

EaD Comprehensive Lesson Plans



or



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BASIC 7

WEEKLY LESSON PLAN – WEEK 3

Strand:	Forces and Energy		Sub-Strand:	Conversion and Conservation of Energy	
Content Standard:	B7.4.3.1.Demonstrate understanding of the principle of conservation and conversion of energy and their application in real life situation				
Indicator (s)	B7.4.3.1.1 Explain the principle underlying conservation and conversion of energy B7.4.3.1.2 Demonstrate the conversion of energy into useable forms B7.4.3.1.3 Know how energy could be conserved for future use in life		Performance Indicator: Learners can identify ways of conserving Energy.		
Week Ending					
Class	B.S.7	Class Size:		Duration:	
Subject	Science				
Reference	Science Curriculum, Teachers Resource Pack, Learners Resource Pack.				
Teaching / Learning Resources	Word Chart, Poster, Pictures.		Core Competencies:	<ul style="list-style-type: none">Digital LiteracyCritical Thinking and Problem SolvingCommunication and Collaboration.	
DAY/DATE	PHASE 1 : STARTER	PHASE 2: MAIN			PHASE 3: REFLECTION
MONDAY	Using a Chart, explain the meaning of Conservation of Energy.	<div>1. Discuss with Learners the law of Conservation of Energy.</div> <div>2. Engage Learners in practical work of proving the law of Conservation of Energy.</div> <div>3. Assist Learners to explain Energy Conversion.</div> <div>4. Learners brainstorm to state the applications of energy Conversion to life</div> <div>Example of Conservation of Energy;</div> <div>If a stick of dynamite explodes, for example, the chemical energy contained within the dynamite changes into kinetic energy, heat, and light. If all this energy is added together, it will equal the starting chemical energy value.</div> <div>the law of conservation of energy states that the amount of energy is neither created nor destroyed. For example, when</div>			<div>Through questions and answers, conclude the lesson.</div> <div>Exercise;</div> <div><div>1. Explain the following;</div><div>i. Energy Conversion</div><div>ii. Energy Conservation</div></div> <div>2. State the law of conservation of Energy.</div>

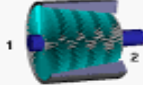
you roll a toy car down a ramp and it hits a wall, the energy is transferred from kinetic energy to potential energy.



Conservation of Energy

(specific form)

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$w = \text{Work} = p_2 V_2 - p_1 V_1 + w_{sh}$
 $h = \text{Enthalpy} = e + pv$
 $q = \text{Heat Flow}$
 $k = \text{Kinetic Energy} = \frac{u^2}{2}$
 $p = \text{pressure}$

$e = \text{Internal Energy}$
 $u = \text{velocity}$
 $v = \text{volume}$
 $w_{sh} = \text{shaft work}$

1st Law of Thermodynamics:

$$e_2 - e_1 + k_2 - k_1 = q - w_{sh} - p_2 V_2 + p_1 V_1$$

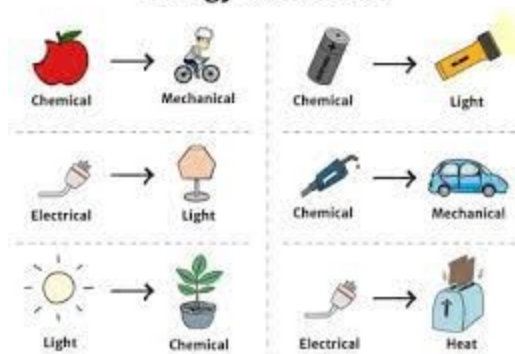
(algebra): $e_2 + p_2 V_2 - e_1 - p_1 V_1 + \frac{(u^2/2)_2 - (u^2/2)_1}{2} = q - w_{sh}$

(more algebra): $h_2 + \frac{(u^2/2)_2 - (u^2/2)_1}{2} = q - w_{sh}$

define: $h + \frac{(u^2/2)}{2} = h_t = \text{Total Enthalpy}$

$h_{t2} - h_{t1} = q - w_{sh}$

Energy Conversion



The energy transferred can be calculated using the equation:

1. $E = P \times t$. Where: E = energy transferred in joules (J) P = power in watts (W)
2. $E = I \times V \times t$. Where: I = current in amperes (A) V = potential difference in volts (V)
3. $E = Q \times V$. Where: Q = charge in coulombs (C) V = potential difference in volts (V)

Energy conversion, also termed as *energy transformation*, is the process of changing one form of energy into another

THURSDAY

Learners brainstorm to explain the use of Conversion of Energy in everyday life.

1. Discuss with Learners the types of Conversion of Energy.
2. Demonstrate the Conversion of Energy to various forms.
3. Learners in small group to identify examples of energy transfer.



Forms of Energy;

1. Mechanical
2. Chemical
3. Electrical
4. Electromagnetic
5. Thermal
6. Sound
7. nuclear energy.

Reflect on the concept of energy transfer.

Exercise;

1. State 3 types of Conversion of Energy.
2. Write 4 examples of energy transfer.

		<p>8. motion energy 9. elastic energy 10. gravitational energy</p> <p>Types of Energy</p>  <p>energy conversion, the <u>transformation</u> of <u>energy</u> from forms provided by nature to forms that can be used by <u>humans</u>.</p>	
FRIDAY	Discuss reasons for Conserving Energy with the Learners.	<ol style="list-style-type: none"> 1. Learners in small groups to explain why energy should be conserved. 2. Learners individually describe how Energy Conserved can be done for the benefit of humans and other life forms. <p>Reasons To Conserve Energy</p> <ol style="list-style-type: none"> 1. Reduce Living Expenses. Saving energy usually reduces living expenses. 2. Benefits The Environment and Protects Wildlife. Less consumption benefits the environment and protects wildlife. 3. Less Power Plants. 4. Promote Health. 5. Reduce Dependence. 6. Finite Resources. 7. Make A Positive impact. 	<p>Through questions and answers, conclude the lesson.</p> <p>Exercise;</p> <p>State 5 reasons of conserving Energy.</p>

Name of Teacher:

School:

District: