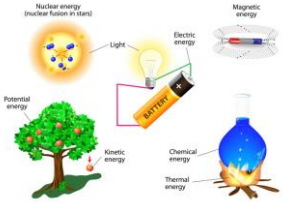
## ASc15 – Exploring physics

### Skills

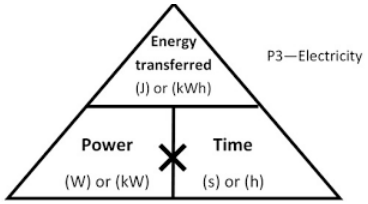
- Managing information.
- Problem solving.

### Energy stores and the environment

- Energy stores and transfers, including:
  - chemical, e.g. fuel and oxygen
  - kinetic e.g. in a moving object
  - gravitational e.g. due to the position of an object in a gravitational field
  - elastic, e.g. in a stretched or compressed spring
  - thermal
  - mechanically e.g. when a force moves through a distance
  - electrically
  - by heating because of a temperature difference
  - by radiation, e.g. light, microwaves, sound.

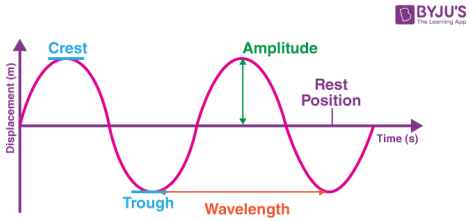



- Measuring energy transfers e.g. energy conservation, power, efficiency, economic costs.




### Waves

- Waves e.g. transverse, e.g. light, microwave, infrared, water waves, longitudinal waves –sound, seismic P waves.
- Measurements e.g. wavelength, amplitude and frequency e.g. hertz (Hz).




- Seeing how the wave shown on a sound meter or cathode ray oscilloscope (CRO) changes as the frequency and loudness of the sound changes.

### Electricity

- Safety, to include: using safety equipment,
- Components e.g. ammeter, voltmeter, battery, resistor, bulb, cell, wire.
- Basic circuit theory, including:
  - the need for a complete circuit
  - current (mA, A), voltage (mV, V), resistance (Ω)
  - simple series and parallel circuits
  - use of ammeter, voltmeter, multi-meter to take measurements.
- Power supplies, including:
  - types of battery, e.g. rechargeable, non-rechargeable
  - solar cells


### Physics and the environment

- Uses of physics e.g. predict the weather, analyse contents of atmosphere, find out how the sun's radiation interacts with gases in our atmosphere, measure heat inputs and outputs from space.

- Scientific equipment to monitor change in our environment, e.g. remote sensing, equipment using passive and active sensors, satellites, weather sensors, telescopic cameras, solar wind power.