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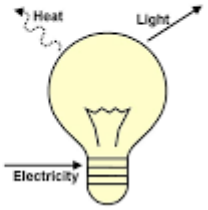
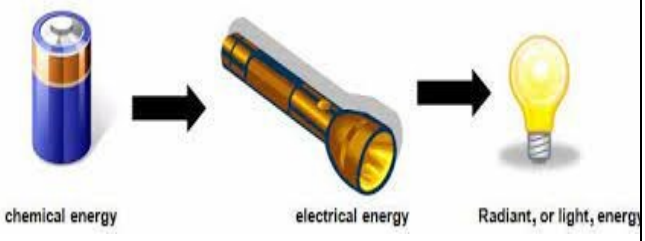
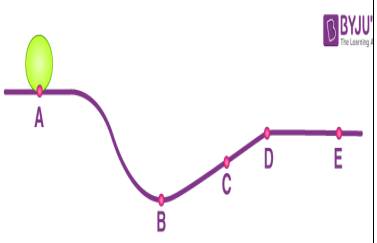
BASIC 7

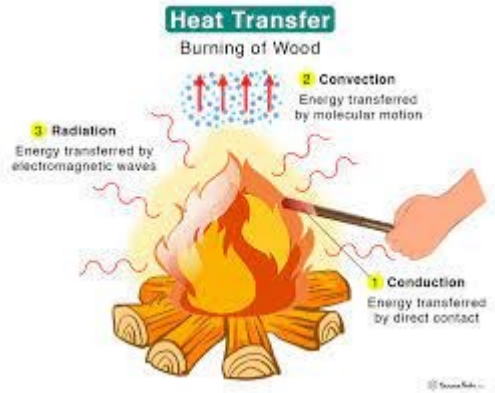
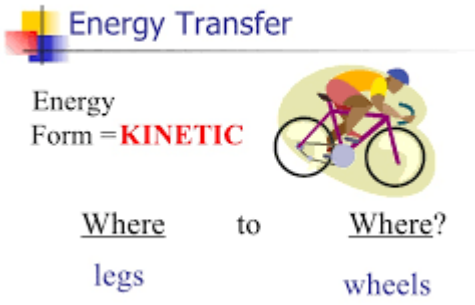
WEEKLY LESSON PLAN – WEEK 6

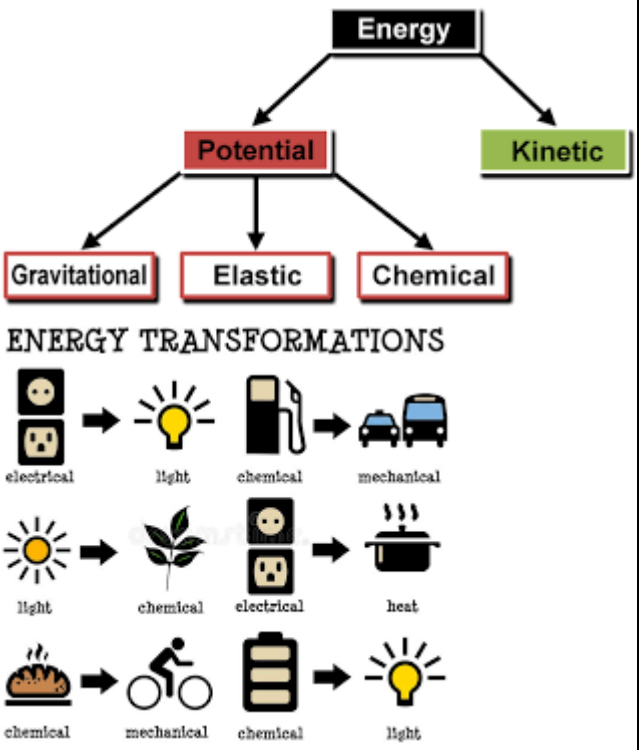
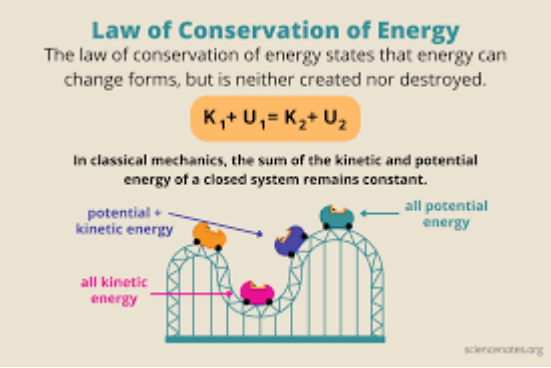
Strand:	Forces and Energy		**Sub-Strand:**	Energy	
Content Standard:	B8.4.1.1 Demonstrate the skill to evaluate the conversion of energy from one form to another				
Indicator (s)	B8.4.1.1.1 Describe energy conversion		**Performance Indicator:** Learners can identify and explain the types of Energy Conversion.		
Week Ending	12-05-2023				
Class	B.S.7	**Class Size:**		**Duration:**	
Subject	Science				
Reference	Science Curriculum, Teachers Resource Pack, Learners Resource Pack.				
Teaching / Learning Resources	Pictures, Video, Charts, Power point Presentation.		**Core Competencies:**	• Digital Literacy • Critical Thinking and Problem Solving • Communication and Collaboration.	

DAY/DATE	**PHASE 1 : STARTER**	**PHASE 2: MAIN**	**PHASE 3: REFLECTION**
MONDAY **08-05-2023**	Assist Learners to explain the meaning of Keywords and terminologies in the lesson.	1. Explain the concept of "Energy Conversion" with the Learners. 2. Learners brainstorm to identify examples of energy conversion in our daily lives. 3. Discuss the process of 5 examples of energy conversion with the Learners. 4. Using a Power Point Presentation, describe how energy is converted from one form to another. **Meaning of Energy Conversion;** Energy transformation, also known as energy conversion, is the process of changing energy from one form to another. In physics, energy is a quantity that provides the capacity to perform work or moving, or provides heat.	Reflect on the energy conversion processes. **Exercise;** Explain the following; i. Transformation ii. Energy iii. electrical iv. chemical v. Mechanical

		Energy Transformation • Definition: changing from one form of energy to another • Also called: • **energy conversion**  **Examples of Energy Conversion;**  ▪ Chemical Energy is converted to Electrical Energy (stove) ▪ Kinetic Energy (car) ▪ Electricity (power plant) ▪ Mechanical Energy (space shuttle). ▪ Electrical Energy is converted to Kinetic Energy. ▪ Electricity is converted to Light (light bulb) and Sound and Light (TV).	
THURSDAY **11-05-2023**	Through questions and answers, review learners knowledge on the previous lesson.	1. Discuss with Learners about the law of Energy conversion. 2. Demonstrate applying the law of Energy conversion in solving practical questions. 3. Assist Learners to answer practical questions related to energy conversion. **Law of Conservation of Energy Derivation** Considering the potential energy at the surface of the earth to be zero. Let us see an example of a fruit falling from a tree. Consider a point A, which is at height 'H' from the ground on the tree, the velocity of the fruit is zero hence potential energy is maximum there. E = mgH ———- (1) When the fruit falls, its potential energy decreases, and kinetic energy increases. At point B, which is near the bottom of the tree, the fruit is falling freely under gravity and is at a height X	Learners in small groups discuss and solve more practical questions on conversion of energy. **Exercise;** 1. State the law of Energy Conversion.  2. What happens to the sum of gravitational potential and

		from the ground, and it has speed as it reaches point B. So, at this point, it will have both kinetic and potential energy. E = K.E + P.E P.E = mgX ——— (2) According to the third equation of motion, $v^2 = 2g(H-X)$ $\Rightarrow \frac{1}{2}mv^2 = \frac{1}{2}m.2g(H-X)$ $\Rightarrow K.E = \frac{1}{2}m.2g(H-X)$ $\Rightarrow K.E = mg(H-X)$ K.E=mg(H-X)——– (3) Using (1), (2) and (3) E = mg(H – X) + mgX E = mg(H – X + X) E = mgH Similarly, if we see the energy at point C, which is at the bottom of the tree, it will come out to be mgH. We can see as the fruit is falling to the bottom, here, potential energy is getting converted into kinetic energy. So there must be a point where kinetic energy becomes equal to potential energy. Suppose we need to find that height 'x' from the ground. We know at that point, K.E = P.E $P.E = K.E = \frac{E}{2}$ ——– (4) As the body is at height X from the ground, P.E = mgX ——— (5) $mgX = \frac{mgH}{2}$ Using (4) and (5) we get, $\Rightarrow X = \frac{H}{2}$	kinetic energies when the object moves from point A to point D across the surface? 3. At what point will the object have a minimum gravitational potential energy? 4. At which point in the diagram is the object's kinetic energy higher than the object's kinetic energy at C?

FRIDAY **12-05-2023**	Learners brainstorm to answer questions like; • Can energy be stored? • Can energy transformation occur in waterfalls? • Can energy be destroyed? • What is Mechanical energy? • What energy transformation occur when an electric bell rings?	1. Discuss the meaning of "Energy transfer" with the Learners. 2. Assist Learners to compare the difference between "Energy transfer" and "Energy Transformation". 3. Using Power Point Presentation, explain the relationship between "energy transfer", " energy transformation" and "energy conservation". 4. Assist Learners to answer practical question in relation to energy transfer, energy transformation and energy conservation. **energy transfer** Energy transfer refers to the movement of energy from one place to another. Think of the electricity that flows from your wall socket, then moves through a charger and into a battery. The energy is being transferred from the wall socket to the  battery.  **energy transformation** One type of energy can change into another type of energy. Energy transformation means the changing of energy from one type to another, e.g. from kinetic	Through questions and answers, conclude the lesson. **Exercise;** Explain the following; i. Energy transfer ii. Energy transformation iii. Energy Conservation.

		energy to electrical energy, or from potential energy to kinetic energy.  **energy conservation** There are many different types of energy, including kinetic, potential, gravitational and electrical. Energy can be transferred (move from one location to another) and it can change (transform) from one type to another – but the total amount of energy is always conserved, i.e. it stays the same.  	

Name of Teacher: ***School:*** ***District:***