| Name: | CI ass: | |
|---|--|--|
| ENERGY Domain: 4.6 | escribes energy changes ar | Page 1 of 4 nd the action of forces in |
| What is Energy? Energy is the ability to do work. If an obje Types of Energy The main types of energy are listed below | | |
| This form of energy is transferred from places of high temperature to places of low temperature. | This form of energy travels through solids, liquids and gases. Sound energy is produced by vibrations. | This form of energy allows us to see. It can travel through empty space. |
| Heat | Sound | Light |
| This form of energy is contained in food and fuels. | Types of Energy | This form of energy can be obtained from certain elements such as uranium. |
| This form of energy is | | (a) Potential- this is stored energy: |
| produced by batteries and generators. | Mechanical energy has two forms- potential and kinetic. | (b) Kinetic- this is energy possessed by moving objects. |



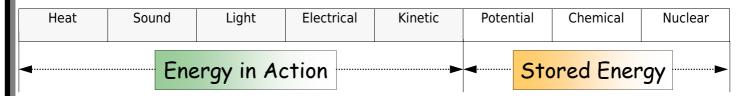
Energy Changes

Energy can be *transformed* or *changed* from one form to another. As long as the objects involved do not change mass, the transfer of energy takes place according to the *Law of Constant Energy*. This law states that:

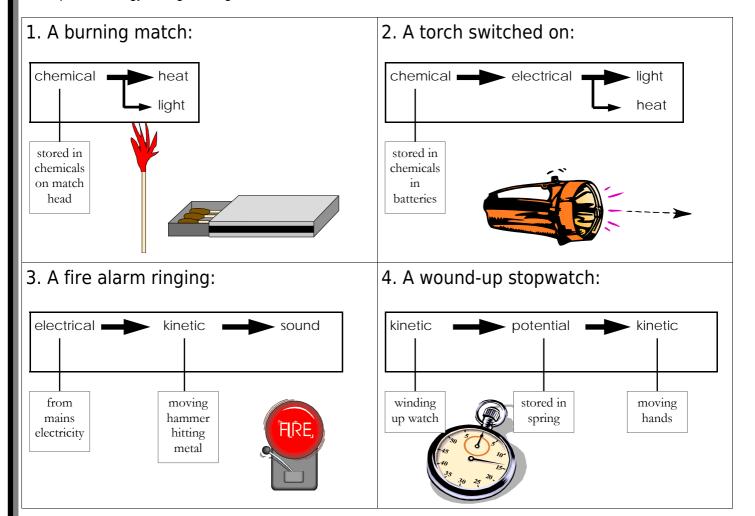
"When energy changes from one form to another, energy is neither lost or gained, but is constant."

Energy in Action or Stored Energy?'

Energy can be classified as energy in action or stored energy:



Examples of energy changes are given below:



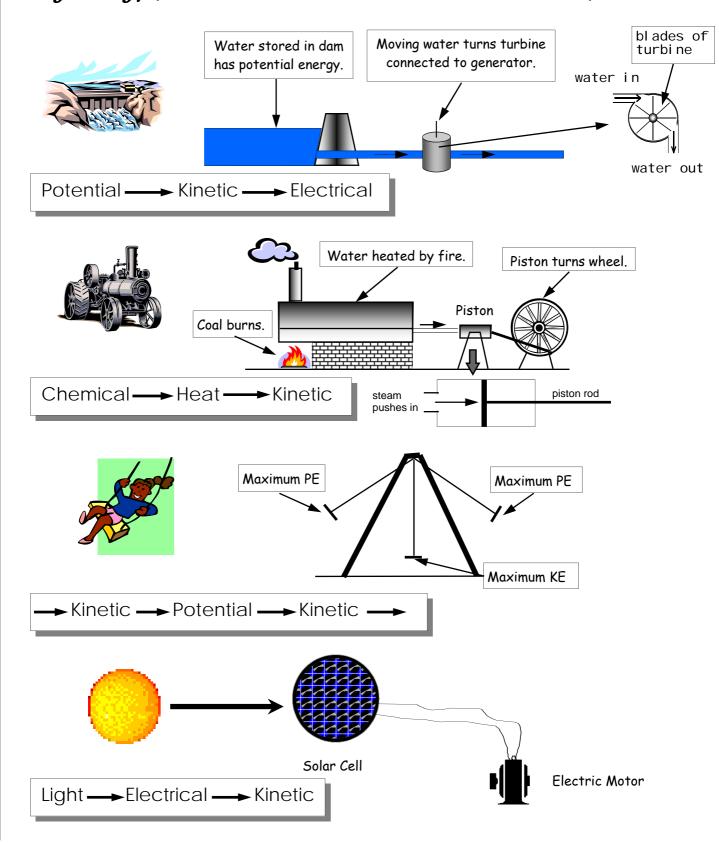
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ENERGY

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Using Energy (some examples showing main energy changes only)





ENERGY

Ouestions:

- 1. What is energy?
- 2. What are the seven main types of energy?
- 3. Which types of energy are examples of:
 - (a) energy in action; (b) stored energy?
- 4. What type of energy do the following possess?:
 - (a) a ball rolling along the ground; (b) a book sitting on a desk; (c) boiling water; (d) a chocolate bar;
 - (e) the wound-up spring in a clock; (f) water at the top of a waterfall; (g) water at the bottom of a waterfall;
 - (h) coal; (i) dynamite; (j) uranium atoms.
- 5. What does the Law of Constant Energy say?
- 6. Give the energy changes which occur in the following processes:
 - (a) a plant uses sunlight to make food; (b) burning wood is used to boil a billy of tea;
 - (c) a wound-up spring moves a toy car;
 - (d) a ball is dropped off a balcony, it bounces back up to its original position;
 - (e) an electric toaster cooking toast; (f) using gas to cook vegetables;
 - (g) using an electric fan to cool down a room; (h) making noise by hitting a ruler on to a desk;
- 7. What are the energy changes for:
 - (a) hydro-electric power station; (b) a steam engine; (c) a child's swing;
 - (d) a solar cell powering an electric motor.
- 8. Why does it hurt more to catch a fast-moving ball than a slow-moving one?
- 9. A ball is dropped into a bucket of sand from a height of 1 metre. The same ball is dropped from a height of 2 metres into the bucket of sand.
 - (a) Which ball will fall into the sand the greatest depth?; (b) Explain why you chose your answer.
- 10. Complete the following table for energy changes:

| taking a picture using a camera | l i ght | changes to | ? |
|---|---------|------------|--------------|
| mi crophone | ? | changes to | el ectri cal |
| lightning producing thunder | ? | changes to | sound |
| rubbing your hands together to warm them up | ? | changes to | heat |