

P8 Module Outline – Combined Science Only

- Recall typical speeds encountered in everyday experience for wind and sound, and for walking, running, cycling and other transportation systems
- Estimate the accelerations of everyday accelerations
- Make calculations using ratios and proportional reasoning to convert units and to compute rates
- Explain methods of measuring human reaction times and recall typical results
- Explain the factors which affect the distance required for road transport vehicles to come to rest in emergencies and the implications for safety
- Estimate how the distances required for road vehicles to stop in an emergency varies over a range of typical speeds
- Explain the dangers caused by large decelerations
- Describe the main energy sources available for use on Earth, compare the ways in which they are used and distinguish between renewable and non-renewable resources
- Explain patterns and trends in the use of energy resources
- Recall that in the national grid, electrical power is transferred at high voltages from power stations and then transferred at lower voltages in each locality for domestic use
- Recall that step up and step down transformers are used to change the potential difference as power is transferred from power stations
- Explain how the national grid is an efficient way to transfer energy
- Recall that the domestic supply in the UK is ac at 50Hz and about 230 volts.
- Explain the difference between direct and alternating voltage
- Recall the differences in function between the live, neutral and earth mains wires, and the potential differences between these wires
- Explain that a live wire may be dangerous even when a switch in a mains circuit is open and explain the dangers of providing any connection between the live wire and earth.

P8 Formulae to Learn

Distance travelled (m) = speed (m/s) x time (s) (Also in P2)

Acceleration (m/s^2) = change in velocity (m/s) / time (s) (Also in P2)

Force (N) = mass (kg) x acceleration (m/s^2) (Also in P2)

Stopping distance (m) = thinking distance (m) + braking distance (m)