



Year: 11

Topic: 5.4 CHEMICAL REACTIONS AND ENERGY

Knowledge and Understanding to be developed:

This topic looks at the energy changes that happen during chemical reactions. It explains why reactions are exothermic or endothermic in terms of the energy associated with chemical bonds.

Working Scientifically

Learners will use ideas, theories and models to explain abstract and complex concepts in this topic.

Mathematical Skills

Learners will reinforce their understanding of chemical equations in determining the number of bonds of each type present in reactants and products. They will use arithmetical skills to calculate the energy changes associated with reactions

Key Terms to be learned this topic:

Exothermic

Endothermic

Energy Transfer

Activation Energy

Energy profile

Temperature

Learning Objectives and Outcomes:

Students should be able to demonstrate and apply their knowledge and understanding of :

- a) exothermic and endothermic reactions in terms of temperature change and energy transfer to or from the surroundings
- (b) energy profiles for exothermic and endothermic reactions
- (c) the activation energy as the energy needed for a reaction to occur
- (d) the use of bond energy data to calculate overall energy change for a reaction and to identify whether it is exothermic or endothermic