

ENERGY TRANSFORMATIONS

Super Summary Sheet by KC Notes

Types of Energy

- **Light energy**, e.g. light bulb, TV
- **Sound energy**, e.g. radio, TV
- **Electrical energy**, e.g. toaster, computer
- **Heat energy**, e.g. microwave, TV
- **Kinetic energy** (movement), e.g. car, ball
- **Nuclear energy**, e.g. nuclear reactor
- **Mechanical energy**, e.g. motor

Potential Energy

- Potential energy is **stored energy**
- **Chemical Potential Energy** – energy from chemicals, e.g. food, petrol
- **Gravitational Potential Energy** – energy due to gravity, transforms to kinetic
- **Elastic Potential Energy** – energy from elastic objects, e.g. elastic band, rubber ball

Energy Transformations

- Energy can be **transformed** into other types of energy
 - E.g. TV: **electrical energy** is transformed/changed to **sound, light and some heat energy**
 - Car: **chemical potential energy** transformed to **kinetic, sound, light, heat and electrical**

Question: What are the energy changes in electric motors?

Electrical energy changes to kinetic and some heat energy.

Energy Transfers

- Energy can be **transferred** between objects
 - E.g. Ball hitting another ball: **kinetic energy** is transferred to the second ball

Question: A moving white ball hits a stationary red ball. The red ball moves and the white one slows down.

a) Describe the energy transfer.

Kinetic energy is transferred from the white ball to the red ball.

b) Describe the energy transformations in the white ball.

Kinetic energy transforms to heat energy (friction). When white ball hits red ball, some sound energy formed from kinetic energy.

Special Cases

- Pendulum slows down due to friction – some **kinetic** changed to **heat energy**
- Elastic band or bouncing ball changes **kinetic** to **elastic potential energy**