

**CONVERSION OF  
ENERGY FROM  
ONE FORM TO  
ANOTHER**

# TOASTING BREAD

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- Electricity → heat energy

# CHARGING A CELL PHONE BATTERY

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- Electricity  $\rightarrow$  chemical energy + heat energy

# SOLAR CELLS

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- Light energy (Sunlight) → electricity + heat energy

# BURNING

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- Chemical energy  $\rightarrow$  heat energy + light energy

# PHOTOSYNTHESIS

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- Light energy (Sunlight) → chemical energy

# INTERNAL COMBUSTION ENGINE

- Chemical energy  $\rightarrow$  kinetic energy + heat energy + light energy + sound energy

# ENERGY TRANSDUCERS

- Machines that change energy from one form to another
- Also called **energy converters**
  - Toaster
  - Light bulb
  - Television



# SOURCES OF ENERGY

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- Sun
- Fossil Fuels
- Water
- Wind
- Nuclear – Atoms
- Geothermal – Underground heat

# 1) THE SUN

- Solar energy
- Main source of energy
  - Heat energy
  - Light energy

# 1) THE SUN

- Can be changed into other forms of energy using
  - Solar cells
  - Solar panels
  - Solar furnace

## a) SOLAR CELLS

- Trap sunlight
- Change sunlight into electricity
  - Watches
  - Calculators
  - Traffic lights

## b) SOLAR PANELS

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- Black
- Placed on roof tops
- Trap heat
- Used to heat water

## c) SOLAR FURNACE

- Many mirrors direct energy onto one small spot
- This spot gets hot – thousands of degrees
- Used to melt metals
- Used to produce electricity

## 2) FOSSIL FUELS

- Formed from the remains of dead plants and animals buried for millions of years
- Fossil fuels are **non-renewable**



## 2) FOSSIL FUELS

- 3 main types
  - Coal
  - Crude oil
  - Natural gas

## 2) FOSSIL FUELS

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- Source of energy we use most on Earth

### 3) WATER

- Rain has gravitational potential energy
- In hydroelectric power stations
  - Falling water turns turbines which produce electricity

## 4) WIND

- Moving air
- Turns turbines to produce electricity

# 5) NUCLEAR ENERGY

- Nuclear fission
  - Heavy elements are broken down
  - Energy is released – heat
  - Heat is used to boil water
  - Steam is produced
  - Steam turns turbines which produce electricity

## 5) NUCLEAR ENERGY

- Nuclear fission – dangerous
  - Releases radiation
    - Causes cancer
    - Destroys plants and animals

## 6) GEOTHERMAL ENERGY

- Heat energy from the Earth's crust
  - Volcanoes
  - Geysers
  - Hot springs

## 6) GEOTHERMAL ENERGY

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- Steam from Earth is used to turn turbines to produce electricity