8th Grade Science Summer Project
Energy All Around Us

Greetings Parents and Students!

Welcome to the eighth grade! As you prepare for the transition from 7th grade Life Science to 8th grade Physical science, please view the 1st semester standards and activities to be completed and submitted during the first couple weeks of the 2014-2015 school year. These activities are required for every Champion student and all grades will be recorded into the grade book as a lab grade (20%). These activities are designed to expose you and prepare you for the Georgia Performance Standards that will be taught and mastered during the first semester. Students please create a cover page *(First and Last name, Parents Name, Current Address, Phone Number and 1 long term goal / 1 short term goal)* . The cover sheet and the activity sheets should be placed in a report cover for submission, no exceptions.

Please review the standards and tasks below.
Choose one option in the first lesson and complete all of lessons 2 and 3.

Standard	Lesson	Points

S8P2 Grade: 8 Description: S8P2 Students will be familiar with the forms and transformations of energy.
 	
Elements:
a. Explain energy transformation in terms of the Law of Conservation of Energy.
b. Explain the relationship between potential and kinetic energy.
c. Compare and contrast the different forms of energy (heat, light, electricity, mechanical motion, sound) and their characteristics.
d. Describe how heat can be transferred through matter by the collisions of atoms (conduction) or through space (radiation). In a liquid or gas, currents will facilitate the transfer of heat (convection).
	
	Lesson 1: ENERGY on the Move
	
	Use the links below to read and review information about energy.
	
	What is Energy: http://www.eia.gov/kids/energy.cfm?page=1
	
	Energy Sources: http://www.eia.gov/kids/energy.cfm?page=2
	
	Using and Saving Energy: http://www.eia.gov/kids/energy.cfm?page=3
	
	History of Energy: http://www.eia.gov/kids/energy.cfm?page=4
	
	After you have completed reading and taking notes on these links complete one of the following activities:
	
	• **Option 1:**
	  ○ Create a floor plan of your home **(Use Color With A Purpose)**
	  ▪ http://office.microsoft.com/en-us/visio-help/create-a-floor-plan-HP001208559.aspx
	  ▪ http://www.ezblueprint.com/examples.html
	  ○ Use what you have learned about energy and label energy use in each area of your home. Use the energy calculator to calculate your home energy use for one billing period. Calculate electricity or natural gas, if your home uses both calculate each.
	
	• **Option 2:**
	  ○ Create a floor plan for your first or dream home. **(Use Color With A Purpose)**
	  ▪ Use only alternative energy sources such as solar, wind, hydroelectric power or biomass fuel.
	  ▪ Indicate your geographical location for your home
	  • Note your location will determine your alternative source of energy.
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Lesson 2: Energy Exploration

- **Kinetic Energy**

http://glencoe.mcgraw-hill.com/sites/dl/free/0078779626/161752/00035806.html

Watch this **Brain POP** animated movie explain how the energy of motion changes depending upon an object's speed and mass.

- **Potential Energy**

http://glencoe.mcgraw-hill.com/sites/dl/free/0078779626/160350/00035807.html

In this **Brain POP** movie, Tim and Moby show how potential energy changes depending upon an object's position and condition.

- **Energy Concentration Game**

http://glencoe.mcgraw-hill.com/sites/dl/free/0078779626/164049/index.html

- **Energy Crossword Puzzle**

http://glencoe.mcgraw-hill.com/sites/dl/free/0078779626/164051/index.html

- **Drag and Drop puzzle**

http://glencoe.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=dcr::592::370::/sites/dl/free/0078779626/164054/625.dc

- **Web quest**

Follow the links below to a website where you will find the answers to most of the following questions.

http://www.energyquest.ca.gov/story/chapter05.html

How much does energy really cost?

http://www.glencoe.com/sec/science/internet_lab/olc.php?olcChapter=625

Short Answer Questions

The information in lesson two will help you complete the following questions.

1. When you say something has a lot of energy, what do you mean?
2. How could you increase the kinetic energy of a wagon without increasing its mass?
3. Name two ways you could increase the potential energy of a bucket of water sitting on a bench.

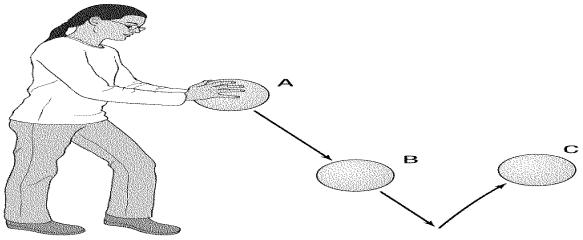
4. 

Figure 13-1

In Figure 13-1, a rubber ball is dropped and bounces back up. What kind of energy does the ball have at points A, B, and C?

5. List two advantages and two disadvantages of fossil fuels.
6. Explain how energy from fossil fuels gets to your car, starting with the Sun.
7. Why do we need to find an alternative to fossil fuels?
8. Give two reasons why people say that we have an energy crisis.
9. Write a list of four renewable energy resources
10. Write a list of four nonrenewable energy resources.
11. Make a list of the different types of energy that you know.
12. Where does the energy come from that you use to run your refrigerator at home?

Students, you will submit each section of your final project to the individual teachers.

Make you're your name is on all of the submissions.

Parents, please check your students work before they submit.