The National Orthodox School Shmaisani

The National Orthodox School/ Shmaisani

Subject: Science/ Physics

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

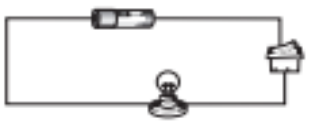
Date: ……. **Grade 6 CS all sections**

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.

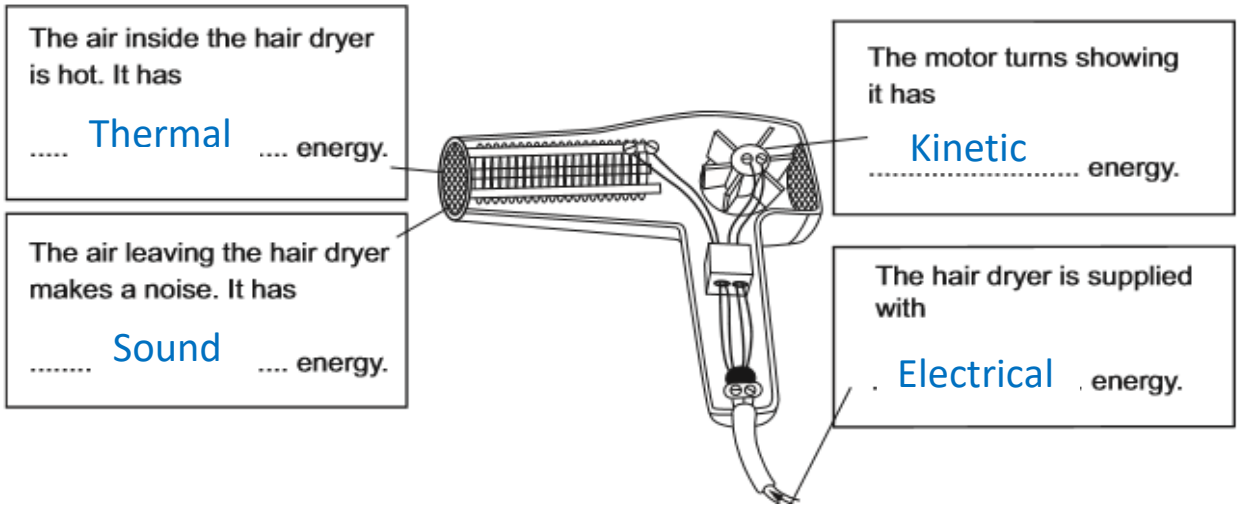
Question 1:

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

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

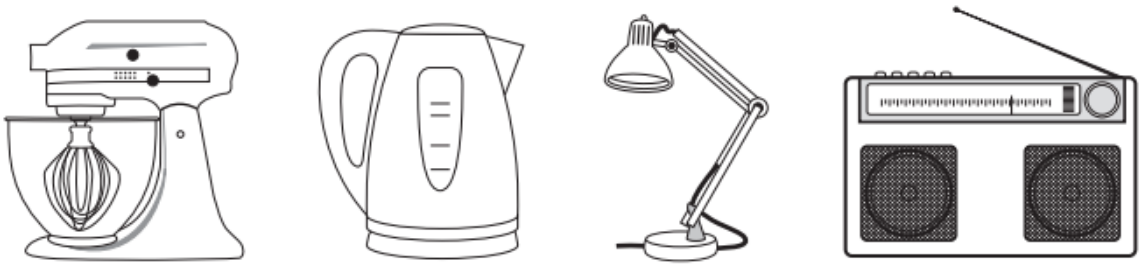
Question 2: **Select** the appropriate word from the list below to show the energy transfer taking place in each part of the hair dryer shown in the picture:

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 .....

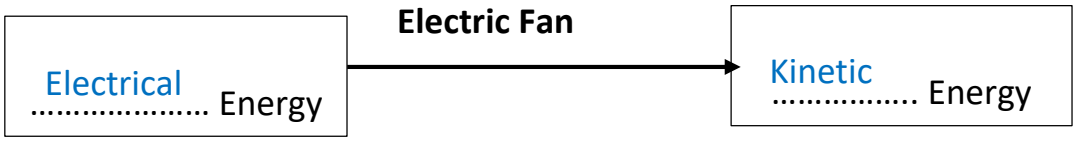
b) Transfer electrical energy to **kinetic energy**? ..... A .....

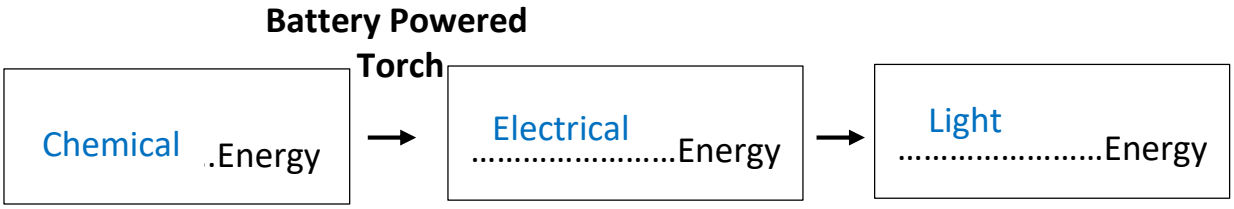
c) Transfer electrical energy to **sound energy**? ..... D .....

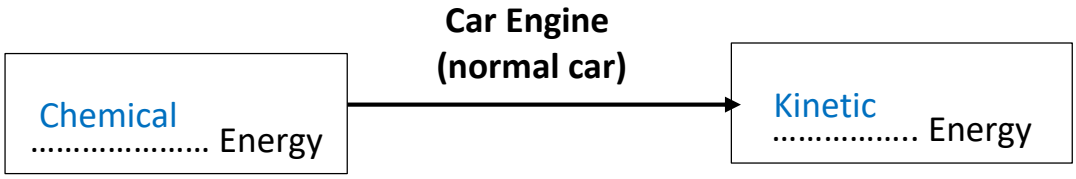
d) Transfer electrical energy to **light energy**? ..... C .....

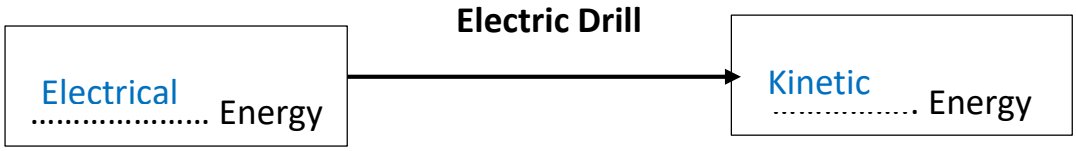
Question 4:

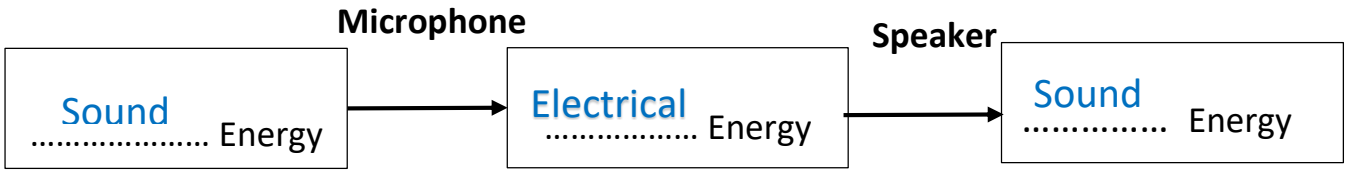
Identify the useful energy transformation taking place in each of the following devices:

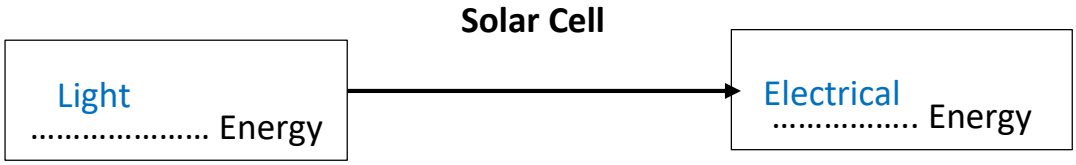












Question 5 :

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

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

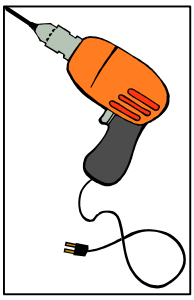
Light bulb:

Input Energy: **Electrical Energy**

Useful Energy: **Light Energy**

Dissipated (Wasted) Energy: **Thermal Energy**

Electric Drill:



Input Energy: **Electrical Energy**

Useful Energy: **Kinetic Energy**

Dissipated (Wasted) Energy: **Sound** & **Thermal Energy**

TV:

Input Energy: **Electrical Energy**

Useful Energy: **Light** & **Sound Energy**

Dissipated (Wasted) Energy: **Thermal Energy**

Normal Car engine:

Input Energy: **Chemical Energy**

Useful Energy: **Kinetic Energy**

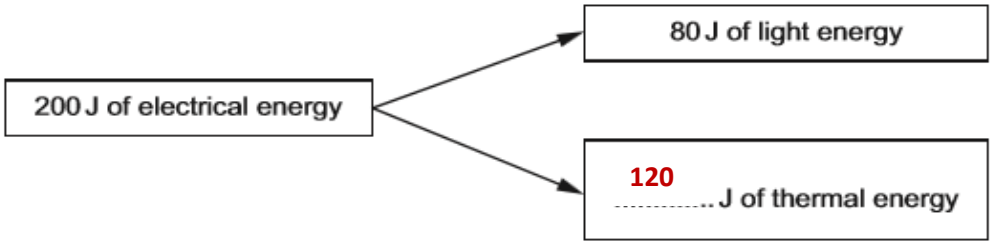
Dissipated (Wasted) Energy: **Thermal & Sound**

Question 6:

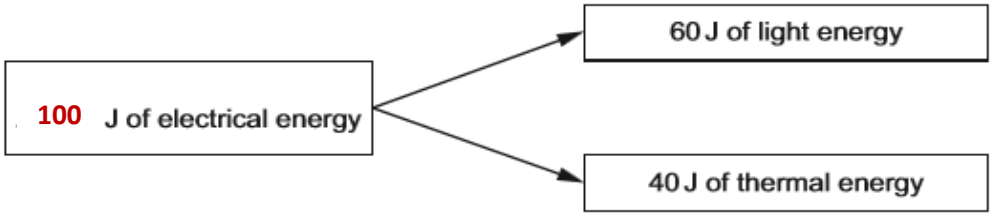
Energy is always conserved.

Complete the energy diagrams to show that energy is conserved.

(a)

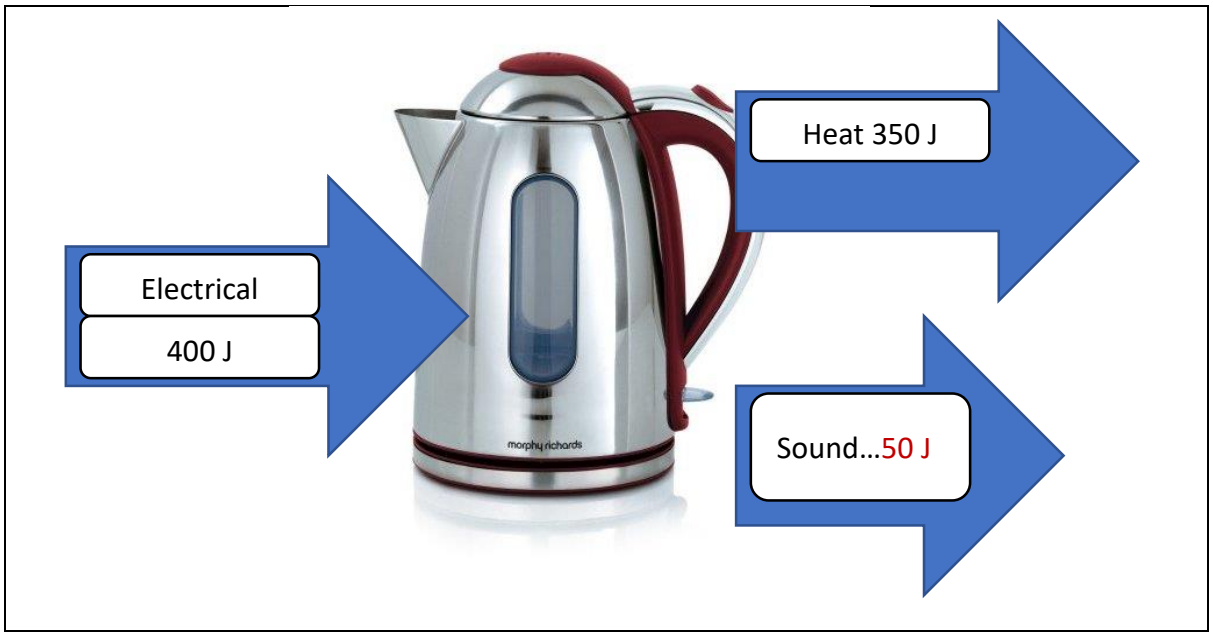


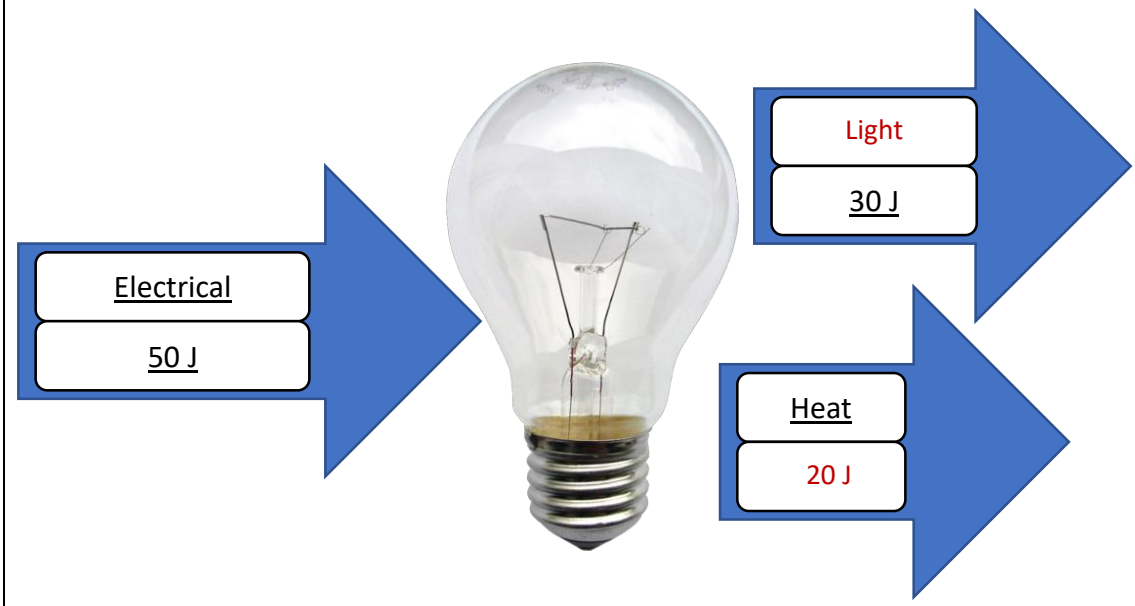
(b)

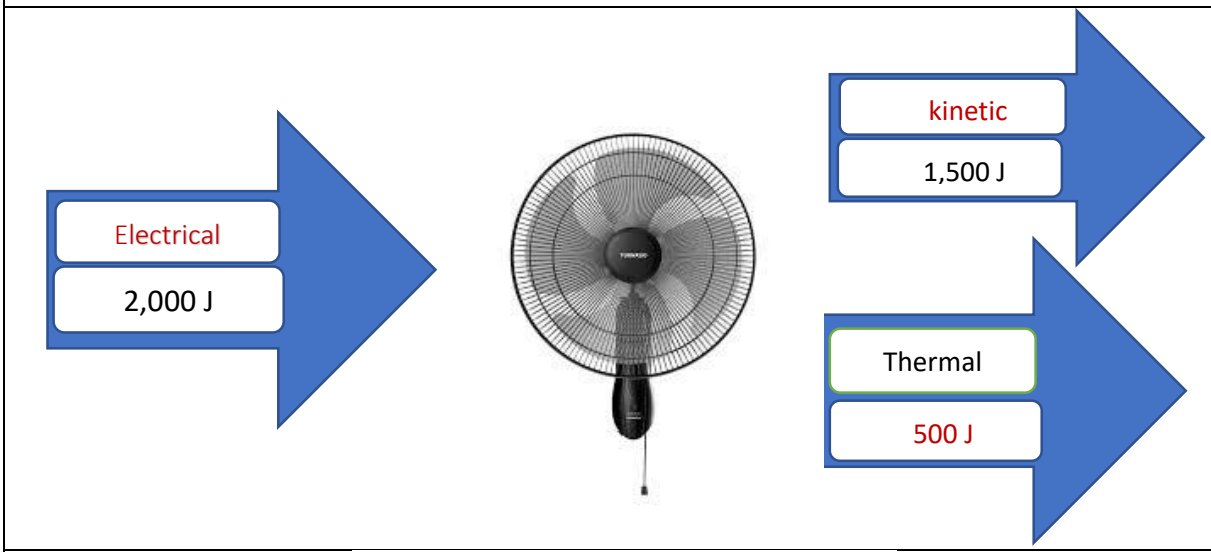


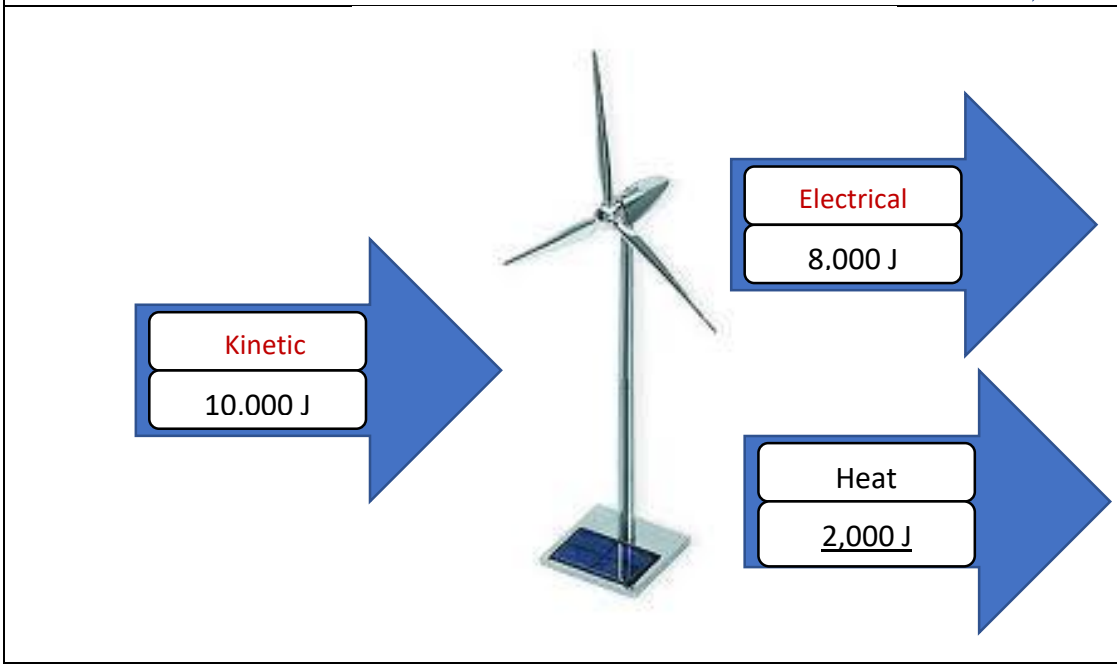
Question 7:

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



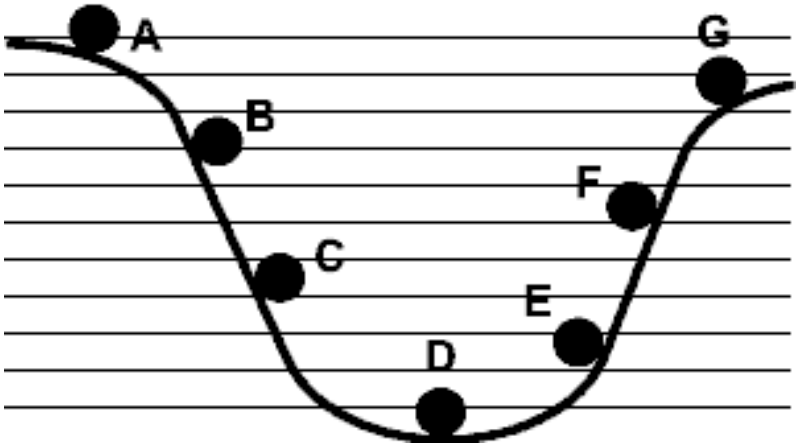

Electrical
50 J
Light
30 J
Heat
20 J


Electrical
2,000 J
kinetic
1,500 J
Thermal
500 J


Kinetic
10.000 J
Electrical
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?

_____D_____.

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

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

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

_____A_____.

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

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

Gravitational potential energy (GPE) + Kinetic Energy