The National Orthodox School Shmaisani

The National Orthodox School/ Shmaisani

Subject: Science/ Physics

Name: …… …… **Worksheet 2: Energy Transfer and conservation**

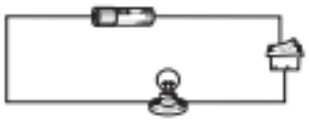
Date: …… Grade 6 CS all sections

Objectives:

- Understand how energy transfers from one form to another.
- Identify useful and dissipated energy.
- Calculate useful and dissipated (wasted) energy and draw a Sankey diagram.

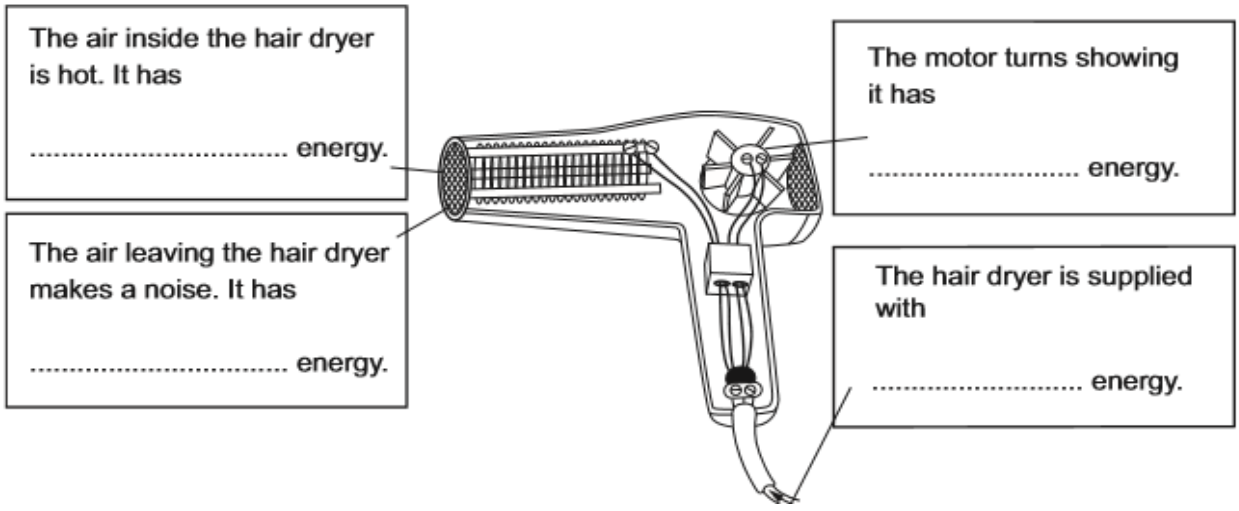
Question 1:

State the useful energy transformation that takes place in each case.

object	energy from	energy to
car 	chemical	kinetic
light bulb 	electrical	.....
wood-burning fire 	chemical	.....
battery in a circuit 	.....	electrical

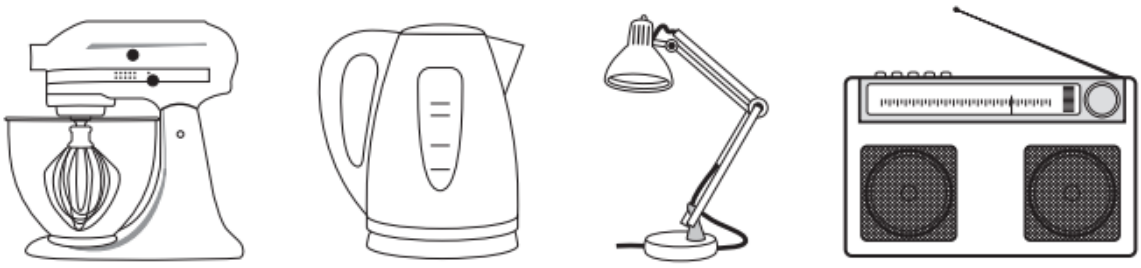
Question 2: **Select** the appropriate word from the list below to show the energy transfer taking place in each part of the hair dryer shown in the picture:

chemical	**elastic potential**		**electrical**
kinetic	**nuclear**	**sound**	**thermal**



Question 3:

The diagram shows some electrical appliances:



Write down the letter of the appliance that is designed to:

a) Transfer electrical energy to **thermal energy**?.....

b) Transfer electrical energy to **kinetic energy**? .....

c) Transfer electrical energy to **sound energy**? .....

d) Transfer electrical energy to **light energy**? .....

Question 4:

Identify the useful energy transformation taking place in each of the following devices:

Electric Fan

…… Energy → …….. Energy

Battery Powered Torch

……..Energy → ……Energy → ……Energy

Car Engine (normal car)

…… Energy → …….. Energy

Electric Drill

…… Energy → …….. Energy

Microphone **Speaker**

…… Energy → …… Energy → …….. Energy

Television

…… Energy → …….. Energy

…….. Energy

Solar Cell

…… Energy → …….. Energy

Question 5 :

For the following devices **state** what type of Energy is used from this list:

Chemical *Kinetic* *Thermal* *Sound* *Electrical* *Light*

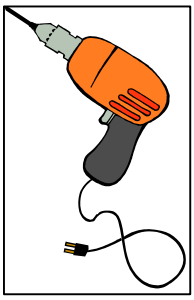
Light bulb:

Input Energy: _____

Useful Energy: _____

Dissipated (Wasted) Energy: _____

Electric Drill:



Input Energy: _____

Useful Energy: _____

Dissipated (Wasted) Energy: _____ &_____

TV:

Input Energy: _____

Useful Energy: _____& _____

Dissipated (Wasted) Energy:_____

Normal Car engine:

Input Energy:_____

Useful Energy: _____

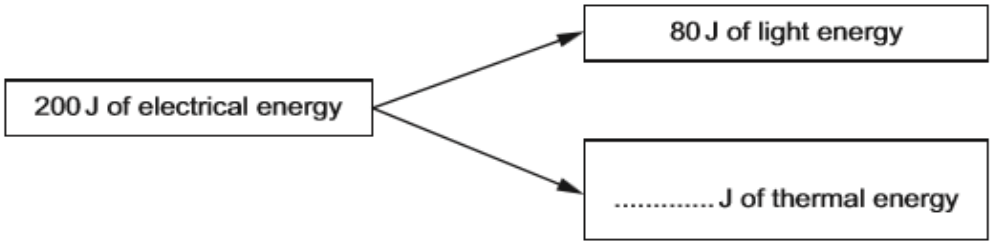
Dissipated (Wasted) Energy:_____ &_____

Question 6:

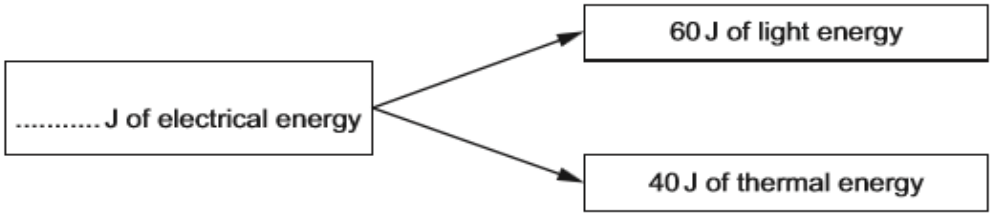
Energy is always conserved.

Complete the energy diagrams to show that energy is conserved.

(a)

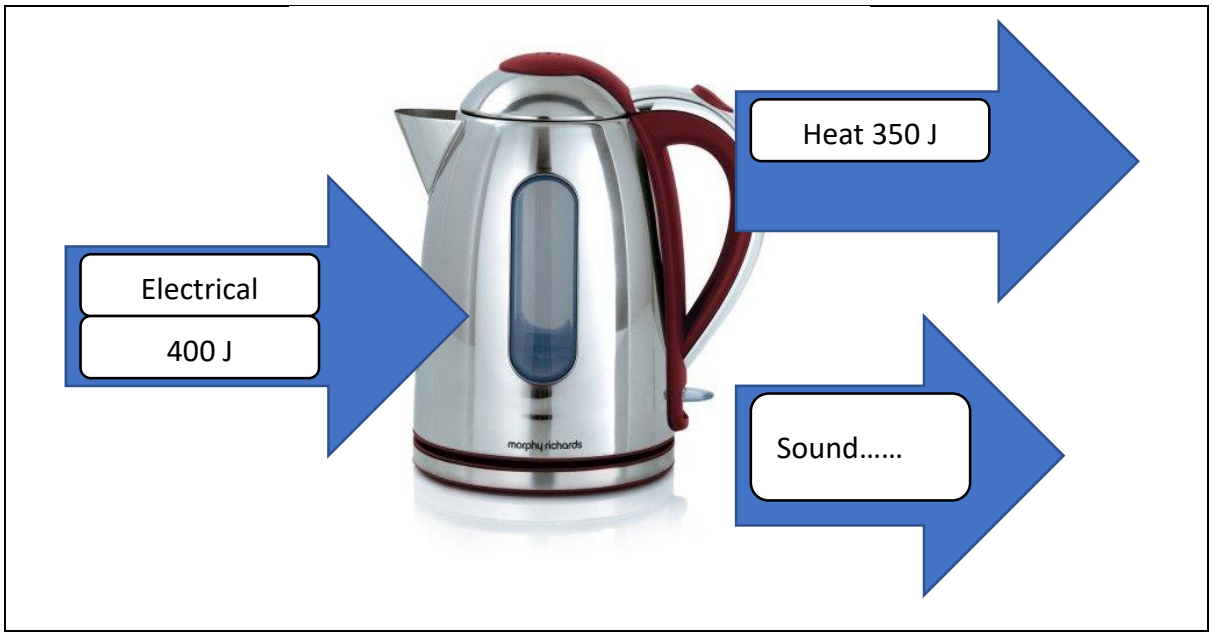


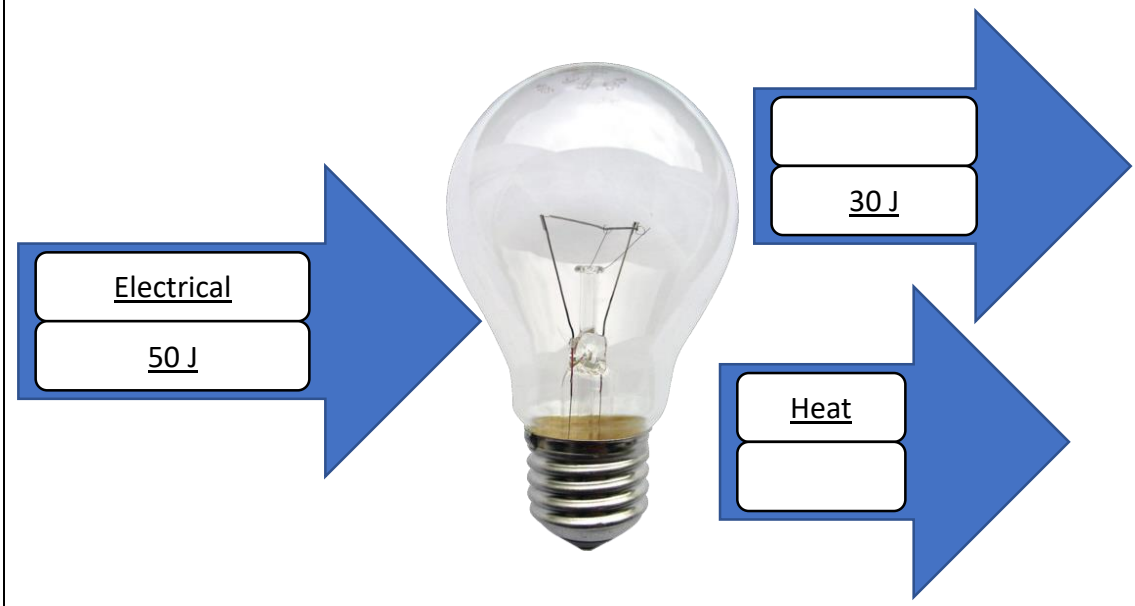
(b)

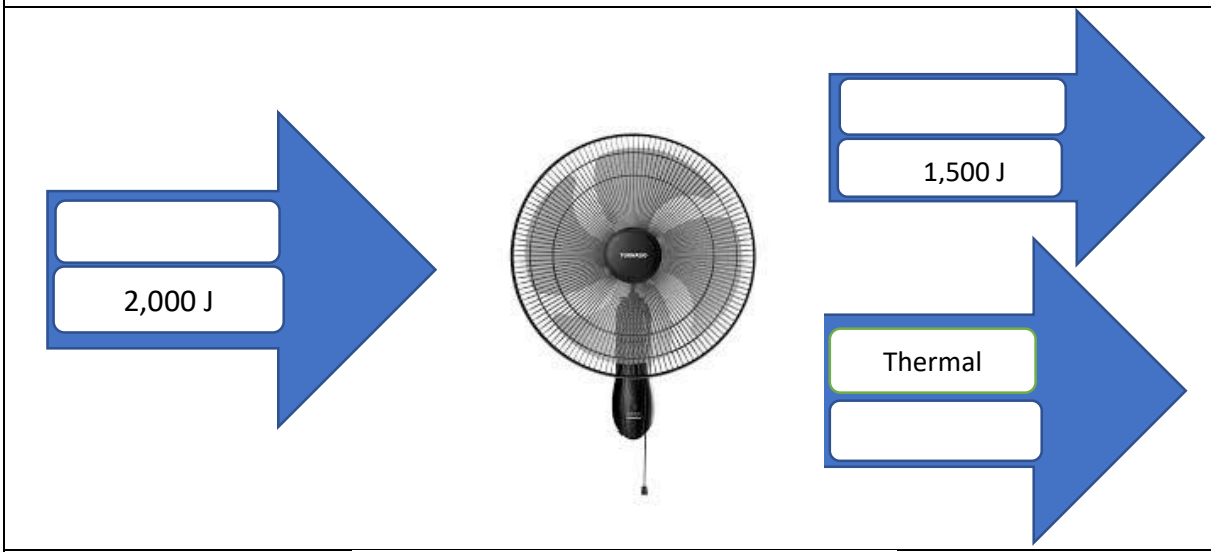


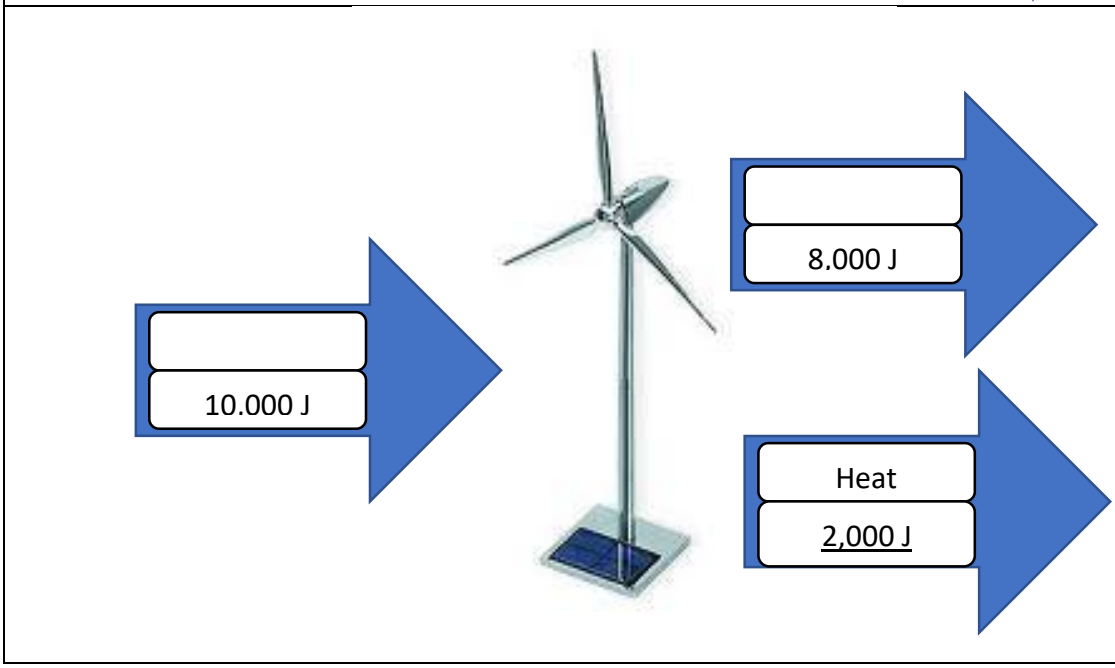
Question 7:

For each example of an energy transfer, fill in the missing boxes with the **energy type** and the **amount** of **energy** it takes up.



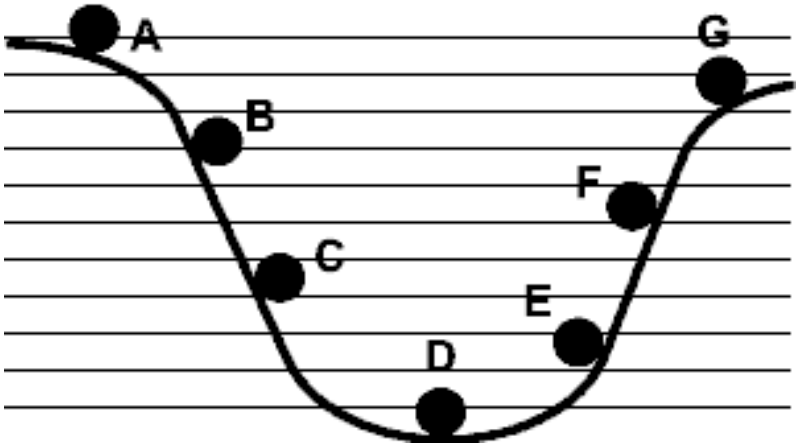

Electrical
50 J
30 J
Heat


2,000 J
1,500 J
Thermal


10.000 J
8,000 J
Heat
2,000 J

Question 8: This diagram shows a ball rolling from A to G .

Study the diagram and answer the following questions:



a) Which letter shows the ball when it has the maximum kinetic energy?

_____.

b) Which letter shows the ball when it has the maximum gravitational potential energy? _____.

c) Which letter shows the ball when it has the least gravitational potential energy? _____.

d) Which letter shows the ball when it has the least kinetic energy?

_____.

e) Which letter shows the ball when it has just a little more kinetic energy than A? _____.

Note: at any of the points, the total energy of the ball is the same and equals to:

Gravitational potential energy (GPE) + Kinetic Energy