Activity One: Mathtastic!

Solve the following math problems. Use the numbers created in each answer to solve the riddle.

1. How much work do you do if you exert 25 Newton's of force to lift your backpack 2 meters off the ground?

2. If you do 300 Joules of work to push a big moving box 5 meters, how much force did you use?

3. A frontend loader needed to apply 137 Newton's of force to lift a rock. A total of 223 J of work was done. How far was the rock lifted?

$$D = \frac{W}{F}$$
 $D = \frac{223 \text{ J}}{137N}$ $O = 1.63 \text{ m}$

4. What is the kinetic energy of a car that has a mass of 1,300 kg and is moving at a speed of 20 m/s?

KE=
$$\frac{Mv^2}{2}$$
 KE= $\frac{1,300 \text{ kg} \times 20 \text{ m/s}^2}{2}$ KE= $\frac{1,300 \times 400}{2}$ KE= $\frac{260,000 \text{ J}}{2}$

5. What is the gravitational potential energy of a book with a weight of 13 N at a height of 1.5 m off the ground?

6. If an object is falling from a building and has a kinetic energy of 32.5 J and a potential energy of 210 J, what is the objects total mechanical energy?

$$#1 = F$$
 $#2 = S$ $#3 = P$ $#4 = C$ $#5 = K$ $#6 = R$

Question: What would a barefooted man get if he stepped on a wire?

Activity Two: Eureka!

Using the battery, wire, and motor make the motor turn. Write down ALL the types of energies and energy conversions involved in this process:

Activity	Three: Brain Pop! On the Weebly web page, go to the	Wave Ener	rgy unit and find the Brain Pop movie entitled
	of Energy. First, watch the movie then take the quiz. Wri		

1.	Which of these objects has potential	6.	What type of energy is stored in fuel?
	energy?		a. Light energy
	a. A ball moving through the air		b. Electrical energy
	b. A ball deflating		c. Chemical energy
	c. A ball in someone's hands		
	A	7.	What type of energy to batteries provide?
2.	A Which of these objects has kinetic		a. Electrical energy
	energy?		b. Mechanical energy
	a. A ball moving through the air		c. Sound energy
	b. A ball on the table		
	c. A ball buried underground	8.	How is nuclear energy released?
			a. By burning fuel
3.	B What is energy?		b. By liquids mixing
	a. The ability to stand still		c. By atoms splitting apart or joining
	b. The ability to do work		together
	c. The ability to speak		
	1460	9.	What does your body convert into
4.			energy?
	a. Light bulbs		a. Hair
	b. The sun		b. Water
	c. Fires		c. Food
5.	What is a source of mechanical energy?	10.	B What type of energy do plants use to
0.	a. Wind		make food?
	b. Sunlight	1 1 2 3	a. Sound energy
	o. Diet	1.5.	h Light energy

FACT: Potential energy is the
energy an object has because of its
position

FACT: energy cannot be	e
created	or
destroyed	

FACT: Kinetic energy is the energy of Molion

c. Wind energy

Activity Four: Map It.

Create a concept map that includes the following words: *kinetic energy, heat, conduction, thermal expansion, radiation, temperature, electromagnetic waves, convection, transverse*

Circle the correct answer				
Which temperature is the coldest: 50 °C 50 °F 50 K They're the same				
When a cold spoon is placed in a hot cup of soup the total amount of energy in the spoon and soup Increases because the spoon gets warmer. Decreases because the soup gets cooler.				
Stays the same because energy lost by the soup is gained by the spoon.				
The spoon did not have any energy until it was placed in the hot soup.				
Two friends are standing the same distance away from you, and blow whistles at the same time. The first whistle creates a sound wave with a large amplitude, and the second makes a sound with a smaller amplitude. Which whistle sounds louder?				
The wave with a taller amplitude The wave with a shorter amplitude They both have the same loudness				
Which object would have the GREATEST kinetic energy?				
A 10 kg object moving at 5 m/s A 5 kg object moving at 10 m/s They have the same energy				
There are two substances with the same thermal energy, but they are different amounts. What do you know about their temperature?				
The smaller amount has a higher temperature The larger amount has the higher temperature				
They both have the same temperature You don't have enough information				
Which of the following is true about the process of convection?				
Convection occurs in fluids (liquids and gasses). The process of convection underneath the plates causes earthquakes.				
Convection happens because hot, less dense molecules rise and cool, denser molecules fall. All of the above.				
What is the GPE of your chair? OJ Why? it is on the grand & has no height				
Two friends put a bowl of very cold water outside on a hot sunny day. The sun warmed the water. They wondered about the energy of the water. This is what they thought:				
Trayvon: "The very cold water had some energy. The sun provided additional energy to warm the water." Sarah: "The very cold water did not have energy. The all the energy that is now in the water came from the sun." Mercedes: "The molecules from the sun were added to the molecules in the water. This made the water have more energy."				
Which friend had the best idea? Trayron Explain why: All molecules are glasys				
moving Chave KE) even if it is only a little. The light energy				
Which friend had the best idea? Trayron Explain why: All molecules are glusys moving (have KE) even if it is only a little. The light energy from the sun is transferred to the molecules so they increase in speed/energy				

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