

Year 9 Engineering—Key Components Autumn 1

Key Vocabulary Understanding engineering disciplines LO1	
Vocab	Definition
Mechanical	Hydraulics (Pascal's principle), gears and pulleys
Electrical and Electronic	Power station, household appliances, integrated circuits
Aerospace	Aircraft, space vehicles, missiles
Communications	Telephone, radio and fibre optic
Chemical	Pharmaceuticals, fossil fuels, food and drinks
Civil	Bridges, roads and railways
Automotive	Cars, motorcycles and trains
Biomedical	Prosthetics, medical devices and radiotherapy
Software	Applications, systems and computer programming.
HASAWA	Health and Safety at Work Act etc
PPE	Personal Protective Equipment at Work regulations
MHOR	Manual Handling Operations Regulations
COSHH	Control of Substances Hazardous to Health
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations

Learning outcome 1: Understand engineering disciplines

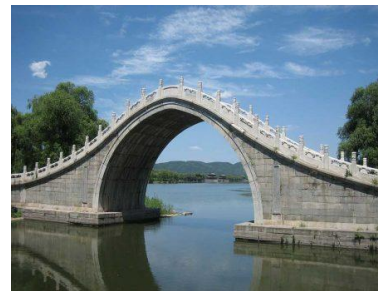
In this learning outcome, the learner will know and understand how different engineering disciplines are applied to projects and products. The learner will know and understand the health and safety legislation that influences engineering.

1.1 Engineering Disciplines through Projects and Products

In this learning outcome, the learner will understand different engineering disciplines and how their application has solved problems and shaped the modern world through projects and products.

1.2 The Health and Safety Legislation Governing Engineering

The learner will understand how the engineering industry complies with government legislation.



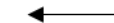
Arch



Suspension



Beam



Truss



Cable Stay



Year 9 Engineering—Key Components Autumn 2

Key Vocabulary – Understanding the properties and characteristics of engineering materials and why specific materials are selected for engineering applications LO4

Vocab	Definition
Chemical	Heat of combustion, toxicity, oxidation state
Electrical and Magnetic	Conductivity, resistance, magnetism
Mechanical	Strength, hardness, toughness, elasticity, plasticity, ductility, durability, malleability
Optical	Reflectivity, photosensitivity
Thermal	Flammability, thermal conductivity, melting point
Aesthetic	Colour, surface texture, finish effect
Environmental impact	Extraction of raw material, fossil fuels, sustainability
Metals	Ferrous alloys– mild steel, cast iron, stainless steel: pure non-ferrous – aluminium, copper, lead: non-ferrous alloys – brass, pewter, solder
Polymers	Thermoset – epoxy resin, urea formaldehyde, polyester resin: thermoplastic – acrylic, polypropylene, high-impact polystyrene: elastomers – rubber, neoprene, silicone
Wood	Hardwood – oak, ash and balsa: softwood – Scots pine, cedar, spruce: manufactured board – plywood, MDF, chipboard
Ceramics	Glass, cement, brick, diamond, pottery
Composite	Concrete, glass reinforced plastic (GRP), carbon fibre reinforced polymer (CFRP).

Learning outcome 4: Understand the properties and characteristics of engineering materials and why specific materials are selected for engineering applications

In this learning outcome, learners will know and understand the properties and characteristics of materials and why they are selected for engineering products and projects.

4.1 Properties and Characteristics of Materials

Learners will understand how materials exhibit properties and characteristics in engineering products and projects.

