

YEAR 9
SEMESTER 1
PHYSICS
TITLE: ENERGY

KNOWLEDGE:

- Potential energy
- Kinetic energy
- Power
- Specific heat capacity
- Energy efficiency and energy resources

SKILLS:

- Describe and explain key concepts
- Required practical
- Use of key scientific literacy
- Maths skills - recognise the difference between mean, mode and median. Explain the use of tables and frequency tables. Explain when to use scatter diagrams, bar charts and histograms.

INDICATORS OF EXPECTED PROGRESS

MEG 2:

- Describe how energy can be stored by raising an object up or by stretching or compressing it
- Describe how a moving object has kinetic energy
- Recognise that some energy transfers are unwanted
- State that various resources are used as fuels and to generate electricity

MEG 5:

- Use the equations for gravitational potential energy and elastic potential energy
- Know that kinetic energy is related to mass and velocity squared and use the equation to calculate it
- Describe how lubrication and insulation can be used to reduce unwanted energy transfers
- Calculate energy efficiency
- Describe how some energy transfers are more useful than others
- Describe the advantages and disadvantages of fossil fuel, nuclear and renewable energy resources

MEG 8:

- Apply the equations for gravitational potential energy and elastic potential energy in a variety of contexts, and change the subject of these equations
- Use the equation for kinetic energy to solve problems, including changing the subject of the equation

- Explain how thermal conductivity affects the rate of energy transfer across a material and affects the rate of cooling of a building
- Recognise that in a closed system there may be energy transfers that change the way energy is stored, but there is not net change of the total energy
- Evaluate and justify the use of various energy resources for different applications