



3055 BA SANGAM COLLEGE

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WORKSHEET 25

School: Ba Sangam College

Name: _____

Subject: Basic Science

Year/Level: 9

Strand 3	ENERGY
Sub Strand 3.2	Energy transformations, use and conservation
Content Learning Outcome	Investigate ways energy is transformed and used and evaluate the consequences of these in energy conservation.

Lesson Notes

Types of energy

Kinetic energy (KE)

- is energy in use
- anything that is moving or changing has KE
- e.g. blowing wind has KE

Potential energy (PE)

- is stored energy
- when something is not moving

Forms of energy

1. Mechanical Energy

- Energy due to an object's motion (kinetic) or position (potential)
- Sound, wind, waterfall, compressed spring

2. Electrical Energy

- Caused by movement of electrons
- Transported through power lines
- Kinetic energy
- Electricity from batteries, power lines and lighting

3. Thermal Energy

- Heat energy
- Measured by temperature
- Kinetic energy
- The faster the particles move, the more the thermal energy

4. Chemical Energy
 - Released from chemical reactions
 - Energy stored in the bonds of a chemical
 - Energy is released when bonds are broken
 - Potential energy only
 - E.g. coal, wood, food, gasoline
5. Electromagnetic Energy
 - Travels in waves
 - Light, magnetism, x-ray, radio waves ,microwaves
 - Kinetic energy
6. Nuclear Energy
 - Stored in the nucleus of an atom
 - Involves fission(breaking apart) or fusion(forming)
 - Most powerful
 - Potential energy

Conversion of energy from one form to another

1. Conversion of light energy into heat energy. Eg: using sun's rays to cook something
2. Conversion of electrical energy into light energy. Eg: using electricity to light a bulb
3. Conversion of electrical energy to heat energy. Eg: heating water in an electric jug
4. Conversion of electrical energy to sound energy. Eg: Bells and alarm systems
5. Conversion of chemical energy to light energy. Eg using lemon to light bulb.

Ways of energy wastage

- Lights are on when not in use
- Use of motor vehicles over short distance
- Use of fans during windy weather
- Electrical appliances left idle e.g. TV
- Use of hot water heater during hot weather

Consequences of energy wastage

1.Shortage of energy

- hydro (low water levels in the dam)
- fossil fuels is a non-renewable

2.Energy crisis

- lack of fossil fuel availability can lead to price hike
- Can lead to environmental problems such as Global warming and Greenhouse effect

Conservation of energy

- Off the light when not in use
- Don't use fans when it is a windy day
- Look for energy rating stars on appliances. the more stars an appliance has the less energy it will use
- Turn TV ,DVD and stereo off from the power source when not in use
- Turning off lights ,fans and air conditioning when not in use or when you leave the room
- Ensure the doors of refrigerator close properly

Exercise

1. What form of energy cooks food in a microwave oven?

(1 mark)

2. What form of energy is the spinning plate inside of a microwave oven?

(1mark)

3. Electrical energy is transported to your house through power lines. When you plug an electric fan to a power outlet, electrical energy is transform into what type of energy?

(1 mark)

4. What energy transformation occurs when an electric lamp is turned on?

(1 mark)

5.. State the type of energy conversions that takes place in each picture:

i.

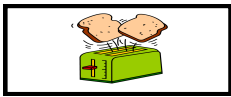


(1 mark)

ii.



(1 mark)



iii.

(1 mark)

6. Energy is essential for life.

(i) Describe how mechanical and electrical energy are produced.

(1 mark)

(ii) Describe two ways of conserving energy in our homes.

(2 marks)

TOTAL: ____/10

