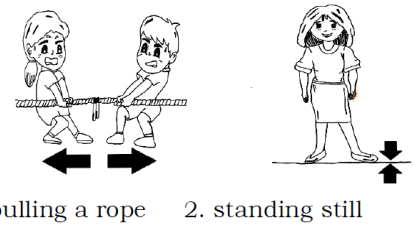
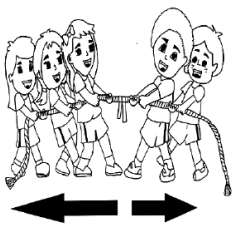
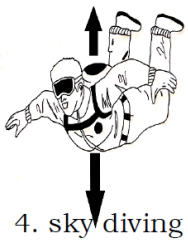
LESSON PLAN FOR FINAL TEACHING DEMONSTRATION

Learning Delivery Modality	**Face to Face Learning Modality**			
LESSON EXEMPLAR	School	**UP RURAL HIGH SCHOOL**	Grade Level	**8**
	Teacher	**MIKE ANGELO A. ALOBA**	Learning Area	**Science**
	Teaching Date	**December 14, 2022**	Quarter	**First**
	Teaching Time	**9:20-10:20**	No. of Days	**1**

I. OBJECTIVES	
	Knowledge: Identify the factors that affect potential and kinetic energy.
	Skills: Show the factors that affect potential and kinetic energy by completing the venn diagram.
	Attitude: Recognize the importance of knowing the factors that affect potential and kinetic energy.
A. Content Standards:	Grade 8 students demonstrate an understanding of work using constant force, power, gravitational potential energy, kinetic energy, and elastic potential energy.
B. Performance Standards:	
C. Most Essential Learning Competencies (MELC)	Identify and explain the factors that affect potential and kinetic energy.
D. Enabling Competencies (If available, write and attached enabling competencies)	
II. CONTENT	
	Factors Affecting Potential and Kinetic Energy
III. LEARNING RESOURCES	
A. References	
a. Teacher's Guide Pages	Science G8 Learner's Module, Teachers' Guide Department of Education
b. Learner's Guide Pages	PIVOT 4A Learner's Material Quarter 1 Week 3 pages 17-20.
c. Textbook Pages	

d. Other learning resources	Laptop, white board, Powerpoint Presentation, marker and eraser	
B. List of Learning Resources for Development and Engagement Activities	Glazer , T., & Dottie, E. (n.d.). *Kinetic and potential energy*. Retrieved December 6, 2022, from https://www.youtube.com/watch?v=vl4g7T5gw1M/	
IV. PROCEDURES		
	Teacher's Activity	**Students' Activity**
A. Introduction		
Lesson Review	*Daily Routine* Good morning/afternoon class! Let us begin our class with an opening prayer. Let me call on our prayer leader for today. Before we begin, kindly align your chairs and pick up the trash along your seats. Do we have any absentees for today? Do you recall the topic that we discussed last week? Very good *name of the student*! To further recall what we have learned last week, I will flash some images on the screen and you will identify whether the situation shows balanced or unbalanced force.  1. pulling a rope 2. standing still	 Good morning/afternoon, Sir! *(The prayer leader of the class will lead the opening prayer.)* None sir. *(The teacher will now select a student to answer the question)* Yes Sir! Last week we discussed Balanced and Unbalanced Forces. 1) Balanced 2) Balanced

	 3. tug of war  4. sky diving Correct. Today, as you might already know, we will be learning about the factors that affect potential and kinetic energy.	3) Unbalanced 4) Unbalanced
Purpose of the Lesson	*The lesson objectives will be flashed.* May I have a volunteer to read our objectives for today? At the end of the lesson, learners should be able to: a. Identify the factors that affect potential and kinetic energy. b. Explain the factors that affect potential and kinetic energy. c. Recognize the importance of knowing the factors that affect potential and kinetic energy. Thank you, *name of the student.* Are there any questions about the learning objectives before we proceed?	*Student volunteers to read the objectives.* No, Sir.
Presentation of Samples	Now, let us have our word of the day! Today, we will be using the word **energy** a lot. Let us now have a working definition of what it is. **Energy** - the capacity or the ability to do work.	
A. Development		
Discussion	**Differentiating Potential and Kinetic Energy** **-** There are two types of energy that we will be discussing today. - Remember that we define **work** as the **measure of energy transfer** that occurs when an object is moved over a distance by an external force at least part of which is applied in the direction of the displacement. - When work is being done, we say that it is **kinetic energy** or energy in motion. The word	

"kinetic" in English comes from the Greek word **"kinetikos"** which means **moving**.
e.g. rolling ball, falling leaves

- **Potential energy** on the other hand, is present when the work is **waiting to be done** or when there is potential for work to be formed.

Factors Affecting Potential Energy
- Potential energy is affected by the **mass of the objects** and the **gravitational force.** The acceleration due to gravity is 9.8 m/s^2 rounded off as 10 m/s^2.

- Two objects that are in the **same position** have potential energy, yet an object with **greater mass** has **greater potential energy**, with respect to each position.

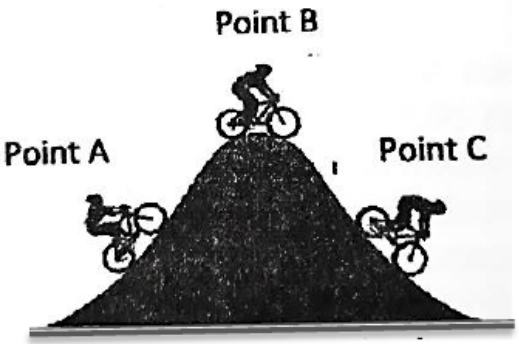
- An object of the **same mass** that is placed at a **different position** has **different potential energy** contained.

- The object at a **higher** position or height will have a **greater potential energy**.

- We can now show that potential energy (PE) is related by the equation:

$$PE = mgh$$

where **m** = mass,
g = $9.8 m/s^2$
h = height or change in height



At point B, the potential energy is highest.

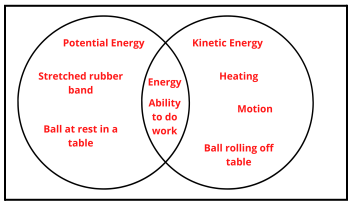
Factors Affecting Kinetic Energy
- Kinetic Energy (KE) is related by the equation:

$$KE = \frac{1}{2}mv^2$$

where **m** = mass, and **v** = speed of the object

	- We can conclude from the equation that **Mass** and **speed of the object** have great effects on kinetic energy. However, it is the velocity that is more significant. Now observe the picture below:  Which picture (1, 2 or 3) of the child shows potential energy? Correct! How about which of them showed kinetic energy? Very good! The child number 3 has a **decreasing kinetic energy** while child number 2 has **an increasing kinetic energy** relative to the position of child number 1.	The child number 1, that is stationary or not swinging Sir therefore it is an example of potential energy! The child numbers 2 and 3 Sir since they are moving but at different rates.
Mastery Development	Now that you know a lot of information about kinetic and potential energies, you can now answer our first activity. Please get your Science Notebook. **Activity No. 1: Potential or Kinetic?** Analyze the picture below. Determine if it shows potential or kinetic energy. Write your answer in your Science notebook.	1) Kinetic 2) Kinetic

	  1. pushing the hammer into the nail 2. a boy walking in the street   3. the man holds the bow and arrow 4. the arrow approaching the dart board	3) Potential 4) Kinetic
B. Engagement		
Application	We will now watch the Kinetic and Potential Energy song and listen carefully to the lyrics. Afterwards you will be answering the second activity. Link to the Video Lyrics: https://www.youtube.com/watch?v=vl4g7T5gw1M/ **Activity 2. FACT or BLUFF!** Read the following statements carefully and write **FACT** if it is true and **BLUFF** if it is false. _____1.) The rolling boulder crashing down the mountain is an example of potential energy. _____2.) Mass and velocity are the factors that can affect kinetic energy of an object while only the height of the object can affect the potential energy. _____3.) If you stretch a rubber band and then release it, that is an example of kinetic energy. _____4.) The energy encapsulated by a gasoline tank is an example of energy in motion. _____5.) The heat that comes when the gasoline is burning is an example of kinetic energy.	1. BLUFF 2. BLUFF 3. FACT 4. BLUFF 5. FACT
C. Assimilation		
Generalization and Abstraction	**Activity 3: Let us summarize!** Construct a venn diagram highlighting the differences and similarities of potential and	

	kinetic energy by using the words/phrases from the word bank. - Energy -Potential Energy - Motion -Kinetic Energy - Heating -Ability to do work - Ball at rest in a table - Ball rolling off table - Stretched rubber band - Simply put, **potential energy** is **stored energy** while **kinetic energy** is energy **in motion.** - **Potential energy** is affected by the **mass**, constant **gravitational acceleration** and **change in height** of the object in a system. - **Kinetic Energy** is affected by **mass** and **velocity** of the object in focus. - We can easily find a lot of examples of potential and kinetic energies in action within the world around us.	
Evaluation	We will now have a 5-item quiz. Please get your ¼ sheet of pad paper. The questions will now be posted on the screen. 1. Which of the following quantities has the greatest influence on the amount of kinetic energy of a car while traveling on a highway? A. mass B. size C. speed D. weight 2. Which of the following pairs of quantities are the factors that affect kinetic energy? A. force and distance B. mass and height C. mass and speed D. time and height 3. Which of the following does not affect the amount of potential energy of an object? A. mass B. speed C. height or location D. strength of gravity	1. C 2. C 3. B 4. B 5. Answers may vary

	4. The following applies the concept of potential energy EXCEPT: A. water in a dam B. a person playing the guitar C. a rock sitting at the edge of a cliff D. tree branches high up in a tree 5. What is the importance of knowing the factors that affect kinetic and potential energy? (2-3 sentences only)	

Prepared by:

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Practice Teaching

Observed:

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