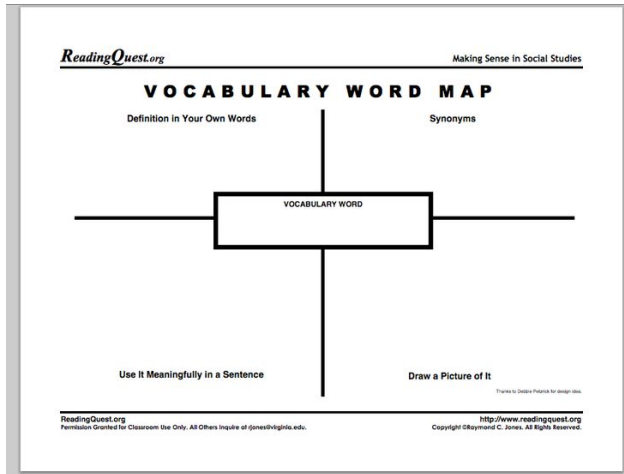


Becky will assist this station with Using the graphic organizer listed below to create word maps for each form of energy including radiant, thermal, chemical, electrical, and nuclear energy.



Found:

<https://s-media-cache-ak0.pinimg.com/736x/1d/ac/57/1dac57d97389165d0503624be834c5c7--vocabulary-graphic-organizer-graphic-organizers.jpg>

All students will create flash cards in order to review the vocabulary.

Lesson:
Activities/ Procedures

Co-Teaching Approach: Station Teaching

Students will conduct an experiment in which they will calculate the kinetic energy and potential energy in a system.

1. Have students create ramps by stacking books and placing one end of a wooden board on the stack of books and the other end on the floor. Have them vary the number of books to create different slopes on the ramps. A book can be used at the end of the ramp to stop the motion of the toy car.

2. Have each student perform the following experiment:

- Find the mass of a toy car.
 - Create a ramp with a height of one textbook.
 - Place the toy car at the top of the ramp, and then measure the height of the ramp at the point where the toy car sits. Record the height in a table like that at right.
 - Calculate the potential energy of the toy car, and record it in the table. $PE = \text{mass} \times \text{gravity} \times \text{height}$ (gravity = 9.8 m/s^2)
 - Measure the distance from the top of the ramp to the bottom of the ramp. Record the distance in the table.
 - Using a stopwatch, measure the time it takes for the car to roll down the ramp, and record it in the table.
 - Calculate the velocity of the car and then the kinetic energy. Record it in the table. $\text{velocity} = \text{distance}/\text{time}$ $KE = \frac{1}{2} \times \text{mass} \times \text{velocity}^2$
 - Repeat the previous steps, adding a one textbook at a time and creating a ramp with a steeper slope until you have a stack of 5 textbooks.
 - On a separate sheet of graph paper, construct a graph showing your results. Use a RED color pencil to show Potential Energy, and a BLUE color pencil to show Kinetic Energy. Label the independent and dependent variables on each axis. Include a scientific title.
- Kayla will review lab safety with the students.
 - For the lower level kids

		<ul style="list-style-type: none">○ There will be a modification to the methods section. Students will be given cut-up strips of paper. The lower level of kids will be given the first and last steps of the method in order and are required to place the rest of the methods section in sequence.○ Students must check their methods section with Kayla in order to be able to gather the materials for the lab. Students will be guided on filling out the data table that will be given to them.○ Students will follow the methods section in order to complete the lab and collect the data. Students will be assisted with calculations and reminded of equations used.○ Students will be given a labeled graph and must be able to plot the points. The axis labels, and title will be given to them. The graphs will be collected as a grade.• For the Higher level kids<ul style="list-style-type: none">○ Students will be given the question: Does height effect the potential and kinetic energy?○ Students will then be given the first and last steps of the methods section and must come up with their own methods sections. Students will be given the data table but must come up with the units for the given columns.○ Students will be required to check off their methods and data table with Kayla before they can gather materials and begin the lab.○ Students will follow the methods section in order to complete the lab and collect the data.○ Students will construct a graph from scratch with correctly labeled axis and titles. The graphs will be collected for a grade.
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As independent work students will create a poster or powerpoint representing energy conversions. For example, a flashlight converts chemical energy from the battery to radiant (light) energy. Students must include pictures, and definitions of the different types of energy. Becky will guide the special education students and check over their energy conversions.

As independent work students will create a poster or powerpoint representing energy conversions. For example, a flashlight converts chemical energy from the battery to radiant (light) energy. Students must include pictures, and definitions of the different types of energy. Kayla will assist students if needed but is expecting the students to be able to think through the process.

Guided/Independent Practice

Co-Teaching Approach: Alternative Teaching.

Parallel Teaching

Comparison Table

C Communicate Targeted Concepts
O Obtain the Overall Concepts
M Make lists of Known Characteristics
P Pin down Like Characteristics
A Assemble Like Categories
R Record Unlike Characteristics
I Identify Unlike Categories
N Nail Down a Summary
G Go Beyond the Basics

Overall Concept Energy			
Concept Potential	Concept Kinetic		
Extensions	<table border="1"> <tr> <td style="text-align: center;">Characteristics Stored Chemical gravitational Elastic</td> <td style="text-align: center;">Characteristics Mechanical movement Thermal</td> </tr> </table>	Characteristics Stored Chemical gravitational Elastic	Characteristics Mechanical movement Thermal
Characteristics Stored Chemical gravitational Elastic	Characteristics Mechanical movement Thermal		
Like Categories Thermal Energy? Power for Toys	Like Characteristics Increases as height increases		
Unlike Categories movement determines what energy state an object possesses	<table border="1"> <tr> <td style="text-align: center;">Unlike Characteristics stored is affected positively by height</td> <td style="text-align: center;">Unlike Characteristics motion decreases as height decreases</td> </tr> </table>	Unlike Characteristics stored is affected positively by height	Unlike Characteristics motion decreases as height decreases
Unlike Characteristics stored is affected positively by height	Unlike Characteristics motion decreases as height decreases		
Summary Energy comes in two states, potential and kinetic. Kinetic energy is the energy of motion while the potential energy is stored and has no motion			

Adapted from an activity by found at <http://www.biologycorner.com>
M. Poarch - 2003
<http://science-class.net>

Closure

Have the class design and test a roller coaster with peaks and valleys using the materials used in the stations. Additional materials may need to be included to create a roller coaster. Both becky and Kayla will team teach to ensure all students are understanding the concept behind the rollercoaster.

Co-Teaching Approach: Team Teaching

<p>Formative Assessment Strategies</p> <p><i>Co-Teaching Approach: Parallel Teaching</i></p>	<p>Using Parallel teaching, Becky will guide the students with a comparison Table chart to compare Potential and Kinetic Energy.</p>	<p>Using Parallel teaching, Kayla will allow the students to work in small groups or independently with a comparison Table chart to compare Potential and Kinetic Energy. These students will be reminded of helpful vocabulary to use and other categories or characteristics to include in the chart.</p>
<p>Homework</p>	<p>No homework will be assigned.</p>	
<p>Specially Designed Instruction and Accommodations, Modifications for Specific Students</p>	<ul style="list-style-type: none"> • Some students will be placed in groups with people they work well with instead of where they would be placed. • Some students will be able to type the comparison table instead of handwriting it. • Some students will be able to use Cram to make their flashcards in the station with becky. • A schedule will be on the board with reminders for what students should be doing when they finished their previous station. • A timer will be utilized to ensure students are on task and aware of timer. 	
<p>Notes:</p>		