Physics

conservation of energy

- Energy cannot be created and cannot be destroyed
- It can only move from one place to another or transfer from one form to another
- A closed system is a system in which no energy comes in our goes out

Ways energy is transfer

- Energy can move in 4 main ways
- Mechanically, when a force move something like pushing or hitting
- Electrically. when charges move
- Heating. from hot to cold
- Radiation, by waves like sound wave and heat wave ,light wave

Example of energy transfer

Ball going up a slope

- Kinetic energy is transferring to the gravitational potential energy

Bat heating a ball

- Bats kinetic energy Transfer into heat and sound energy

Rock falling

- Gravitational potential energy is converted into kinetic energy

Cars slowing down

- Kinetic energy changes into heat energy

kettle boiling water

- Electrical energy is converted into heating and then the water thermal energy

Useful versus wasted energy

- Useful energy is the energy you want
- wasted energy is mostly heat lost to surrounding
- Wasted energy is dissipated energy

Efficiency

- Efficiency tells us how much input energy becomes useful
- Formulae = useful energy / total energy x100
- To get a percentage multiply by 100
- No device is 100% efficient some energies always wastage

Reducing wasted energy

Lubrication

- Produces friction so less energy lost as heat
- for example oil on moving parts

Insulation

- stops heat escaping
- thick walls and air gaps reduce heat loss
- materials with low thermal conductivity slow heat transfer

Energy resources

Non renewable

Non renewable are the resources that will run out one day

- Caol
- Oil
- natural gas
- nuclear fuel

Problems

- Release carbon dioxide and cause global warming
- can cause acid rain
- nuclear waste is dangerous

Renewable resources

Renewable resources never run out

- Biofuels
- Wind
- Solar

- Hydroelectric
- tidal

Problems

produce less energy

some depend on weather

expensive to set up

Renewable energy types

Wind turbines

- Wind turns blade and it will produce electricity
- Advantage is there is No pollution
- Disadvantage is there is not always windy
- can look ugly and make noise

Solar panels

- The absorb sunlight and produce electricity
- advantages are that they work good in Sunny places
- disadvantages are They do not work at night
- expensive to install

Hydroelectric dams

- Water stored in dams and turns turbines
- they are reliable
- disadvantages is that it can cause flood land and affect the habitat

Tidal power

- Uses Tides moving in and out
- reliable it is used twice a day
- can affect boats and wildlife

Why we still use fossil fuels

- Because they are cheaper
- they are more reliable
- they can meet high energy demand quickly
- renewable is expensive to start

Why we don't use more renewables

- Expensive to build renewable power plants
- not always reliable because of weather
- people don't want wind farms near home
- Technology still improving