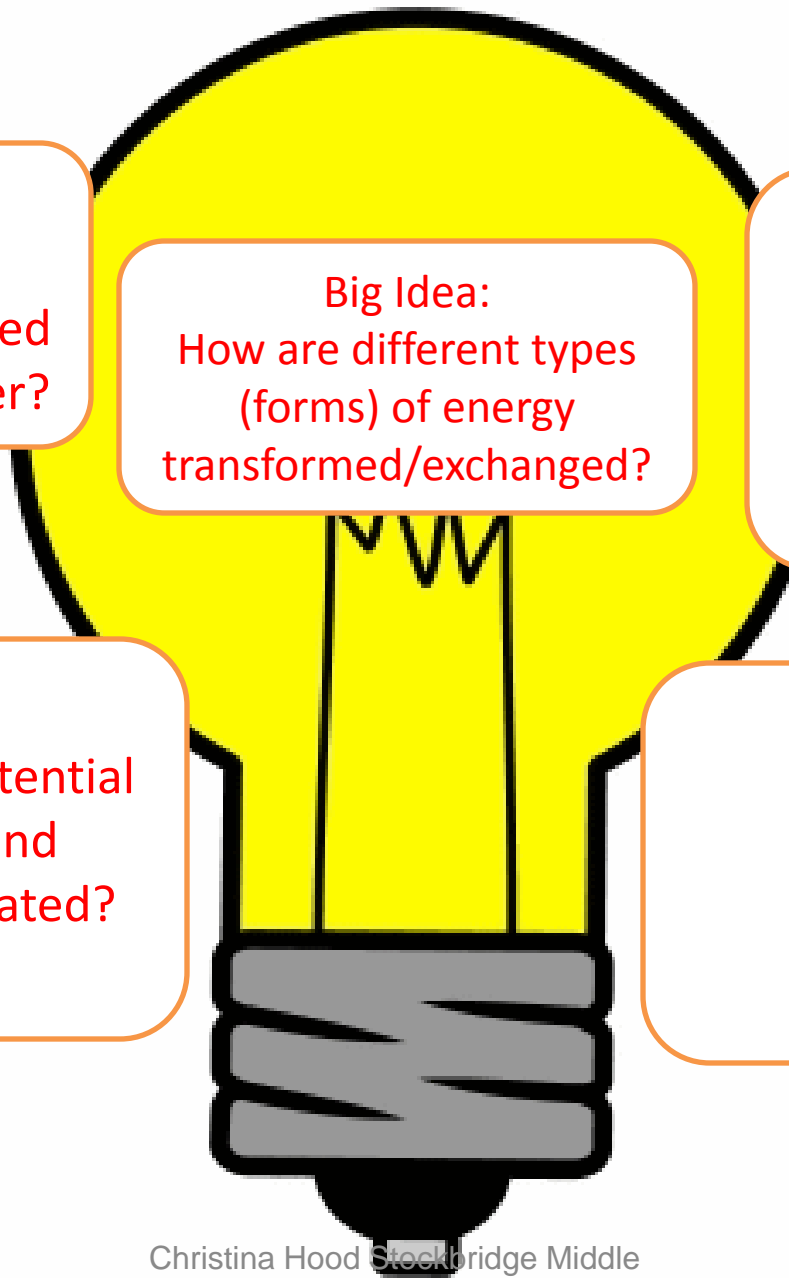
- I found the friction section in my science textbook in Chapter \_\_\_\_\_ on page \_\_\_\_\_.
- I found the Law of Conservation of energy section in my science textbook in Chapter \_\_\_\_\_ on page \_\_\_\_\_.

Definition:	Example:
Picture	Use in a sentence

**Friction**

Definition:	Example:
Picture	Use in a sentence

Law of  
Conservation of  
Energy



S8P2a: Law of Cons. of Energy

How is energy transformed from one form to another?

Big Idea:  
How are different types (forms) of energy transformed/exchanged?

S8P2b: Kinetic vs. Potential  
How are kinetic and potential energy related?

# Agenda Entry 11-11-13

- Complete Unit 3 Pretest on Point → Code **GIXULOB7** (only 1 number and it is 7)
- Science Workbook pages 143-144 (right now)

# Energy Transformation Notes

- ½ Sheet of paper Assignment. On the first side of your paper please answer the following.

1. \_\_\_\_\_ usually is one of the forms of energy produced in energy\_\_\_\_\_.
2. The law of conservation of energy states that energy \_\_\_\_\_ be \_\_\_\_\_ or destroyed; it can only \_\_\_\_\_.
3. The \_\_\_\_\_ energy doesn't change when an \_\_\_\_\_ transformation \_\_\_\_\_.
4. As an object \_\_\_\_\_ and \_\_\_\_\_, \_\_\_\_\_ and potential energy are \_\_\_\_\_ into each other, but the \_\_\_\_\_ energy doesn't change.
5. A \_\_\_\_\_ converts \_\_\_\_\_ energy into \_\_\_\_\_ energy.
6. \_\_\_\_\_ fossil fuels \_\_\_\_\_ thermal energy that is used to \_\_\_\_\_ water and produce \_\_\_\_\_.
7. In a \_\_\_\_\_ plant, \_\_\_\_\_ is used to spin a turbine which then \_\_\_\_\_ an electric \_\_\_\_\_.

# Energy Transformation Notes

## Continued

- ½ Sheet of paper Assignment. On the 2<sup>nd</sup> side of your paper please diagram the following.
- Draw a diagram of 4 pictures
  1. On the first picture draw a hand holding an object
  2. On the second picture show the object leaving the person's hand and going into the air.
  3. On the third picture show the object reaching the high point in the air
  4. On the fourth picture show the object falling down back towards the hand.
- On each picture label the type of energy shown by the motion or lack of motion.

# R18:Conservation of Energy (S8P2a)

11/12

Make sure you complete Sci. Wkbk pgs. 143-144

## Understanding Key Ideas

1. How does friction affect energy conversions?
2. What is the law of conservation of energy ?
3. What happens to energy in a closed system?
4. Why is the conversion of energy considered a scientific law?
5. Why is “perpetual” motion impossible?
6. What is friction?
7. How does friction affect thermal energy?



# SJE#19: What is Energy (S8P1a)

11/13

## 1. How can you explain the law of conservation of energy?

- a. Energy can be created or destroyed as well as being converted from one form to another.
- b. Energy cannot be created nor destroyed but it can be converted from one form to another.
- c. Energy is created when it is converted from one form to another.
- d. In most systems some energy is destroyed and lost as heat

## 2. According to the law of conservation of energy the total amount of energy in the universe....

- a. Remains constant
- b. Changes constantly
- c. Increases
- d. Decreases

## 3. What two factors determine an object's kinetic energy?

Energy Tent  
Card

# What is Energy (S8P1a)

<b><i>Kinetic</i></b>	Rollercoaster moving down the track	
<b><i>Potential</i></b>	Stretching of a rubber band	
<b><i>Mechanical</i></b>	Water falling in a waterfall	
<b><i>Thermal</i></b>	Cup of hot chocolate Teapot on a stove	
<b><i>Chemical</i></b>	Photosynthesis	
<b><i>Electrical</i></b>	Plugging in a microwave	
<b><i>Sound</i></b>	Someone speaking	
<b><i>Light</i></b>	Luminescence of a light bulb	
<b><i>Nuclear</i></b>	Energy from the sun	

# Agenda entry 11/13/13

- Finish R19 paper
- Finish Point Pre-Test = GIXULOB7

# 3<sup>RD</sup> Period Assignment

- Using Chapter 13 section 1 and 2 in your science book.
- Complete pages 139-146 in your science workbook.

# SJE #20 Kinetic Energy (S8P2a,b)

11/18

1. Sarah fills an empty beaker with 50.0g of ice. If she allows the ice to melt, what will be the mass of the H<sub>2</sub>O in the beaker?
  - a. 45 grams
  - b. 50 grams
  - c. 55 grams
  - d. 100 grams

2. A student has the option of selecting one of two inclined planes (ramps) to release a toy car. How can this student assure that their car will have the maximum speed (kinetic energy)?
  - a. Release it from a ramp with a higher incline (steep)
  - b. Release it from a ramp with a lower incline (flat)
  - c. Push the car really fast
  - d. Push the car using their foot.

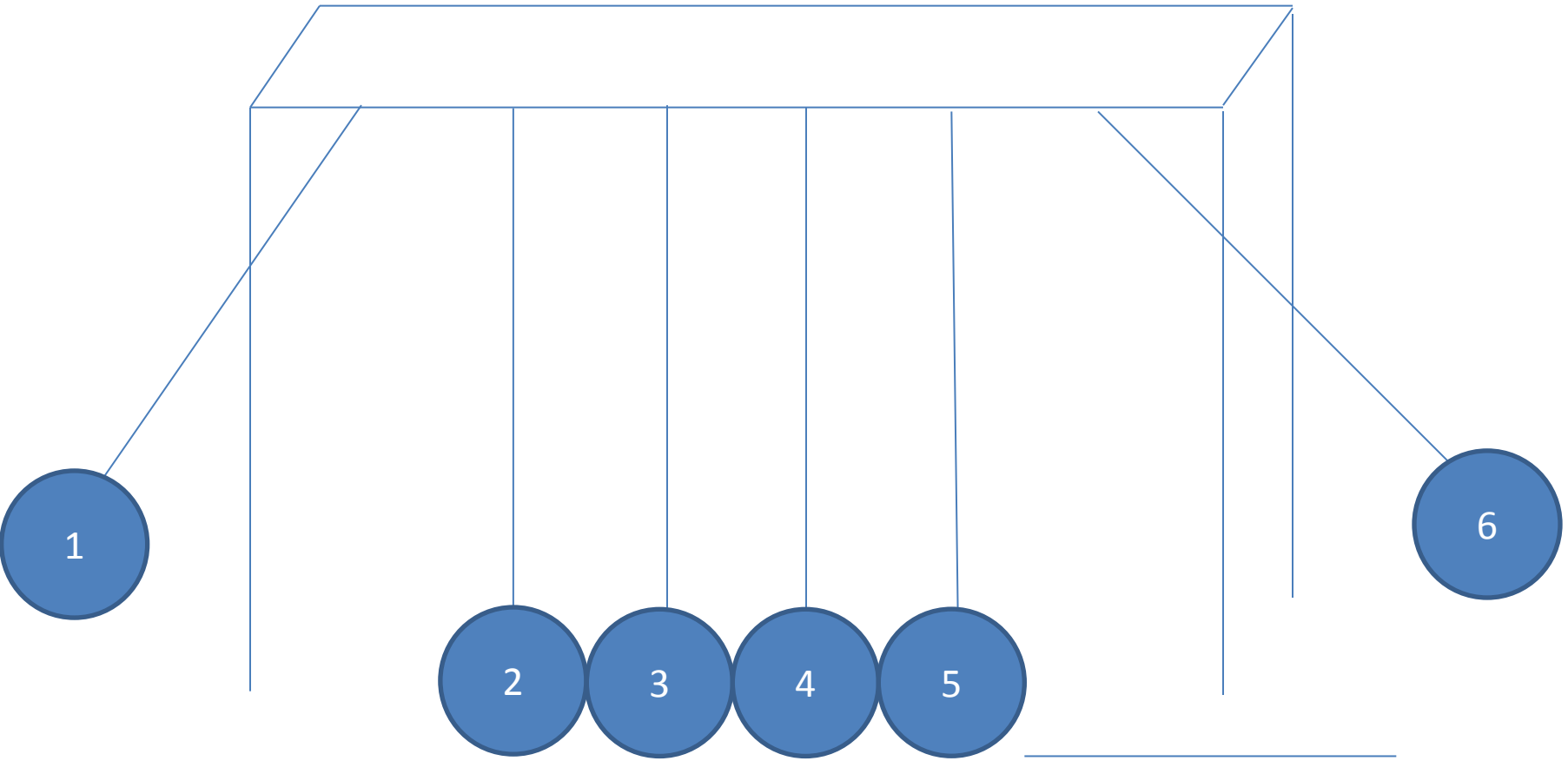
**Kinetic Energy  
Tent Card**

**How does your potential energy determine your kinetic energy?**

# Kinetic Energy

11/18

## Energy of a Pendulum



# Kinetic Energy = Energy of Motion!!!

$$\text{Kinetic Energy} = \frac{\text{mass} \times \text{Velocity}^2}{2}$$

1. KE= ? m= 2400 Kg V= 20m/s	2. KE= ? m= 4000 Kg V= 2m/s
3. KE= ? m= 6000 Kg V= 4m/s	4. KE= ? m= 2000 Kg V= 30m/s
5. KE= ? m= 3000 Kg V= 20m/s	6. KE= ? m= 3400 Kg V= 34m/s

# SJE #21 Potential Energy (S8P2a,b)

11/18

1. A person is at the end of a swing and about to let go of a rope and fall into the water below. At that moment his/her energy is
  - a. Potential
  - b. Kinetic
  - c. Chemical
  - d. Electrical

2. The pendulum on the previous page (R20) is raised to the start position and released. At which numbered position is the energy of the pendulum MOST LIKELY the same type.....
  - a. Position 1 and 2
  - b. Position 3 and 6
  - c. Position 1 and 4
  - d. Position 1 and 6

Potential Energy  
Tent Card

How is fuel in a car or a car battery an example of potential energy?

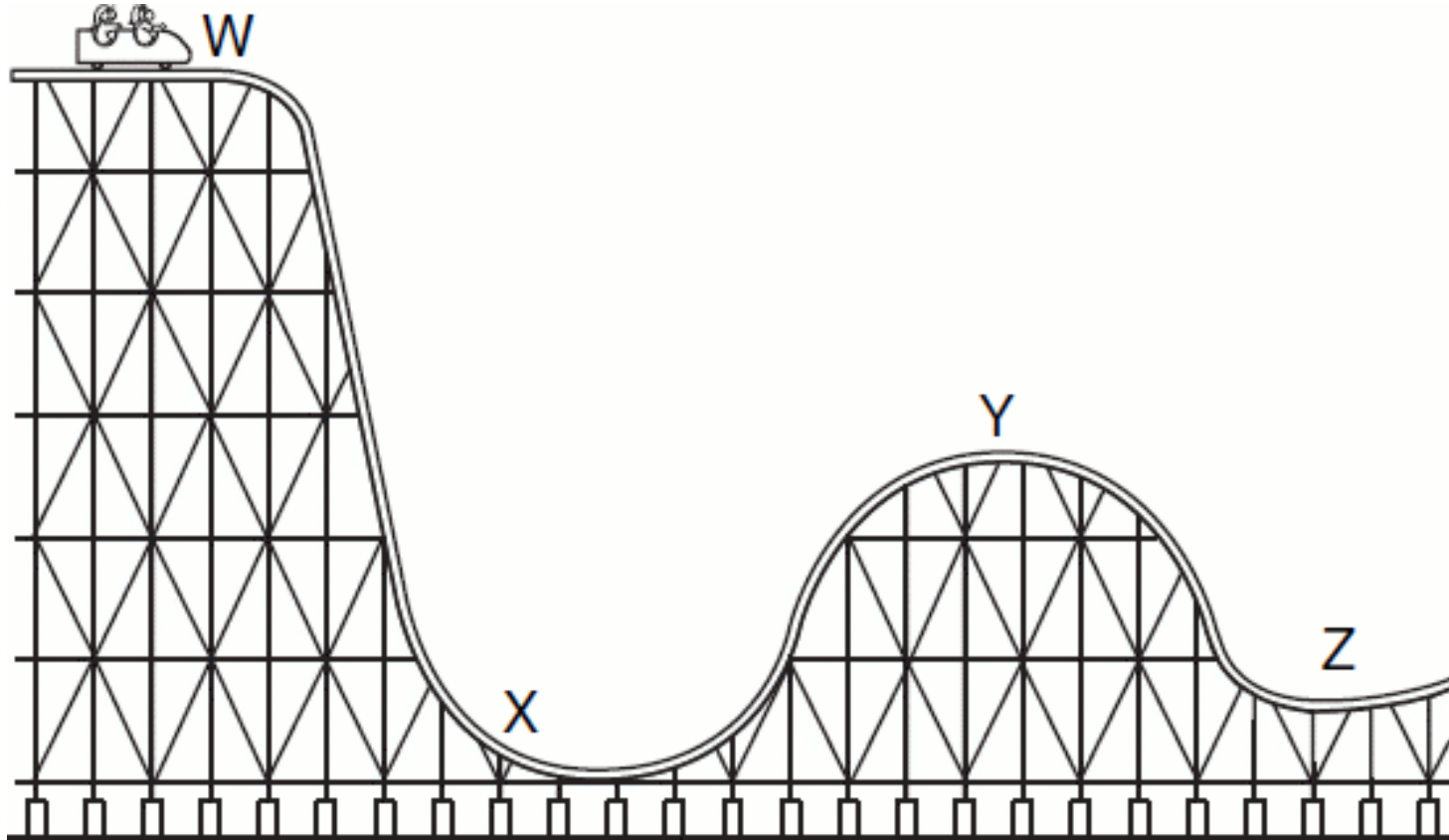


# Potential Energy (S8P2a,b)

R21  
Output

11/19

## Energy of a Roller Coaster



The \_\_\_\_\_ the Potential Energy , the \_\_\_\_\_ the Kinetic Energy.

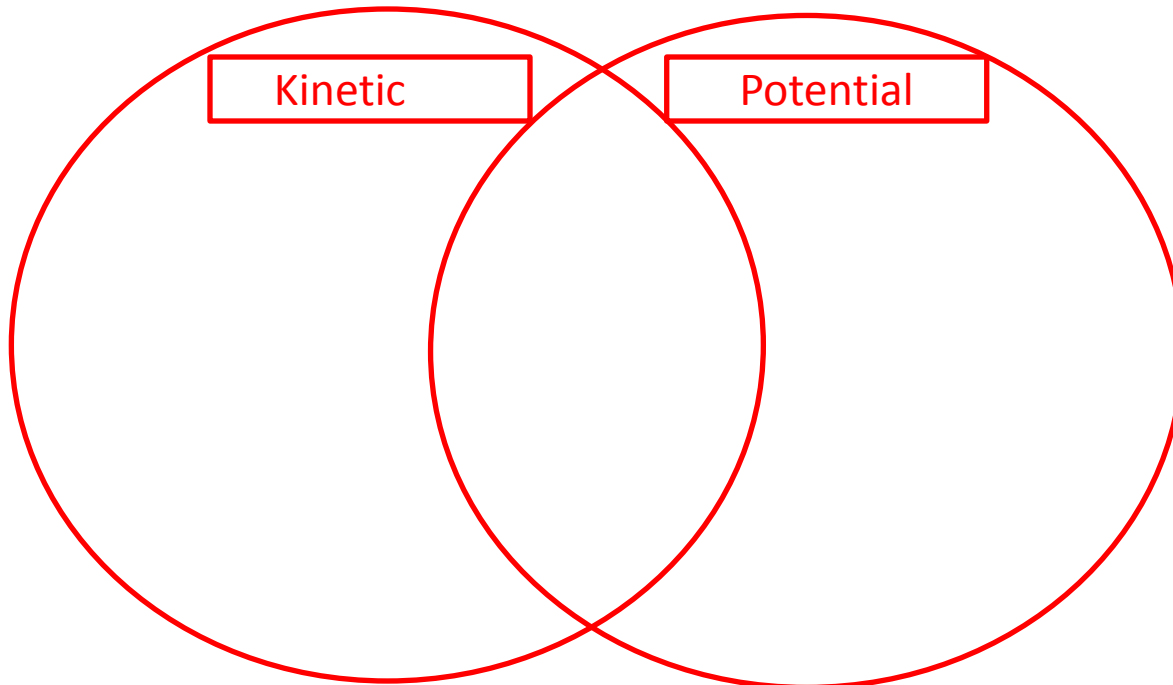
# Potential Energy = Energy of Position!!! = Stored energy!!!

<b>Gravitational Potential Energy = weight <math>\times</math> height</b>	
<b>1. GPE= ? weight= 40 Newtons height= 0.8 meters</b>	<b>2. GPE= ? weight= 500 Newtons height=10 meters</b>
<b>3. GPE= ? weight= 600 Newtons height= 8 meters</b>	<b>4. GPE= ? weight= 35 Newtons height= 6 meters</b>
<ul style="list-style-type: none"><li>• <b>Measure from the ground (lowest pt) to the highest point (peak)</b></li><li>• <b>From the ground to the peak is a measure of how far the object has to fall.</b></li></ul>	

# SJE #22: Potential+ Kinetic= Mechanical (S8P2a,b)

11/20

1. How are energy and work related?
2. How is kinetic energy different from potential energy?



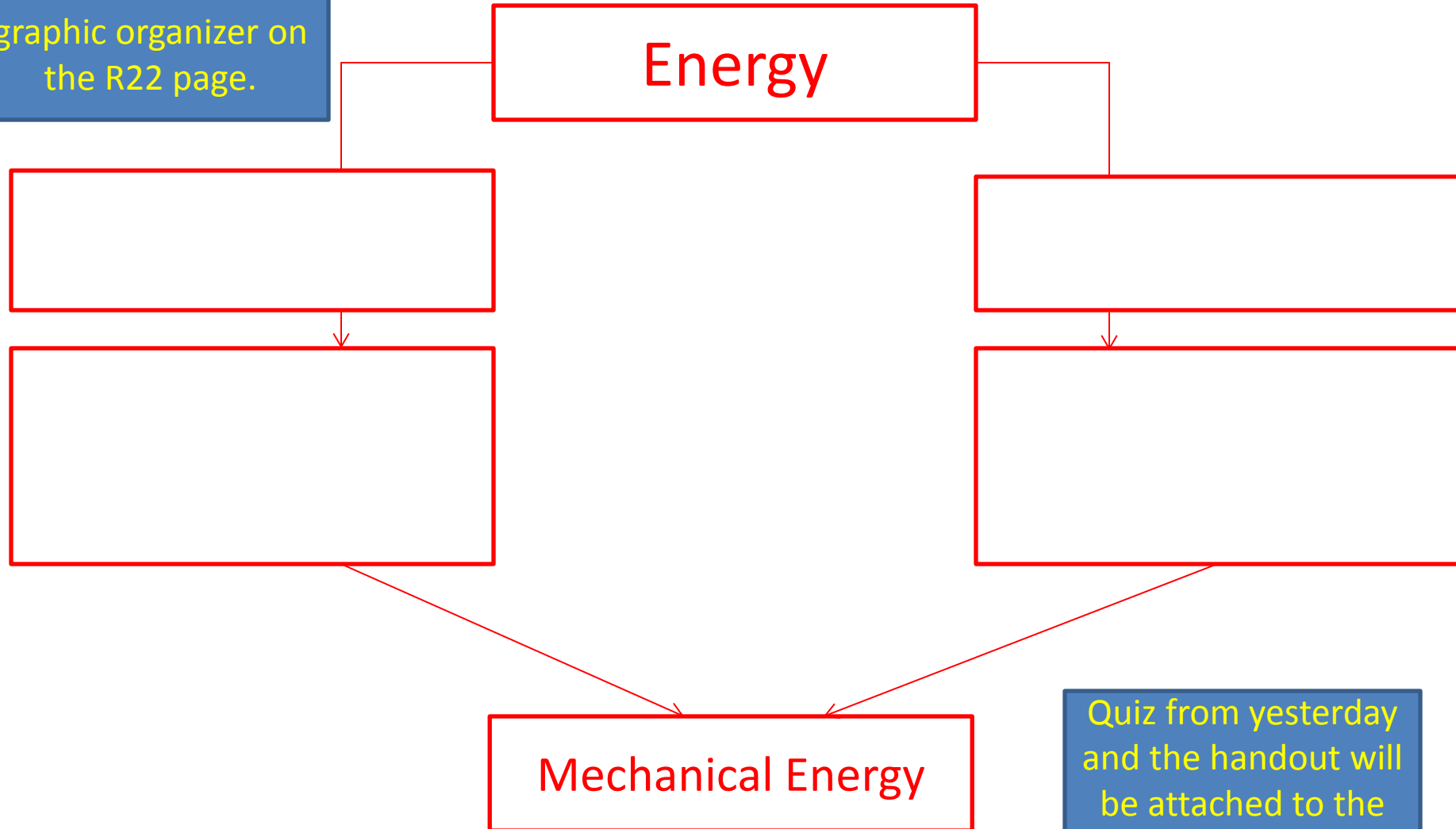
# Bottom of L22: Review

1. For an object to have kinetic energy, what must the object be doing?
2. Calculate: What is the kinetic energy of a 0.50 Kg hammer that hits the floor at 10m/s?
3. What causes an object to have potential energy?
4. Calculate: What is the potential energy of a 300 Newton rock climber standing 100 meters from the base of a rock wall?

# Kinetic + Potential = Mechanical

11/21

Draw and fill in this graphic organizer on the R22 page.



Quiz from yesterday and the handout will be attached to the bottom of this page.

# SJE#23: Mechanical Energy (S8P2b)

11-22-13

1. When energy changes from one form to another some of the energy always changes into
  - a. Kinetic energy
  - b. Potential energy
  - c. Thermal energy
  - d. Mechanical energy
2. Give three different examples of one form of energy being converted from one form to another form?

Mechanical  
Energy Tent Card

# L23: Bottom Energy Notes L23 Bottom

- \_\_\_\_\_ is the ability to do \_\_\_\_\_, and work equals the transfer of energy. \_\_\_\_\_ and \_\_\_\_\_ are expressed in units of \_\_\_\_\_ (J).
- \_\_\_\_\_ energy is energy of motion and depends on \_\_\_\_\_ and \_\_\_\_\_.
- \_\_\_\_\_ energy is energy of position. \_\_\_\_\_ potential energy depends on \_\_\_\_\_ and \_\_\_\_\_.
- \_\_\_\_\_ energy is the sum of kinetic energy and potential energy.

# R23: Mechanical Energy (S8P2b)

R23  
Output

11/22

- Fix your composition notebook.
- Chapter 13 Review: Page 400 Questions 1-22.
- You do not have to write the questions!
- Write the entire answer letter and description.



# L24: Thermal, Chemical, Electrical, Sound, Light, Radiant, and Nuclear Energy (S8P2c) 12-2-2013

1. How are forms of energy alike and different?
2. What is thermal energy?
3. Chemical energy is a form of what type of energy?
4. What kind of energy is transmitted by a guitar?
5. The energy used to cook food in a microwave is a form of \_\_\_\_\_ energy.
6. How do nuclear fission and fusion differ?
7. Without \_\_\_\_\_ energy that gives the sun its energy, life on Earth would not be possible.
8. What is the ultimate energy source for all living things?

# R24: Energy Foldable

12/3

- Take out foldable, get science book, get coach book from the shelf.
- *Type of Energy Labeled*
- *Picture of an example of the energy type*
- *3 facts for each type (Facts cannot be →*
  - ✓ *measured in joules,*
  - ✓ *cannot be created nor destroyed*
  - ✓ *ability to do work*
  - ✓ *Can be transformed*

# Thermal, Chemical, Electrical, Sound, Light, Radiant, and Nuclear Energy (S8P2c)

12-2-2013

Thermal
Chemical
Electrical
Sound
Radiant (Light)
Electromagnetic
Nuclear
Forms of Energy Foldable
Christina Hood Stockbridge Middle School 2013-2014.

# SJE#25: Energy

## Conversions/Transformations

### (S8P2a&d) 12-4-2013

1. In plants, the energy conversion that is taking place is from
  - a. Kinetic to potential
  - b. Light to chemical
  - c. Chemical to electrical
  - d. Chemical to light
2. Give two examples of one form of energy being converted to another.
  - ❖ 1.
  - ❖ 2.

# Agenda Entry 12/4/13

Finish L25 paper (1/2 sheet) front and back!

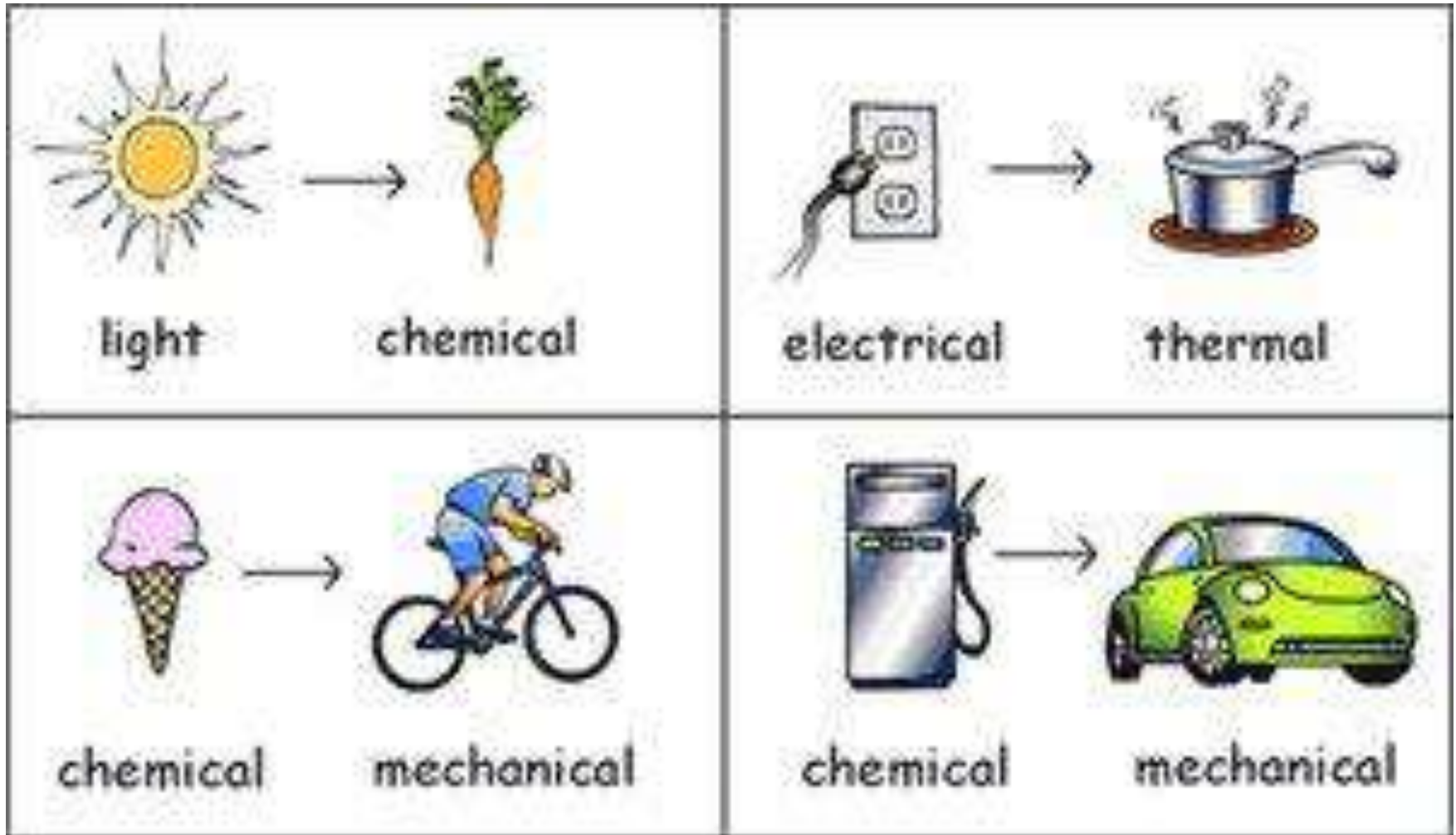
# Energy Conversions/Transformations

## (S8P2a&d) 12-5-2013

- \_\_\_\_\_ can be \_\_\_\_\_ from one form to another.
- \_\_\_\_\_ energy is usually produced when energy \_\_\_\_\_ occur.
- The law of \_\_\_\_\_ states that energy cannot be created nor \_\_\_\_\_.
- \_\_\_\_\_ power plants converts a source of \_\_\_\_\_ into \_\_\_\_\_ energy.
- \_\_\_\_\_ spins a \_\_\_\_\_ which spins an \_\_\_\_\_ generator.

# Bottom of R25:

## Energy Transformations Diagrams



# SJE#26: What is temperature?

(S8P2c,d) 12-10-13

## 1. How is temperature related to kinetic energy?

Temperature	
Thermal expansion	
Thermal energy	
Absolute zero	

### Temperature Notes

- \_\_\_\_\_ is a measure of the average \_\_\_\_\_ energy of the \_\_\_\_\_ of a substance.
- \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ are three temperature scales.
- \_\_\_\_\_ is the \_\_\_\_\_ in \_\_\_\_\_ of a substance due to an \_\_\_\_\_ in temperature.
- \_\_\_\_\_ (0 K, or  $-273^{\circ}$  C) is the \_\_\_\_\_ possible \_\_\_\_\_.
- A \_\_\_\_\_ works because of the thermal \_\_\_\_\_ of a \_\_\_\_\_ strip.



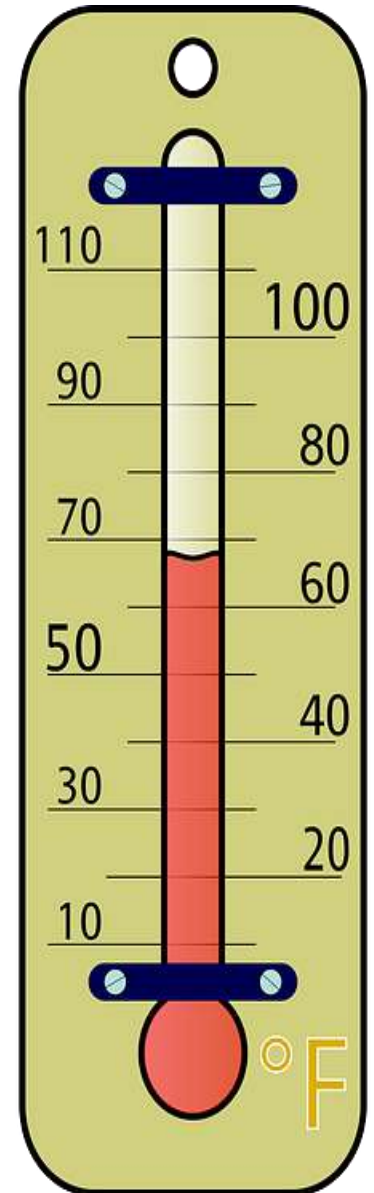
# What is temperature? (S8P2c,d) 12-10-13

## Reading Check pg. 435

1. Why do materials expand when their temperatures increase?

## Section Review 15.1 (pg. 437)

1. Explain the difference between temperature and thermal energy. How are they related?
2. Determine which temperature is always larger, an object's Celsius temperature or Kelvin temperature?
3. Explain how kinetic energy and thermal energy are related?
4. Describe how a thermometer uses the thermal expansion of a material to measure temperature?
5. Convert temperatures: A turkey cooking in the oven will be ready when the internal temperature reaches  $180^{\circ}$  Fahrenheit. Convert to Celsius and Kelvin.



# SJE#27: What is heat? (S8P2d) 12-10-13

1. Most substances \_\_\_\_\_ when they are cooled and \_\_\_\_\_ when they are heated.
2. Scientists use either the \_\_\_\_\_ scale or the \_\_\_\_\_ scale.
3. Temperature \_\_\_\_\_ as average kinetic energy decreases.
4. Which of the following temps is the lowest?  
100<sup>0</sup> C, 100<sup>0</sup> F, 100 K or all the same?
5. What is the difference between a conductor and an insulator?  
Give an example of each.
6. How can heat cause a chemical change? Physical change?
7. What temperature scale is the SI temperature scale?
8. What is heat?
9. What are the three ways heat is transferred?
10. How are heat, thermal energy, and temperature different?



# Vocabulary Terms

<b>Vocabulary Term</b>	In Your Own Words
<b>Heat</b>	
<b>Conductor</b>	
<b>Insulator</b>	
<b>Conduction</b>	
<b>Convection</b>	
<b>Radiation</b>	
<b>Specific Heat</b>	
<b>Currents</b>	

# Heat Notes L27

- \_\_\_\_\_ is energy transferred between objects that are at different temperatures.
- \_\_\_\_\_ energy is the total \_\_\_\_\_ energy of the particles that make up a substance.
- \_\_\_\_\_ energy will always be transferred from \_\_\_\_\_ to \_\_\_\_\_ temperature.
- \_\_\_\_\_ of thermal energy \_\_\_\_\_ when two objects that are in contact are at the same temperature. = equilibrium
- \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ are three ways that heat and thermal energy is transferred.
- \_\_\_\_\_ heat is the amount of energy needed to change the temperature of 1 kg of a substance by  $1^{\circ}\text{C}$ .
- \_\_\_\_\_ transferred by heat cannot be \_\_\_\_\_ directly. It must be calculated using specific \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_ in temperature.
- Energy transferred by \_\_\_\_\_ is expressed in \_\_\_\_\_ (J) and is calculated as follows:  $\text{heat (J)} = \text{specific heat (J/kg} \times ^{\circ}\text{C)} \times \text{mass (kg)} \times \text{change in temperature}$ .

# Agenda Entry 12-11-13

- Finish L/R 27 paper front and back all pages.

# SJE#28: Energy Wrap (S8P2) 12-12-13

- Which of the following sentences describes a conversion from chemical energy to thermal energy?
  - Food is digested and used to regulate body temperature.*
  - Charcoal is burned in a barbecue pit*
  - Coal burned to produce steam.*
  - All of the above.*
- How can kinetic energy be maximized?
- How are energy and speed (velocity) related?
- List 6 types of energy
- List 3 insulators and 3 conductors
- Why does a swimming pool stay cool on a hot summer day?

# Agenda Entry 12-12-13

- Energy Exam tomorrow.
- Study L19-L28.

# Energy Wrap (S8P2) 12-12-13

R28:  
Output

Create a graphic organizer with the following terms: (Note: example can be found on pg. 671 and 672 in your science book)

Temperature, thermal energy, kinetic energy, thermal expansion, thermometer, energy, sound energy, electrical energy, energy conversions, machines, hair dryer, guitar, conduction, convection, radiation, currents, electromagnetic waves, potential energy, nuclear.



# Instructional Focus:

## Review of Models(s8CS5b) 1-8-14

### Directions:

*In the Science Coach book Read pgs. 50-54*

### Define:

*system, model, diagram, computer simulation.*

### Complete:

*Discussion Question pg. 54 Write the Question and the answer should be in complete sentences.*

*Multiple Choice Questions 1-4 pg. 54 Write the Questions and answer choice (not just the letter).*

You will have 2  
sets of L29/R29

# SJE#29: Energy (S8P2) 1-8-14

*A. Directions: Give a definition for each of the following terms.*

- 1. potential energy*
- 2. kinetic energy*
- 3. friction*
- 4. air resistance*
- 5. mechanical energy*

*B. Directions: The following questions need a short answer.*

- 1. Give a definition for nonrenewable resources and identify three of these resources.*
- 2. What are renewable (inexhaustible) resources and what are some examples?*
- 3. How are potential and kinetic energy related?*
- 4. How does a roller coaster demonstrate potential and kinetic energy in action?*

# Energy (S8P2) 1-8-14

R29.2:  
Output

C. Directions: Answer the following multiple choice questions by filling in the answer.

1. Energy is the ability to do \_\_\_\_\_

a. work b. power c. acceleration d. speed

2. The fuel used in a rocket is energy stored as \_\_\_\_\_

a. mechanical energy b. nuclear energy c. chemical energy d. electromagnetic

3. Energy of motion is \_\_\_\_\_

a. kinetic b. potential c. chemical d. solar

4. A rubber band stretched between two fingers is an example of \_\_\_\_\_

a. kinetic energy b. potential energy c. chemical energy d. solar energy

5. An energy resource that uses the heat from the earth is called \_\_\_\_\_

a. solar b. geothermal c. wind d. hydropower

6. Almost all energy comes from the sun. Explain how this fits in with the food we eat.

7. What are the nonrenewable energy resources?

8. Name the renewable (inexhaustible) energy resources.

9. What are some of the problems associated with the burning of fossil fuels?

10. What are some of the ways individuals can conserve energy?

# Instructional Focus:

## States of Matter (S8P1c) 1-9-14

### Directions:

- In the Science Coach book Read pgs. 90-93*

### Define:

- State of matter, solid, liquid, gas, melting point, vaporization, boiling point, condensation, freezing point, sublimation, phase-change diagram, and plasma*

### Complete:

- Discussion Question pg. 93 Write the Question and the answer should be in complete sentences.*
- Multiple Choice Questions 1-3 pg. 93 Write the Questions and answer choice (not just the letter).*
- Table 1 add pg. 17 #19 and page 30 #57.*

# SJE#30: Conservation of Energy (S8P2a)

1-9-14

1. A researcher determined the amount of electrical energy entering a toaster and the amount of thermal energy given off by the toaster. The amount of thermal energy given off by the toaster was less than the amount of electrical energy entering. How can this observation be explained?
2. What does the law of conservation of energy state?
3. If a ball is dropped off the roof of Stockbridge Middle School at what point in the fall is the kinetic energy of the ball the greatest?
4. The formula for calculating Potential energy is mass times height. Using this formula, what is the potential energy of a rock with a mass of 50 Kg that sits on the edge of a cliff that is 125 meters high?

When finished writing and answering questions pick up a handout from the chair in front of the projector cart.

# Conservation of Energy (S8P2a) 1-9-14

Draw an illustration that shows five different energy transformations/conversions.

Do not:

- Use stick figures
- Use pen

Do not forget to:

- Label the type of energy conversions.
- Draw arrows.

# Agenda Entry 1-9-14

- Finish L30/R30 Conservation of Energy Paper.

# Instructional Focus 1-10-14

- L/30 R/30 should be completed including the worksheet attached to the page and the drawing.
- We will be grading notebooks today.
- Use this time to update your notebook, table of contents, answer any incomplete pages.
- No one will be allowed to use the projector.
- If you missed something you need to get it from a classmate.
- Also remember that you have an assessment today at the end of class, after the notebook check and agenda Entry (POINT test code for Unit Pretest 4: Force and Motion due Sunday Night by 11:30).



# Class for today 1-10-14

- Today I will be grading your ISN (Pick up a notebook check sheet and attach it on top of the others in the inside front cover of your notebook so that it flips up)
- Sheets are located on the counter beneath this screen.
- In the next 10 minutes ( no later than 2:20 Pm) your ISN needs to be placed open to the L21 page on the front counter.
- I will then pass out your test
- When completed take out your agenda so that you may write down the point code for your pretest 4.

# Agenda Entry 1-10-14

- Unit 4: Force and Motion pretest is on POINT
- Code → DUXEG5
- Needs to be completed ASAP
- Needs to be completed no later than Sunday night @ 11:30.
- There are 44 questions.

# SJE#31: What is force and motion?

(S8P3b) 1-13-14

1. *The force that holds you to the Earth's surface is known as \_\_\_\_\_.*
2. *How does mass affect gravitational force? Weight?*
3. *What is acceleration due to gravity on Earth?*
4. *How do you determine the net force on an object if all forces act in the same direction? two opposite directions?*
5. *The force of your desk pushing up on your book is balanced by what other force pushing downward?*
6. *When you ride a bus, why do you fall forward when the bus stops moving?*
7. *What is the formula for force?*

When finished writing and answering questions pick up a ½ sheet of computer paper and a ruler from the chair in front of the projector cart.

# On the ½ sheet

*Define or Describe the following*

<b>Force</b>	
<b>Motion</b>	
<b>Net Force</b>	
<b>Force (same direction)</b>	
<b>Force (different direction)</b>	
<b>Balanced Forces</b>	
<b>Unbalanced Forces</b>	
<b>Inertia</b>	
<b>Friction</b>	
<b>Newton's First Law of Motion</b>	

# What is force and motion lab (S8P3b)

1-15-14

Problem: How do forces affect motion?

Materials:

2 meter sticks

3 textbooks

1 metric ruler

1 marble

Procedures:

1.

2.

3

4

Results → put the table you create in #4 here.

Conclusion:

*How did the forces affect the motion of the marble?*

Tips

- Tap from the bottom of the ramp
- Use the same books
- 4 trials per ramp level

Books	Trial 1	Trial 2	Trial 3	Trial 4	Average of 4 Trials
3					
2					
1					
0					

# Agenda Entry 1-16-14

- Get report card and CRCT scores signed and return TOMORROW!!

# SJE#32: Friction a force that opposes motion.

(S8P3b) 1-16-14

## Friction Notes Chapter 11.1

\_\_\_\_\_ is a force that \_\_\_\_\_ to resist sliding between \_\_\_\_\_ surfaces that are \_\_\_\_\_. The \_\_\_\_\_ of friction depends on factors such as the \_\_\_\_\_ of the surfaces and the \_\_\_\_\_ pushing the surfaces \_\_\_\_\_. Three types of friction are \_\_\_\_\_ friction, \_\_\_\_\_ friction, and \_\_\_\_\_ friction.

### Types of Friction

Type	Example/Description	Size



# Observations/Results

Sliding Order	Trial 1	Trial 2	Trial 3	Trial 4
1 <sup>st</sup>				
2 <sup>nd</sup>				
3 <sup>rd</sup>				
4 <sup>th</sup>				

## Analysis and Conclusion:

1. For which object was the static friction the greatest? Explain.
2. For Which object was the static friction the least? Explain
3. Which object slid the fastest? Explain.
4. Which object slid the slowest? Explain.
5. Why is there a difference in the speed at which the objects slid down the book?
6. How could you increase the amount of friction between two materials?
7. How could you decrease the amount of friction between two materials?

# Friction a force that opposes motion.

R32  
Output

(S8P3b) 1-17-14

- \_\_\_\_\_1. Gravity makes your feet stick to the floor.
- \_\_\_\_\_2. Friction makes it difficult to move a heavy object over a flat surface.
- \_\_\_\_\_3. The force of gravity works in a direction that is horizontal to the Earth's surface.
- \_\_\_\_\_4. Friction can change work into heat.
- \_\_\_\_\_5. The friction between our fingerprints and other objects allows us to pick up those objects.
- \_\_\_\_\_6. Ice skates create friction on ice.
- \_\_\_\_\_7. Friction between the air and a spacecraft can burn away parts of the spacecraft's heat shield.
8. Give a description of friction? What are the three types?
9. What role does friction play in the motion of a train?
10. How does the mucous on the surface of a slug beneficial to the slug?

# Today you will

- Work on the Friction Handout From the center of your groups
- Watch a Bill Nye the Science Guy and answer questions on the R32 page.

# What is Force? Pull? 1-21-14

1. Take a meter stick, place 3-4 textbooks on one end.
2. Before you begin. Pull the spring scale down to get a feel for 1 Newton, 2 Newtons, 5 Newtons, and 10 Newtons.
3. Take the spring scale, loop the end around the end of the meter stick.
4. Estimate before each item the number of Newtons it will take to pull and to lift.
5. Record the data in your data table.

# Observations/Results

Object	Force Applied	Estimated (N)	Actual (N)
	Pulling		
	Lifting		
	Pulling		
	Lifting		
	Pulling		
	Lifting		
	Pulling		
	Lifting		

# Analysis Questions

1. In your own words write a description of force?
2. Give three examples of forces.
3. What do forces do?
4. What is the significance of measuring force using a “Newton”?
5. Who is Sir Isaac Newton and why is he important?
6. How are weight and mass different?

# SJE#33: Balanced vs. Unbalanced Forces

(S8P3b) 1-23-14

Two students are asked to move a piano across the chorus room floor. One student pushes to the North of the room with 25 Newtons of force while the other pulls to the North with 20 Newtons of force.

1. What is the Net force and the direction of the force?
2. Are the forces balanced?

Two classes play tug-of-war. One class pulls South with 100 Newtons of force while the other pulls North with 100 Newtons of force.

3. What is the net force?
4. What is the direction of the force?
5. How could you make the forces in the problems balanced?
6. How do we determine the difference between balanced and unbalanced force?

# Balanced vs. Unbalanced Forces

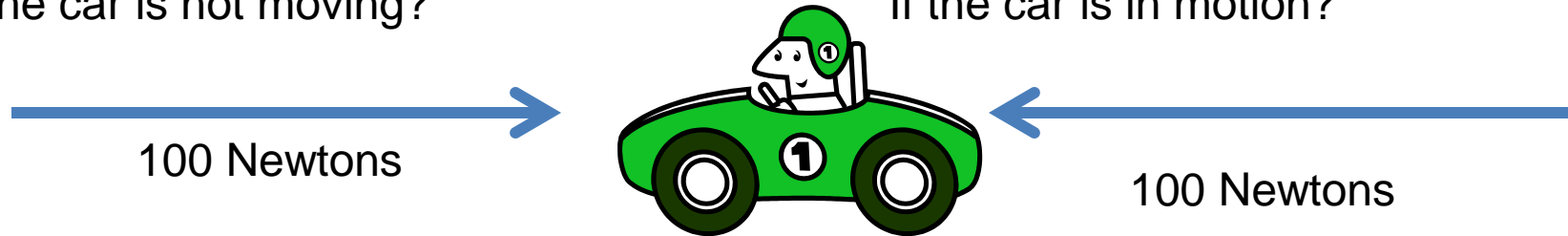
(S8P3b) 1-23-14

R33  
Output

Net Force? \_\_\_\_\_ What type of force? \_\_\_\_\_ Direction? \_\_\_\_\_

If the car is not moving?

If the car is in motion?



Net Force? \_\_\_\_\_ What type of force? \_\_\_\_\_ Direction? \_\_\_\_\_



When finished writing and answering questions pick up a ½ sheet of computer paper and a ruler from the chair in front of the projector cart.



# Understanding Key Ideas R33

1. What is the difference between force and net force?
2. Give an example of what may happen as a result of unbalanced forces.
3. Give an example of an unbalanced force causing a change in motion.
4. A girl pulls a wagon with a force of 6 Newtons east, as a boy pushes it with a force of 4 Newtons east. What is the net force? Balanced or unbalanced? Direction?

# Instructional Focus 1/27

- Today you will sit in your groups and work on the Controls and Variables Part 1 and 2.
- Your completed answers are due at the end of class.
- Each group will be expected to turn in one completed paper with the date and each person → who helped.

# SJE#34: How does gravity, inertia, and friction affect the balance of forces?

(S8P3b) 1-27-14

**Use the Force and Motion Study Jam to help you answer the following:**

- 1. What keeps the soccer ball and bowling ball stopped and moving? Explain.**
- 2. How is mass related to inertia?**
- 3. Give your own example of the relationship between mass and inertia.**
- 4. How does friction affect the motion of both the soccer ball and the bowling ball?**
- 5. Complete the following: Greater force = \_\_\_\_\_ change in inertia.**
- 6. What other force(s) acts against motion?**

# How does gravity, inertia, and friction affect the balance of forces? (S8P3b) 2-3-14

R34  
Output

Inertia	
Description or Definition	Picture
Gravity	
Friction	
Newton's 1 <sup>st</sup> Law of Motion	
Newton's 2 <sup>nd</sup> Law of Motion	
Newton's 3 <sup>rd</sup> Law of Motion	

# **SJE#35: Gravity: A force of Attraction**

(S8P5a) 2-3-14

- 1. How does mass and distance affect the gravitational pull of objects?**
- 2. How does gravity affect matter?**
- 3. Describe the difference between mass and weight.**
- 4. The formula  $F=ma$  is very important in calculating weight. What does each letter represent and what units are used for each letter?**
- 5. What is the law of universal gravitation?**
- 6. How is Sir Isaac Newton instrumental in the study of gravity?**
- 7. What is the force exerted by a 4 kg book sitting atop your desk? (Hint use #4)**

# Gravity: A force of Attraction

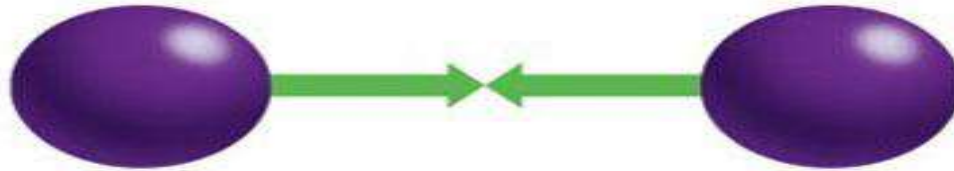
(S8P5a) 2-3-14

## Gravitational Force Depends on Mass

The gravitational force between objects increases as the masses of the objects increase. The arrows indicate the gravitational force between two objects. The length of the arrows indicates the strength of the force.



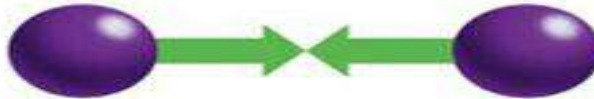
**a** Gravitational force is small between objects that have small masses.



**b** Gravitational force is large when the mass of one or both objects is large.

## Gravitational Force Depends on Distance

The gravitational force between objects decreases as the distance between the objects increases. The length of the arrows indicates the strength of the gravitational force between two objects.



**a** Gravitational force is strong when the distance between two objects is small.



**b** If the distance between two objects increases, the gravitational force pulling them together decreases rapidly.

# Concept Summary (R35 bottom)

- ❖                      = a force of attraction between two objects is due to their                     .
- ❖ All objects in the                      attract each other through                      force.
- ❖ Gravitational force                      as mass increases.
- ❖ Gravitational force                      as distance increases.
- ❖                      and                      are not the same.
- ❖                      = amount of matter in an object (independent of location) → balance
- ❖                      = measure of gravitational pull of an object (location dependent) → scale

# SJE#36: Measuring Motion

(S8P3a) 2-4-14

Define the following:

Term	Definition/Example
Motion	Change in position
Speed	Distance traveled in a specific time
Velocity	Speed and direction
Acceleration	Positive change in velocity
Deceleration	Negative change in velocity

1. What is a reference point?
2. What are two ways that velocity can change?
3. What is the relationship between velocity and acceleration?
4. What are the units for acceleration?



# Measuring Motion

## (S8P3a) 2-4-14

Calculating Speed	<p>Speed= Distance/Time          Speed= m/s, distance= meters, time= seconds</p>
Kira jogs to a store 72 meters away in a time of 36 seconds. What is her average speed?	If you travel 7.5 Km and walk for 1.5 hrs what is your average speed?
An airplane traveling from Atlanta, Georgia to St. Louis, Missouri travels 1260 Km in 3.5 hrs.? What is the average speed?	
Calculating Acceleration	<p>Acceleration= <math>\frac{\text{Final Velocity} - \text{initial velocity}}{\text{time it takes for the change}}</math></p>
	<p>Acceleration= m/s<sup>2</sup>          Velocity= m/s and direction          Time = seconds</p>
A plane passes over point A at a velocity of 240 m/s North. 40 seconds later it passes point B at a velocity of 260 m/s North. What is the average acceleration?	

# What's Your Speed? Lab 2/5/14

Question? How are speed, velocity, and acceleration related?

Hypothesis? If the distance is \_\_\_\_\_ then the time will \_\_\_\_\_.

Safety Rules:

Pay Attention!

No Horseplay!

Stay out of the walking/running lane.

Procedure:

1. Select 1 person to walk/run from each group.
2. The person will begin at the starting point (A) and will finish at point (B).
3. Each group's walker/runner will walk first and then each group will run.
4. Record the time for the walk/run in your data table.
5. Record all information in the data table.

# Data Table

Groups	Walking (s) (Pt. A-B)	Walking (s) (Pt. A-C)	Running (s) (Pt. A-B)	Running (s) (Pt. A-C)	Speed (m/s)	Acceleration (m/s <sup>2</sup> )
1	12.5 s	25.0 s	3.25 s	6.50s	15.8/ 12.5s  15.8/ 3.25	
2	11.2 s	22.4 s	2.75 s	5.50 s	<p>Total Distance = 158 cm X 20 = 3, 160 cm/100=31.6 meters (A-C)</p> <p>31.6/2= 15.8 meters (A-B)</p>	
3	10.6 s	21.2 s	2.50 s	5.00 s		
4	13.0 s	26.0 s	3.50 s	7.00 s		
5	12.0 s	24.0 s	3.00 s	6.00 s		
6	14.0 s	28.0 s	3.75 s	7.50 s		
7	10.0 s	20.0 s	2.00 s	4.00 s		
8	9.8 s	19.6 s	1.75 s	3.50 s		
9	13.5 s	27.0 s	3.60 s	7.20 s		

# Chart update

Group	Walking Time (seconds)	Walking Speed (Meters per second)	Running Time (seconds)	Running Speed (Meters per second)
1				
2				
3				
4				
5				
6				
7				
8				

Distance 12 squares  
Each square is 158 centimeters

Christina Hood Stockbridge Middle  
School 2013-2014.

# Agenda Entry 2/10/14

- Finish workbook pages 115-126 ( If it was not completed in class last week)

# SJE#37: Now You Are Gaining Momentum

(S8P3) 2-11-14

Definition:	Example:
Picture	Formula

**Momentum**

1. What does the law of conservation of momentum state?
2. When is this law true?
3. What is a collision? What does it mean to collide?
4. What can happen to momentum when two objects collide?
5. What are two ways that an object may interact after a collision?

# Now You Are Gaining Momentum (S8P3) <sup>R37 output</sup>

2-12-14

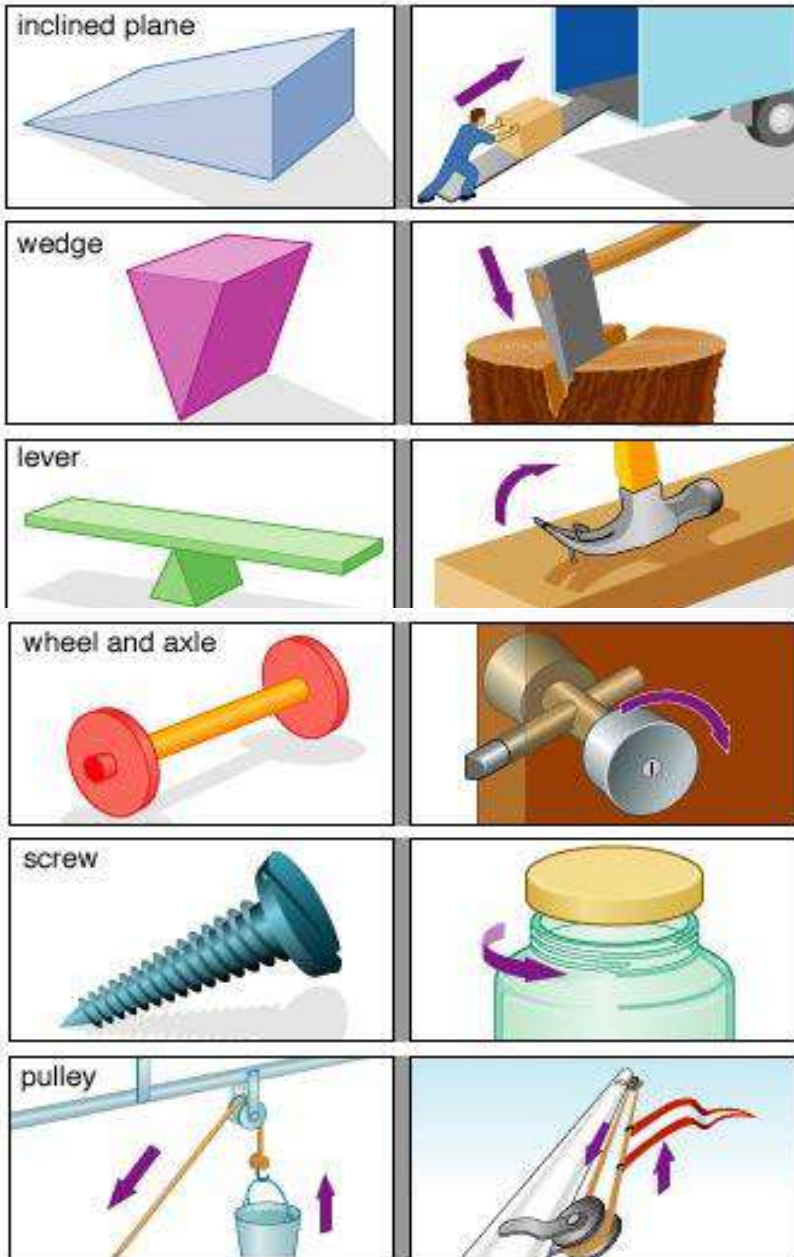
## Analysis and Conclusion: Tie it Together Lab

1. What is the relationship between the momentum of the ball and the distance the block moved?
2. Why do you think that there is a relationship between the two?
3. Explain the law of conservation of momentum?
4. How is Newton's third law related to the law of conservation of momentum?
5. Calculate the momentum of a 2.5 kg puppy that is running with a velocity of 4.8 m/s South.
6. Applying Concepts: A car and a train are traveling with the same velocity. Do the two objects have the same momentum? Explain your answer.
7. When you catch a softball, your hand and the glove move in the same direction that the ball is moving. Analyze the motion of your hand and glove in terms of momentum.

# SJE#38: Simple and Complex Machines

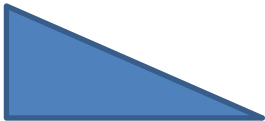


(S8P3c) 2-24-14

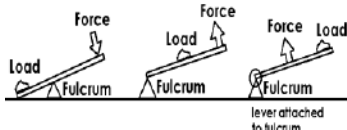
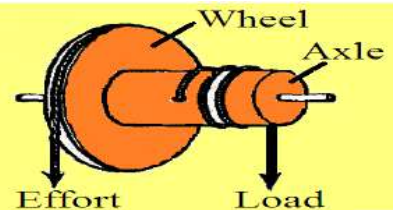
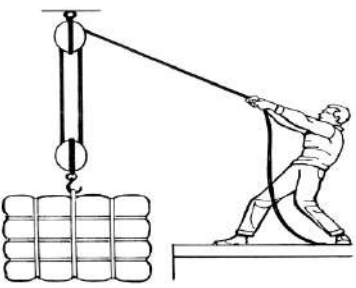
Define the following terms in no more than 5 words:



Term	Definition
Work	
Power	
Input Force	
Output Force	
Mechanical Advantage	
Efficiency	
Simple Machine	
Compound Machine	



Machine	Description/ Types	Picture	How do you calculate Mechanical Advantage?
<b>Inclined Plane</b>	A flat, sloped surface. A ramp, wedge, screw.		$\frac{\text{Length of slope}}{\text{Height of inc. plane}}$ <ul style="list-style-type: none"> <li>Increases force distance</li> </ul>
<b>Wedge</b>	A modified inclined plane. Can be double or single.		same as an inclined plane
<b>Screw</b>	Inclined plane wrapped around a post/cylinder		The length of the inclined plane wrapped <u>around the screw</u> the length of the screw.

Type of Machine	Description /Types	Picture	How do you calculate Mechanical Advantage?
<p><b>Lever</b></p>	<p>Bar that pivots at a fixed point (fulcrum)</p> <p>1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup> class levers</p>		<p>Distance from the fulcrum to the input <u>force</u></p> <p>Distance from the fulcrum to the output force</p>
<p><b>Wheel and Axle</b></p>	<p>Two circular objects of different sizes that rotate together.</p> <p>Rotate around a fulcrum.</p>		<p><u>Radius of the wheel</u></p> <p>Radius of the axle</p>
<p><b>Pulley</b></p>	<p>A grooved wheel with a rope or a cable wrapped over it.</p> <p>Fixed and movable</p>		<ul style="list-style-type: none"> <li>• Moveable pulleys 2</li> <li>• Fixed pulleys always 1</li> <li>• Pulley with 2 systems is 3.</li> </ul>

# Simple and Complex Machines

(S8P3c) 2-25-14

A \_\_\_\_\_ is a machine that does work with only \_\_\_\_\_ movement. A \_\_\_\_\_ machine is made from a \_\_\_\_\_ of simple machines.

1. How are screws related to inclined planes?
2. How does a pulley affect the input force?
3. How does the mechanical advantage of a ramp change as the ramp becomes longer?
4. How does a wedge change input force?
5. What lever class has the fulcrum between the input and output force?
6. How does the mechanical advantage of a wheel and axle change as the size of the wheel increases.
7. How are a lever and a wheel and axle similar?

When finished writing and answering questions pick up a ½ sheet of computer paper and a ruler from the chair in front of the projector cart.

# Instructional Focus 2/26

- We will remain in 3<sup>rd</sup> period today for instructional focus.
- Tomorrow you will go to 5<sup>th</sup> period and Friday you will go to 6<sup>th</sup> period.
- Today I will be passing back many of your old papers and you will need to make sure that your composition notebook is up to date in preparation for the upcoming notebook check.

# Where do the papers go?

Assignment	Page	Date
What is a force lab	R32	1-21-14
Bill Nye the Science Guy: Motion	R34	1-27-14
Velocity and Acceleration Worksheet	R36	2-4-14
Friction, Force, and Motion Test	R36	2-10-14
CRCT Prep	R37	2-7-14
Standardized Test Prep	R37	2-7-14
Concept Practice Problems	R38	2-26-14

<p><b>Work= Force times distance</b></p> <p><b><math>W = F \times D</math></b></p>	<p><b>Mechanical Advantage = force output divided by force input</b></p> <p><b><math>MA = \text{Force out} / \text{Force in}</math></b></p>
<p><b>Power= Work divided by time</b></p> <p><b><math>P = W / t</math></b></p>	<p><b>Efficiency= work output divided by work input multiplied by 100</b></p> <p><b><math>E = W_{\text{out}} / W_{\text{in}} \times 100</math></b></p>

- Effort force= what you do
- Input force= what you do
- Resistance or Resultant Force= what the machine does
- Output force= what the machine does.

# Agenda Entry 2/26/14

- Finish the Concept Practice Problems for homework
- They are due tomorrow
- Do not copy!

# Today's Agenda

- Turn in the homework sheet to the green box on the cart.
- Make sure that your ISN is updated and all papers are attached.
- Write down Agenda Entry 2/27/14 → Study for Exam Force and Motion Posttest .
- We will start the review game in 10 minutes.



# 3-3-14 Physical Science

Today we will:

- Receive graded papers
- Attach them inside the notebook
- Complete our pretest for Electricity and Magnetism

# Instructional Focus: 3/4/14

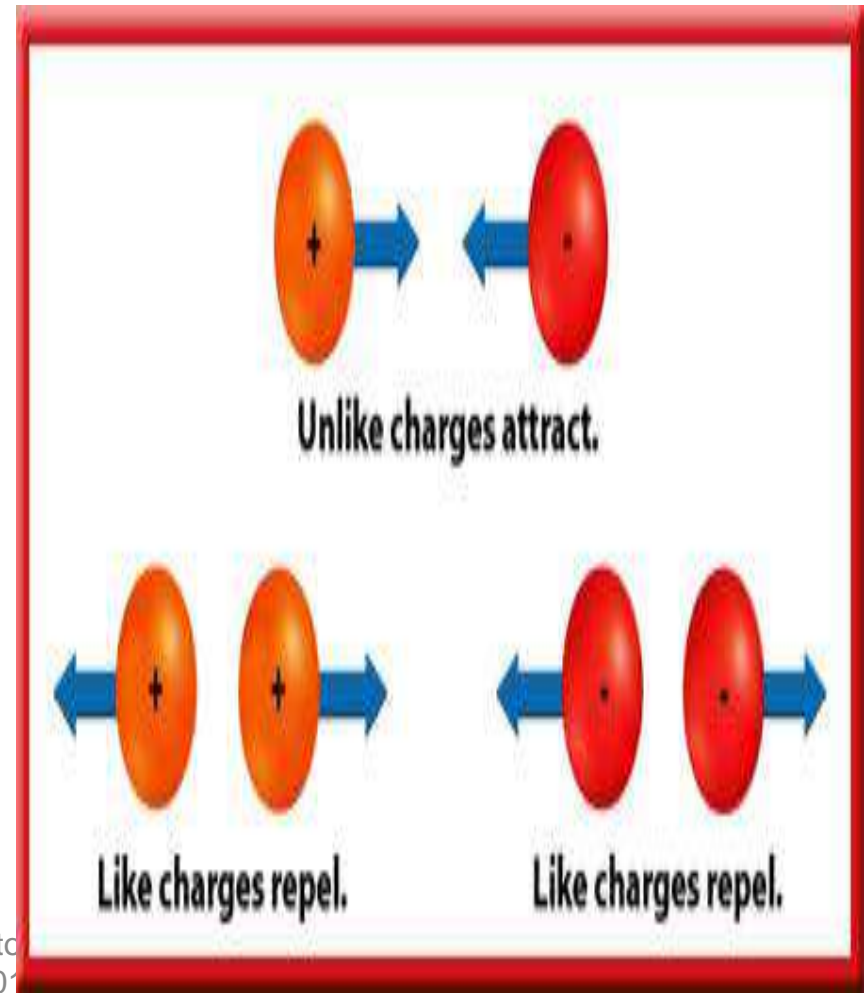
## 3<sup>rd</sup> period

- ❑ Before Reading Chapter 20 Section 1  
Complete Science Workbook page 221.

# SJE#39: How do electric charges exert a force on each other? (S8P5c)

3-4-14

1. What is a force?
2. How do objects become electrically charged?
3. How are electric conductors and insulators different?
4. How do electric discharges such as lightning occur?



# Agenda Entry 3/4/14

Pages 222-224 in the science workbook!

# How do electric charges exert a force on each other? (S8P5c) 3-5-14

R39  
output

## Concept Summary

1. The \_\_\_\_\_ states that like charges repel and opposite charges attract.
2. The size of the electric force between two objects depends on the \_\_\_\_\_ of the charges exerting the force and the \_\_\_\_\_ between the objects.
3. \_\_\_\_\_ objects exert a force on each other and can cause each other to \_\_\_\_\_.
4. Objects become charged when they \_\_\_\_\_ or \_\_\_\_\_ electrons.
5. Objects may become charged by friction, \_\_\_\_\_, or induction.
6. Charges are not \_\_\_\_\_ or \_\_\_\_\_ and are said to be conserved.
7. Charges move \_\_\_\_\_ in conductors but \_\_\_\_\_ move easily in insulators.
8. \_\_\_\_\_ is the buildup of electric charges on an object. It is lost through electric \_\_\_\_\_.

When finished writing and answering questions pick up a ½ sheet of computer paper and a ruler from the chair in front of the projector cart.

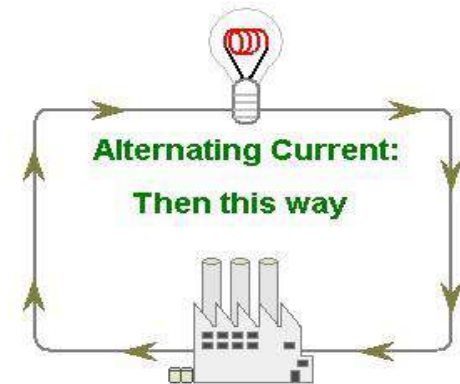
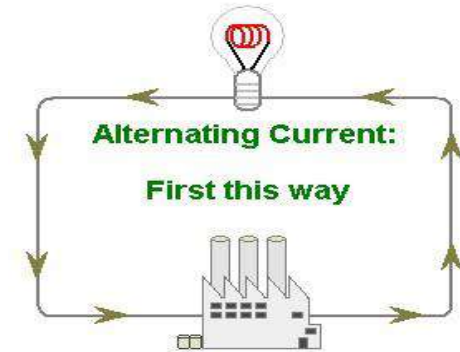
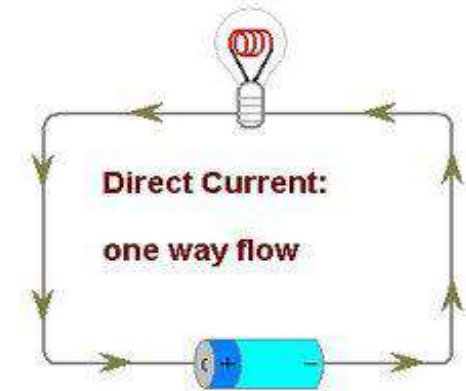
# What you should be working on...

- Gluing old papers inside of composition notebook on correct pages.
- Finishing handout from yesterday front and back. It is due at the end of class.
- Updating table of contents.

# SJE#40: Electric Current (S8P5c)

3-10-14

1. What is the difference between something that is direct and something that is alternating?  
How does the difference relate to electric current?



# Foldable will be attached between L40/R40

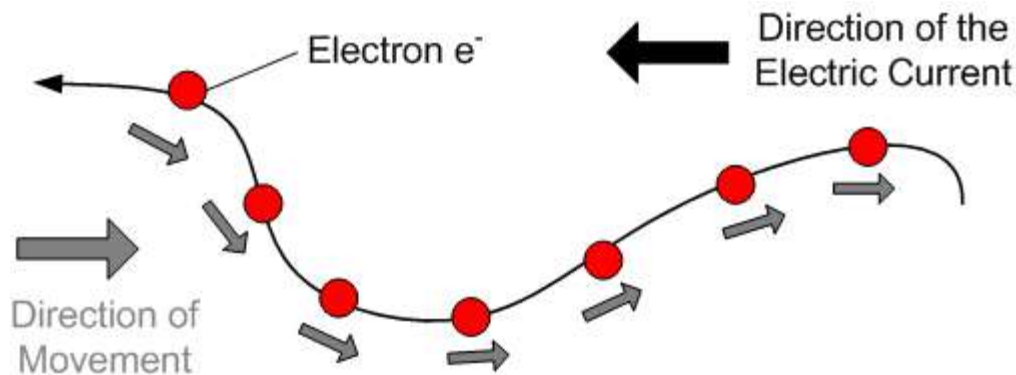
Electric Current
Circuit
Voltage
Resistance



# Electric Current (S8P5c)

3-11-14

Using the handout attached to R40 answer the section review questions for both chapter 20 sections 1 and 2. Answers only will go on this page.



# Agenda Entry: 3/11/14

- Complete R40 handout
- Notebook Check Quiz tomorrow.

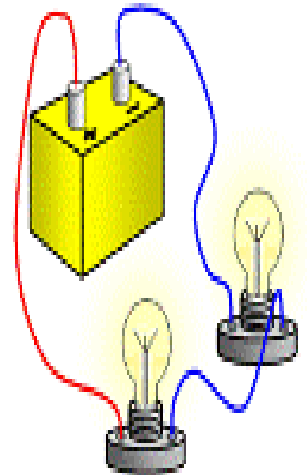
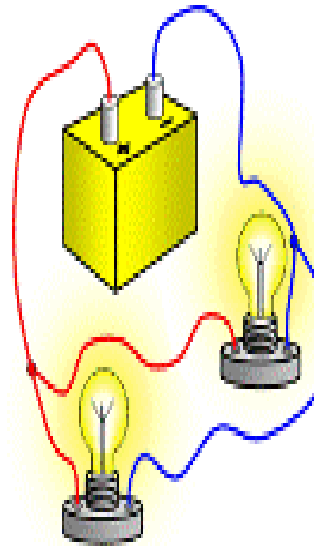
# 3-12-14

- Finish Handout on the counter
- Work on updating composition notebook.
- Finish science workbook pages that are incomplete.

# SJE#41:Electric Circuits (S8P5b)


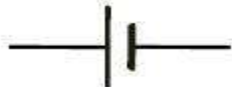










3-13-14

1. What are the three parts of an electric circuit?
2. What are the two types of electric circuits?
3. How are loads connected in a series circuit?
4. How are loads connected in a parallel circuit?
5. What are two safety devices used in circuits? How do they work?



# Additional Info

## Symbols of electric components

<u>Electric component</u>		<u>Symbol</u>
i) Electric cell		
ii) Electric bulb		
iii) Switch in OFF position		
iv) Switch in ON position		
v) Battery		
vi) Wire		

(3/17/14)

Today in class you will complete ....

- Science Workbook pages 228-230
- Read through the CRCT handout
- Answer the multiple choice questions at the end!
- Using the CRCT handout and the L/R 41 pages work on the circuits foldable.
- Make sure that all pages are labeled and glued inside of the ISN.

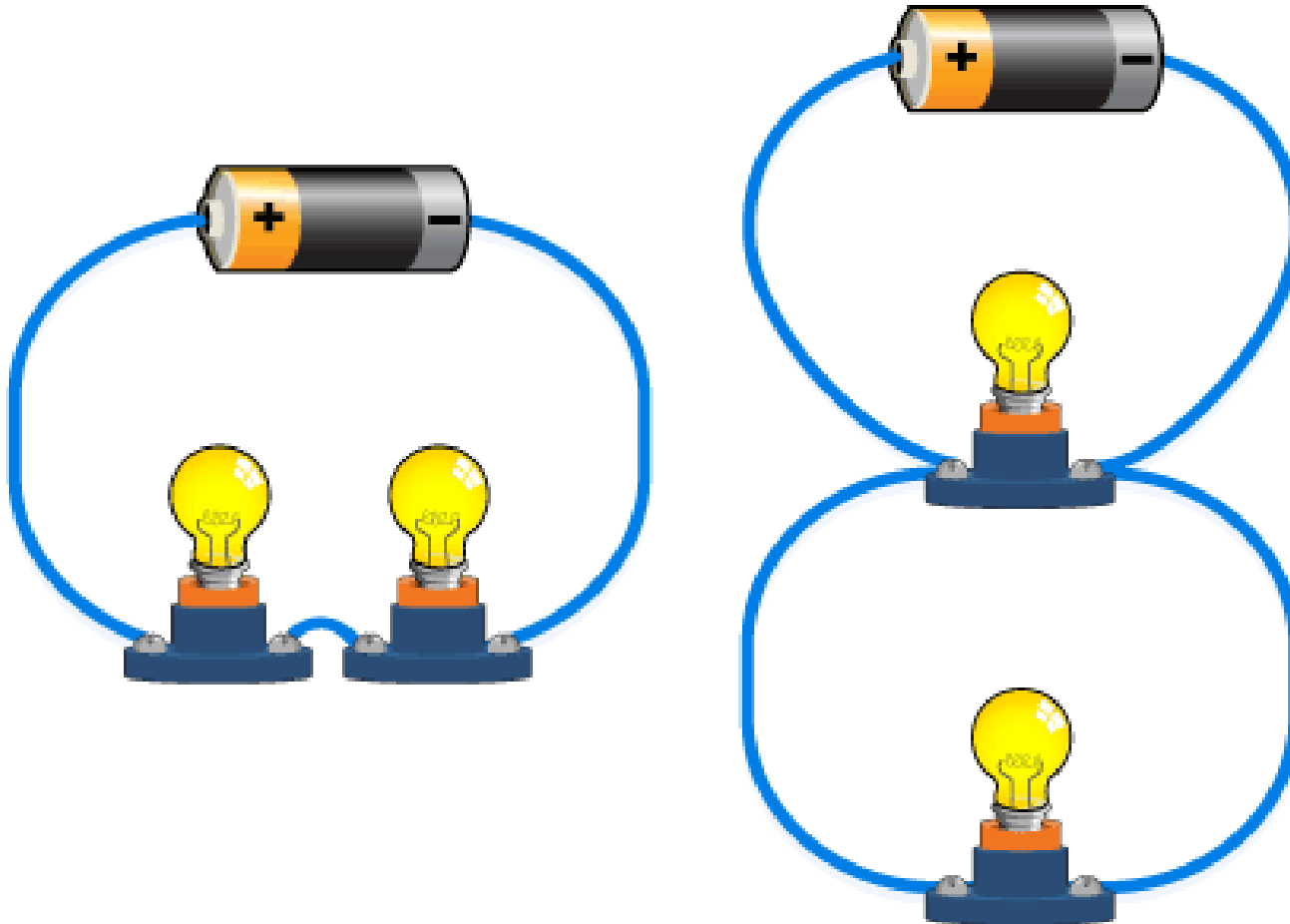
## Series Circuit

On the outside of this flap draw a detailed picture of a series circuit. Include an energy source, 3 loads, a switch and wires. Use color if possible. Make sure that you label all parts of the circuit.

## Parallel Circuit

On the outside of this flap draw a detailed picture of a parallel circuit. Include an energy source, 3 loads, and wires. Use color if possible. Make sure that you label all parts of the circuit.

# Circuit Diagrams





## Series Circuit

On the inside of this flap answer the following questions.

**How is the circuit wired?**

**Where do you see this type of circuit?**

**What are the advantages of this type of circuit?**

**What are the disadvantages of this type of circuit?**

**What happens in this type of circuit if one of the loads burns out or is unscrewed?**

## Parallel Circuit

On the inside of this flap answer the following questions.

**How is the circuit wired?**

**Where do you see this type of circuit?**

**What are the advantages of this type of circuit?**

**What are the disadvantages of this type of circuit?**

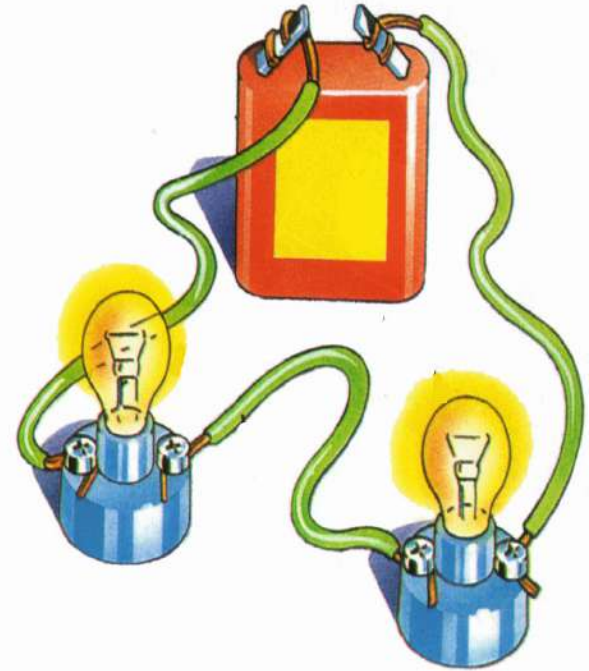
**What happens in this type of circuit if one of the loads burns out or is unscrewed?**

# Electric Circuits (S8P5b)

R41 output

3-17-14

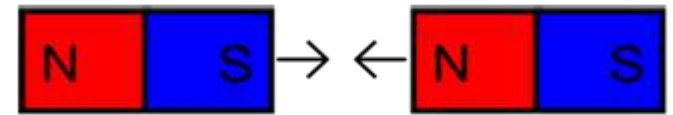
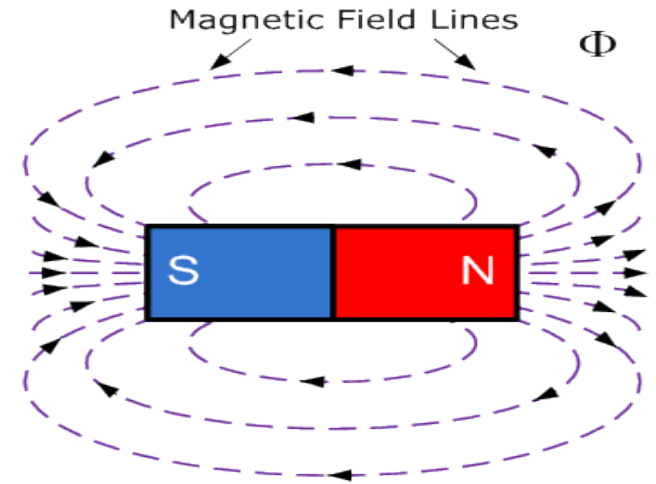
1. How does the current in a circuit change if the voltage is doubled and resistance doesn't change?
2. In a series circuit what is the same for every device in the circuit?
3. What happens to the light in a parallel circuit if one of the light bulbs is unscrewed or goes out?
4. What happens to the light in a series circuit if one of the light bulbs is unscrewed or goes out?
5. The switch in a series circuit that contains five light bulbs is opened and two of the light bulbs are unscrewed. What happens when the switch is closed? Explain?



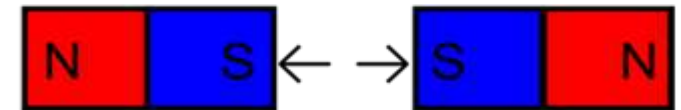
# SJE#42: Magnets and Magnetism (S8P5c)

3-18-14

1. What is a magnet?
2. Name three properties of magnets.
3. What are two ways a magnet can lose its magnetic properties?
4. What is a ferromagnet?
5. What do scientists think caused Earth's magnetic field?
6. If two magnets push each other away, what can you conclude about their poles?
7. If two magnets attract each other what can you conclude about their poles?



Opposite poles **attract**



Same poles **repel**

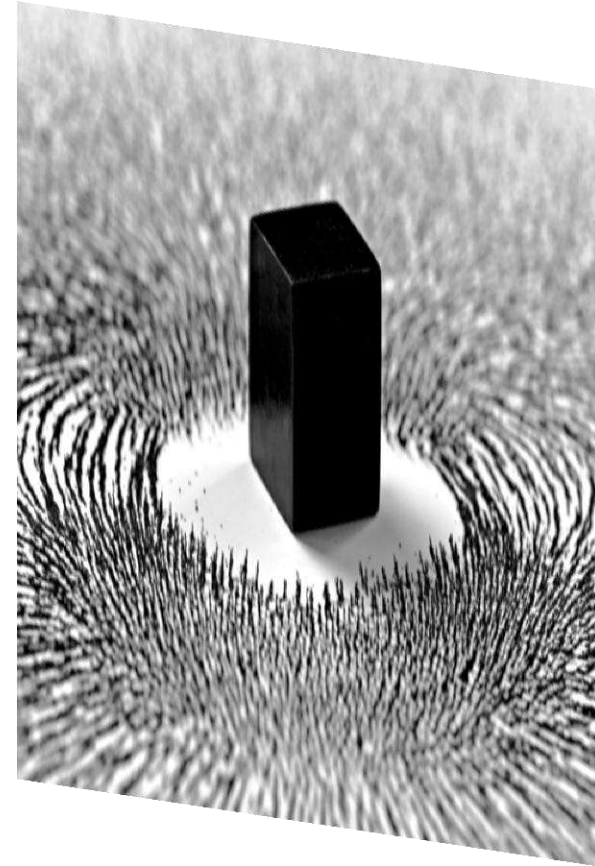
# Magnets and Magnetism (S8P5c)

R42  
output

3-18-14

## Understanding Key Ideas

1. All magnets have \_\_\_\_\_ poles. The \_\_\_\_\_ pole will always point to the north if allowed to rotate freely. The other pole is called the south pole.
2. Like magnetic poles \_\_\_\_\_ each other. Opposite magnetic poles \_\_\_\_\_.
3. Every magnet is surrounded by a magnetic \_\_\_\_\_. The \_\_\_\_\_ of the field can be shown with magnetic field \_\_\_\_\_.
4. A material is \_\_\_\_\_ if its domains line up.
5. Magnets can be classified as \_\_\_\_\_, electromagnets, temporary magnets, and permanent magnets.
6. \_\_\_\_\_ acts as if it has a big \_\_\_\_\_ magnet through its core. Compass needles and the north poles of magnets point to Earth's magnetic \_\_\_\_\_ pole, which is near Earth's geographic \_\_\_\_\_ Pole.
7. \_\_\_\_\_ are most commonly seen near Earth's magnetic poles because Earth's magnetic field \_\_\_\_\_ inward at the poles.



# Magnets and Magnetism (S8P5c)

R42  
output

3-18-14

## Understanding Key Ideas

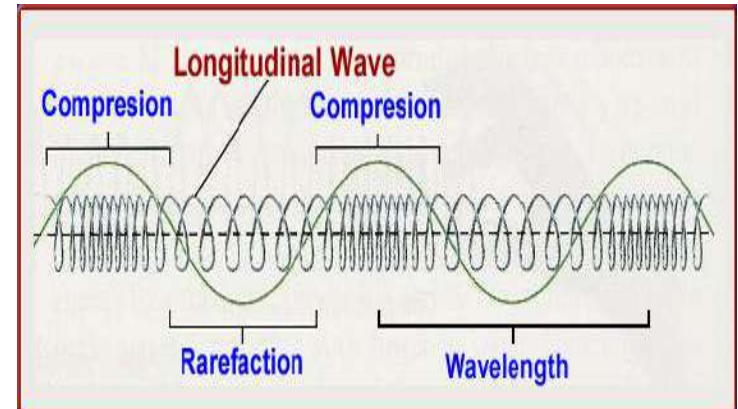
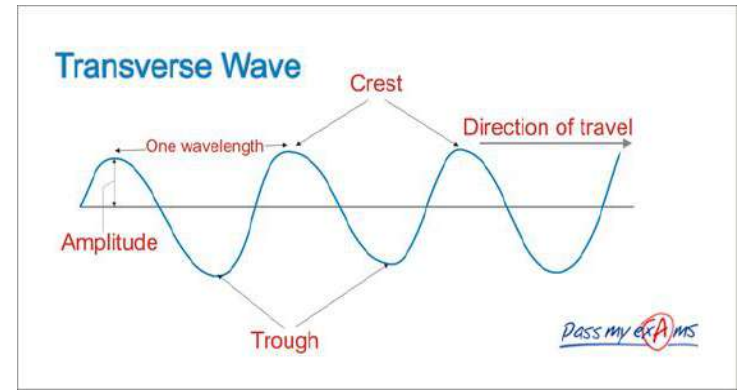
1. All magnets have two poles. The north pole will always point to the north if allowed to rotate freely. The other pole is called the south pole.
2. Like magnetic poles repel each other. Opposite magnetic poles attract.
3. Every magnet is surrounded by a magnetic field. The shape of the field can be shown with magnetic field lines.
4. A material is magnetic if its domains line up.
5. Magnets can be classified as ferromagnets, electromagnets, temporary magnets, and permanent magnets.
6. Earth acts as if it has a big bar magnet through its core. Compass needles and the north poles of magnets point to Earth's magnetic south pole, which is near Earth's geographic North Pole.
7. Auroras are most commonly seen near Earth's magnetic poles because Earth's magnetic field bends inward at the poles.

☐ Page 233-236 Science Workbook !!

# SJE#43: Characteristics and Properties of Waves(S8P4a,d,e,f)

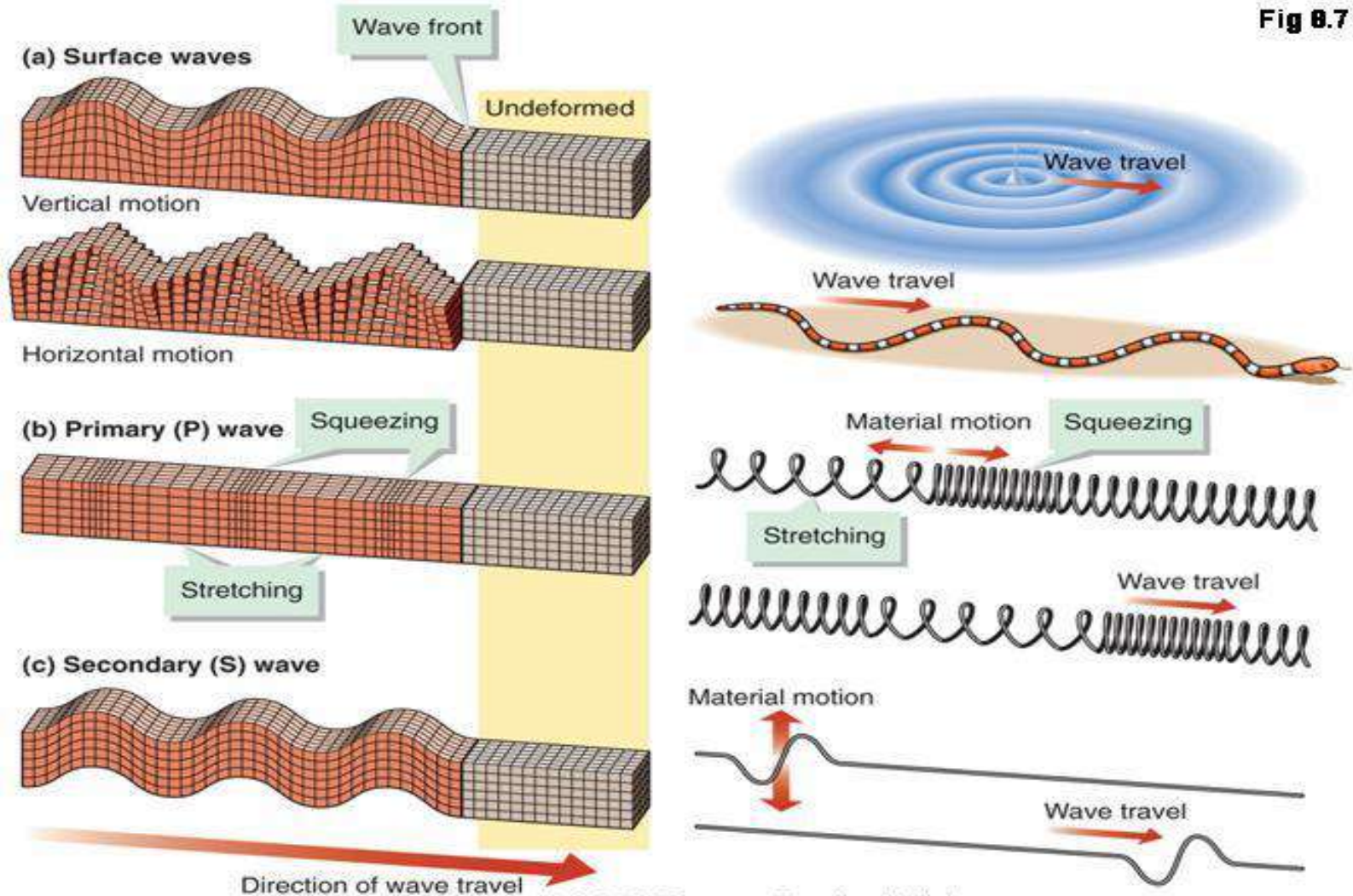
3-24-14

1. What is a wave?
2. What do all waves have in common?
3. How do electromagnetic and mechanical waves differ?
4. What kind of wave is a sound wave?
5. How does shaking a rope at different rates affect the wavelength of the wave that moves through the rope.
6. If you make three ropes waves per second what is the frequency of the wave?



# Waves

Fig 8.7



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Christina Hood Stockbridge Middle  
School 2013-2014.

# Characteristics & Properties of Waves

## (S8P4a,d,e,f)3-25-14

### Understanding Key Ideas: BrainPOP: Waves

1. What do seismic waves and sound waves have in common?
2. What does it mean when a waves amplitude increases?
3. What medium do seismic waves travel through?
4. What do waves carry from place to place?
5. In a wave what happens to a molecule after it passes energy on to the next molecule in the chain?
6. How are electromagnetic waves and mechanical waves different?
7. Give two examples of electromagnetic waves.
8. What type of waves carry energy at right angles to the direction of energy flow?
9. How is wavelength measured in both electromagnetic and longitudinal waves?
10. What can you infer about a wave with a short wavelength?



# Agenda Entry 3-24-14

Finish CRCT Coach Handout

Study Waves and Properties

Finish L43 questions

Science Workbook 175-182 (start)

# Before we can move on....

- We need to work on
- labeling waves worksheet
- foldable to go in between the L43, R43 pages.

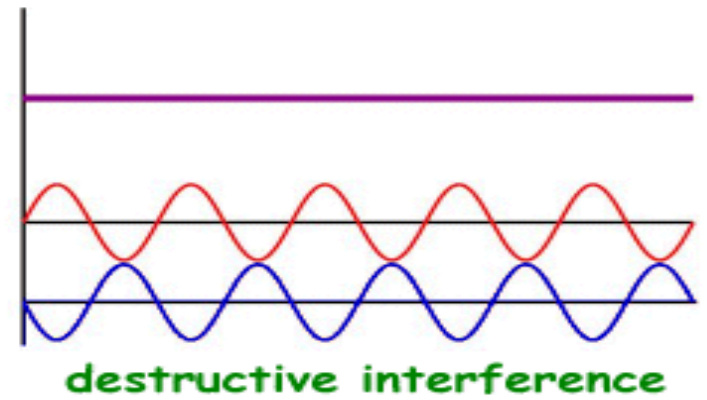
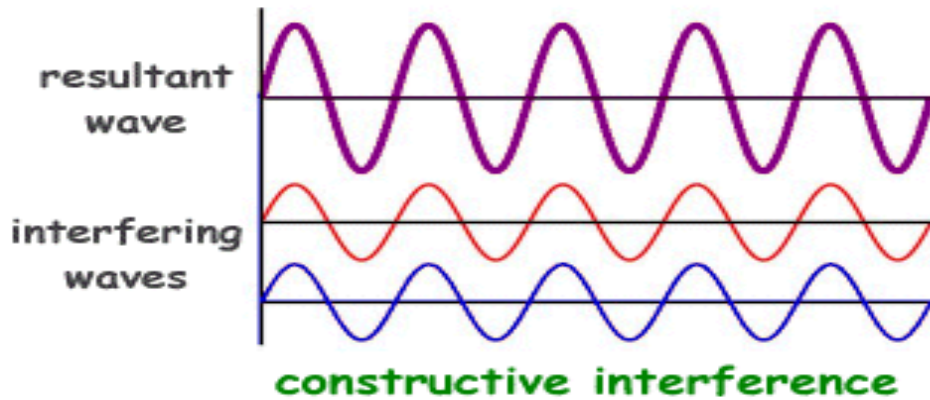
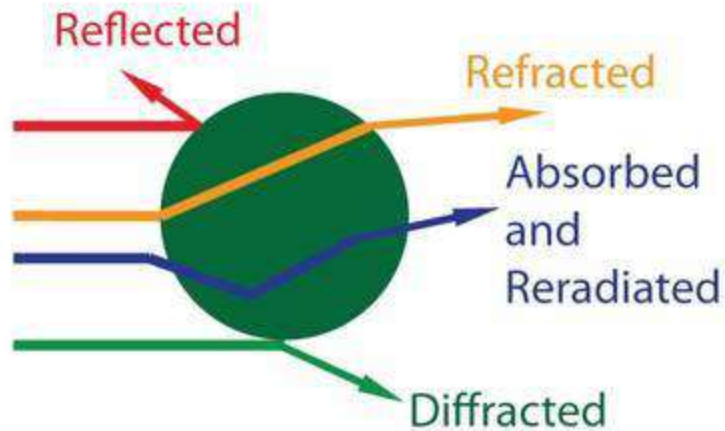
It will be a 4 panel foldable and the terms are **Amplitude, Wavelength, Frequency, and Wave speed.**

# SJE#44:Wave Interactions and Behavior (S8P4a,f) 3-27-14

Complete the following table, provide a description, and a picture.

Term	Description	Picture
Reflection		
Refraction		
Diffraction		
Interference		
Destructive Interference		
Constructive Interference		
Resonance		

# Behavior of Waves



# Agenda Entry 3-27-14

- Science Workbook pages 175-182, 183, 184
- Complete your L44 page
- Complete the labeling waves handout on the R43 page if not completed in class.

# Wave Interactions and Behavior (S8P4a,f) R44 output

3-31-14

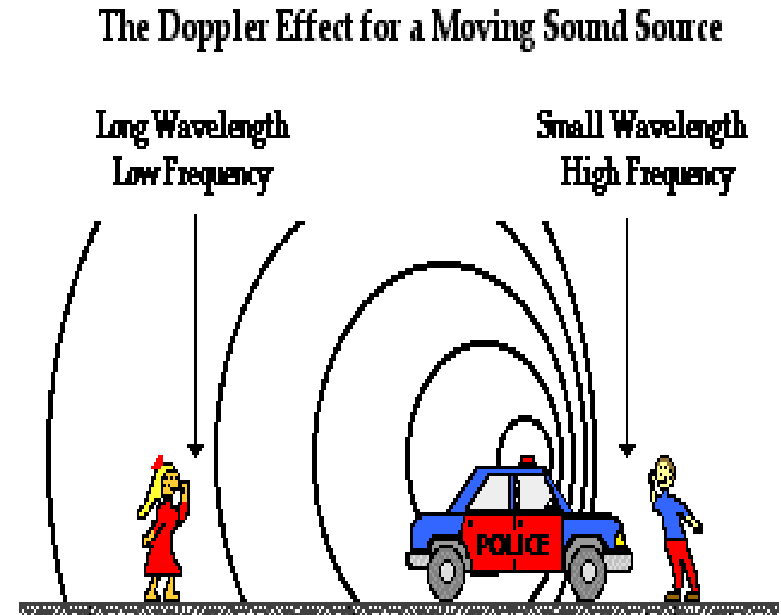
## Understanding Key Ideas:

1. How does your reflection in the mirror differ from your real image?
2. What is the reflection of a sound wave called?
3. What happens when a wave passes through a substance?
4. How is a rainbow formed? What is it an example of?
5. What is interference of a wave? What is/are the type(s)?
6. What is diffraction? What does the amount of diffraction depend on?
7. How does the length of a sound and light wave affect the perception of the light or sound?
8. What causes refraction?
9. What is resonance and when does it occur? Give an example.
10. How do waves interact with other objects?

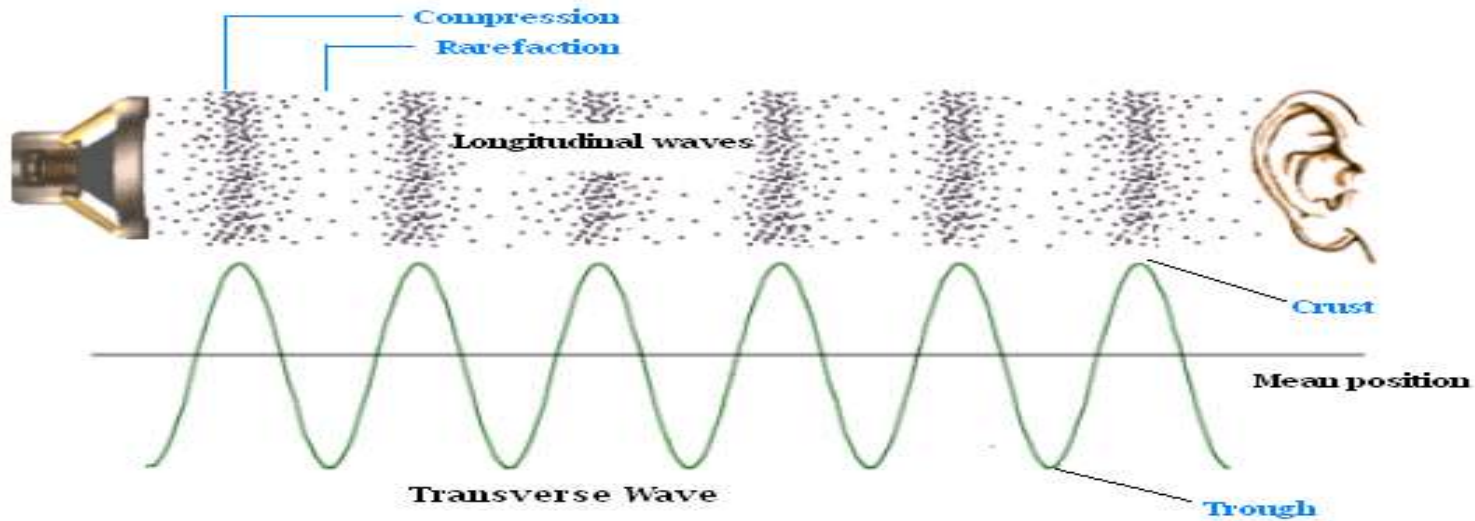
# SJE#45:What is a Sound? (S8P4d,e,f)

3-31-14

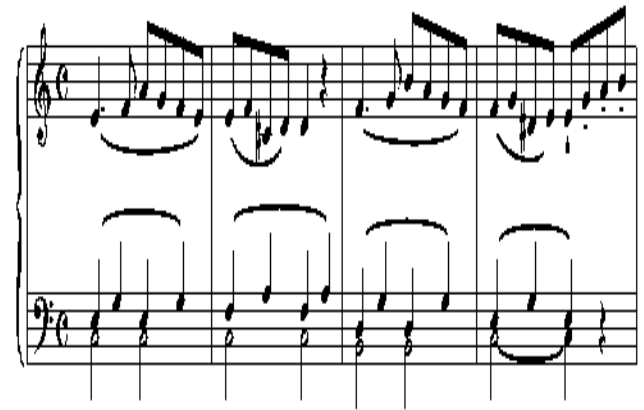
1. What are the characteristics of a sound wave?
2. How does a sound travel?
3. What is the Doppler Effect?
4. What determines the loudness of different sounds?
5. How do sonar sounds measure distances?



# Add these notes to the L45 page...



High frequency= high pitch  
Low frequency= low pitch  
High Amplitude= loud sound  
Low amplitude= soft sound  
Long wavelength= slow sound  
Short wavelength= fast sound





# What is a Sound? (S8P4d,e,f)

R45  
output

3-31-14

1. Draw the four glasses and the amount of water in each glass.

2. Under each glass draw what you think the wave represented by the sound will look like.

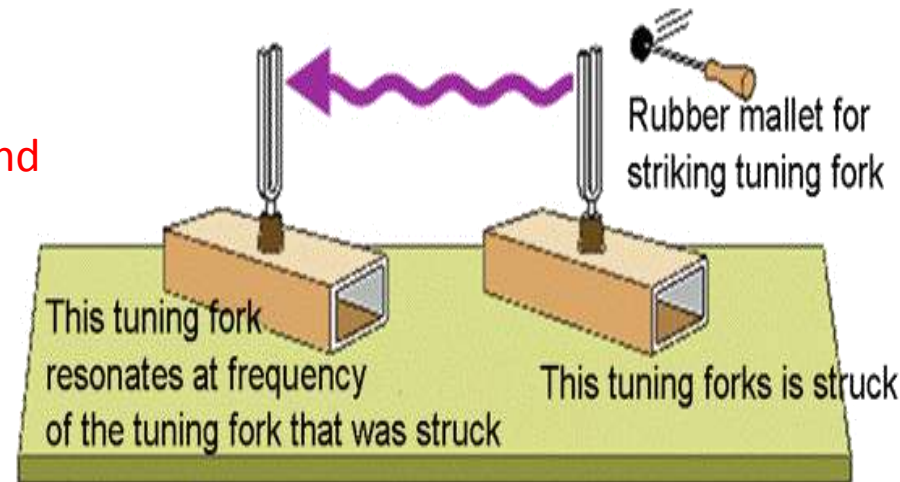
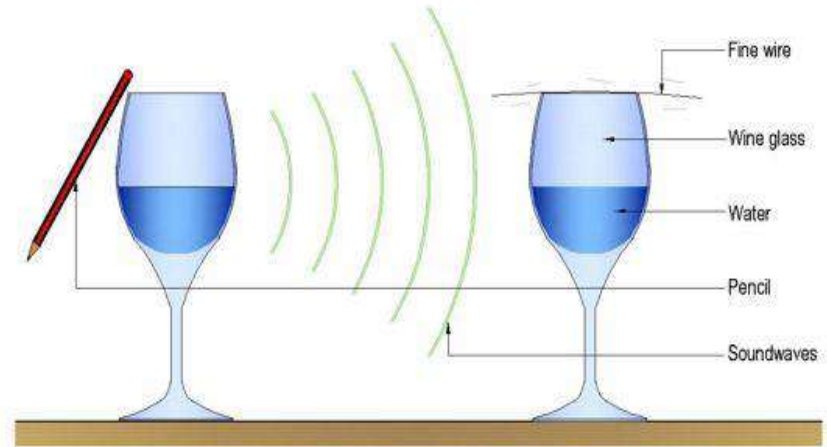
3. Label each glass as high or low amplitude, high or low frequency.

4. How does the tuning fork work?

5. If you hold it while you tap it what will happen and why?

6. What is a decibel? What is it used to measure?

7. How is music and noise different?

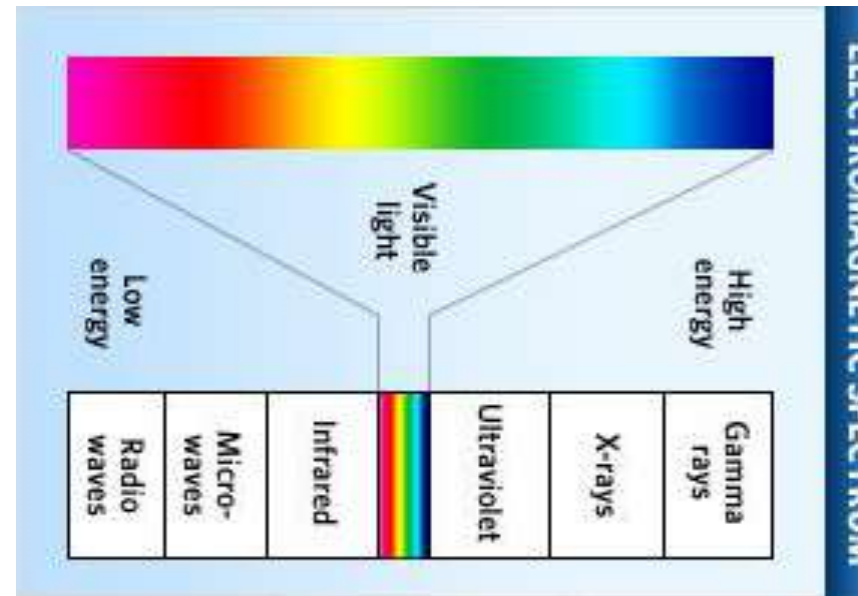


☐ Page 175-182,183,184,187-190 Science Workbook !!

# SJE#46: The Electromagnetic Spectrum (S8P4b,c)

4-1-14

1. What is the Electromagnetic spectrum?
2. Which EM waves carry television signals?
3. How do ultraviolet waves compare to visible light wave?
4. How are patients protected from X-rays?
5. How much of the electromagnetic spectrum is visible light?

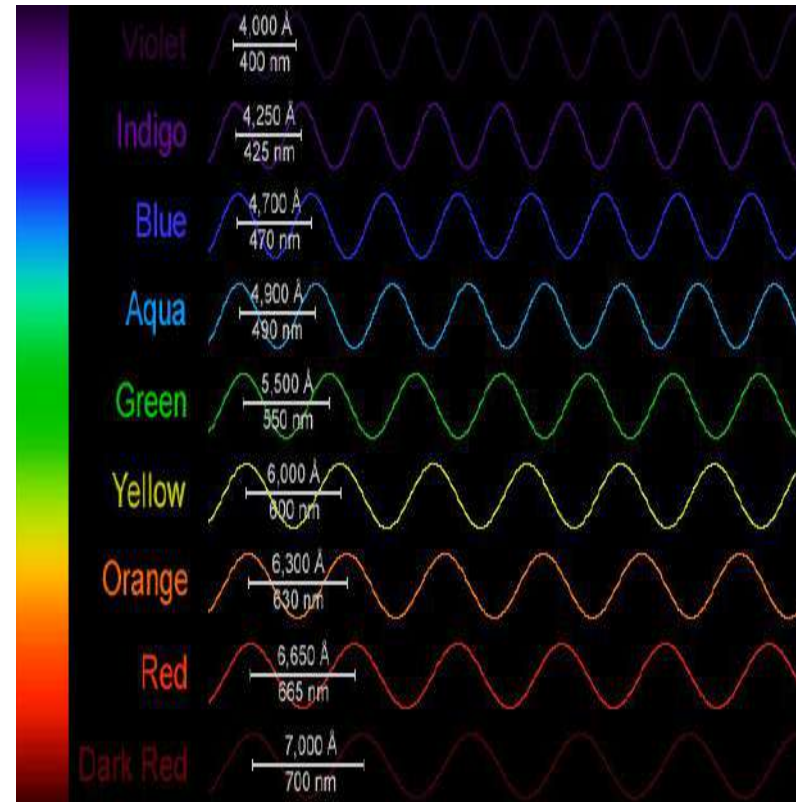


# The Electromagnetic Spectrum

R46  
output

(S8P4b,c) 4-1-14

1. Which waves in the EM spectrum have the highest energy/frequency?
2. What type of EM waves are produced by the sun?
3. What part of the human eye allows it to see color?
4. In large doses what can Ultraviolet Radiation cause?
5. What color are the longest wavelengths of visible light seen as?
6. What color are the shortest wavelengths of visible light seen as?
7. What is white light?



☐ Page 175-182,183,184,187-190,199-201 in the Science Workbook!!

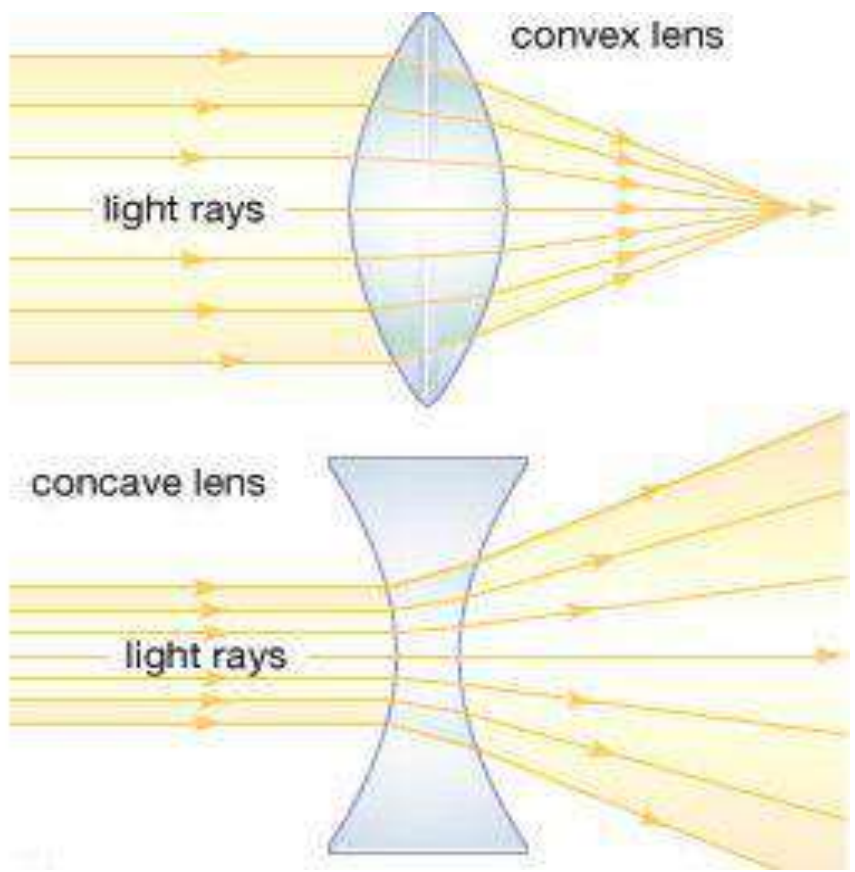
# Agenda Entry 4-1-14

- 199-201 Science Workbook.
- Finish R46 attach page.

# SJE#47: The Behavior of Light (S8P4b,c)

4-2-14

1. What must happen for you to see most objects?
2. What is the law of reflection? What are the two types of reflection?
3. What is a plane mirror? How does your reflection look in a plane mirror?
4. What is the difference between a concave and convex mirror?
5. What causes light to bend?
6. What are objects that are not light sources called? Are light sources?

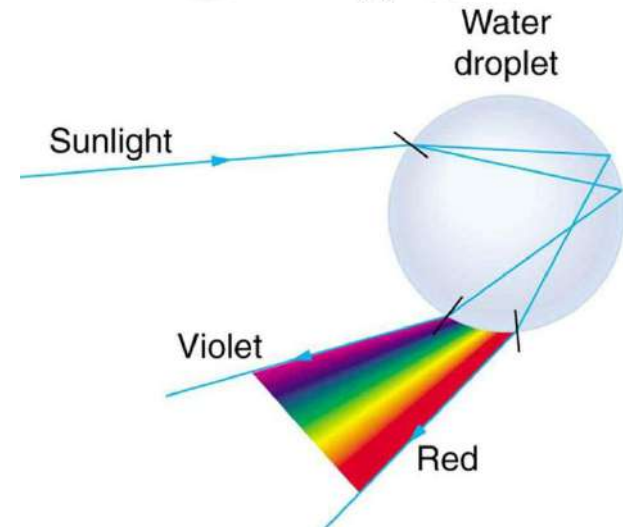


# The Behavior of Light (S8P4b,c) 4-2-14

1. Can light travel through space? Why?
2. How does a difference in medium affect the speed of a wave?
3. What does the refraction of light waves through a medium cause?
4. Light is referred to as particles known as what?
5. What happens to the speed of light as it goes through water?
6. How is diffraction useful?
7. Can you touch the rainbow? Why?



Jerry Malone



# 4-3-14

- We have a test today.
- It will begin in 5 minutes.
- Place your workbook on the shelf.
- Clear your desks!