BASIC 9

WEEKLY LESSON PLAN – WEEK 8

Strand:	Materials for Production		**Sub-Strand:**	Resistant Materials	
Content Standard:	B9.2.2.1 Demonstrate skills in selecting resistant materials for making products and artefacts				
Indicator (s)	B9.2.2.1.1: Discuss the factors that influence the selection of resistant materials B9.2.2.1.2: Discuss the reasons why resistant materials require particular techniques and tools for their safe handling and use		**Performance Indicator** Learners can use resistant materials.		
Week Ending	01-11-2024				
Class	B.S.9	**Class Size:**		**Duration:**	
Subject	Career Technology				
Reference	Career Technology Curriculum, Teachers Resource Pack, Learners Resource Pack, Textbook.				
Teaching / Learning Resources	Power point Presentation on the process of working with Resistance materials, Projector, Poster showing safety precautions of using Resistant materials.		**Core Competencies:**	• Communication and Collaboration. • Critical Thinking and Problem Solving. • Creativity and Innovation.	

DAY/DATE	**PHASE 1 : STARTER**	**PHASE 2: MAIN**	**PHASE 3: REFLECTION**
WEDNESDAY	Review Learners knowledge on the meaning of resistant materials.	1. Learners brainstorm to identify examples of resistant materials. 2. Discuss with the Learners on why specific tools are used to work on specific resistant materials. 3. Assist Learners to describe the properties of resistant materials. Resistant Materials refer to a group of materials that are grouped together because they show certain common characteristics. These characteristics include: • tensile strength • compressive resistance • hardness • malleability • ductility • elasticity • grain. **Examples of Corrosion-Resistant Materials** **1. Stainless Steel** Stainless steel alloys are renowned for the corrosion-resistance, ductility, and high strength. Corrosion resistant qualities in stainless steels are directly tied to	Through questions and answers, conclude the lesson. **Exercise;** State 5 examples of resistant materials.

their chromium and nickel content — more of these elements correlate with increased resistance.

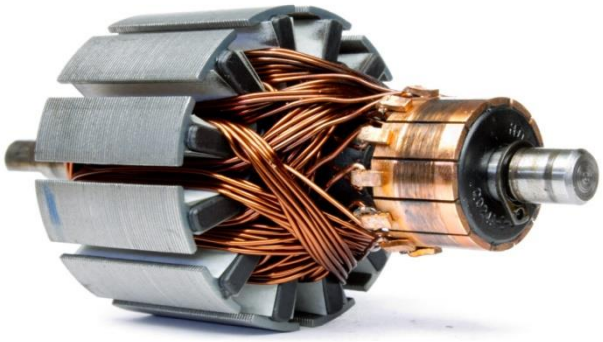
Most stainless steel alloys on the market today contain at least 18% chromium. When chromium oxidizes it forms a protective layer of chromium oxide on the surface of the metal part, which both prevents corrosion and prevents oxygen from reaching the underlying steel.

2. Aluminum

Aluminum alloys are non-toxic, 100% recyclable, have a high strength-to-weight ratio, have high thermal and electrical conductivity, and are easily machinable. Also, aluminum is unique because it's one of the few materials that are naturally corrosion-resistant.

3. Soft Metals

Soft metals, or red metals, include corrosion-resistant materials like copper and its alloys, brass and bronze. Copper is malleable, ductile, and an excellent conductor of heat and electricity. These metals can ensure corrosion resistance throughout the life cycle of a given component. . Copper won't corrode over time; when it oxidizes, it forms a green outer layer called patina, which protects the part from further corrosion.



Copper also plays a key role in manufacturing parts for renewable energy systems. Since copper is such an excellent thermal and electrical conductor, systems powered by copper transmit energy more efficiently and with a lesser environmental impact.

4. Polypropylene

Metals aren't the only corrosion-resistant materials available. Polypropylene, one of the most popular plastics in the manufacturing industry and is an especially common plastic for producing car parts. It's

		also one of the most corrosion-resistant plastics	
THURSDAY	Show Learners pictures and videos of a resistant material in use.	1. Discuss with the Learners about the factors that influence the selection of resistant materials. 2. Assist learners to relate the correct safety precautions to the appropriate process in working with resistant materials when making artefacts. 3. Demonstrate on the processes involved in working with resistant materials. Processes involved in making metals or processing metal ores: • Recycling • Timber and manufactured boards (animation) • Trees as a renewable resource • Processing timber logs • Timber conversion • Manufactured boards • Plastic notes and animations • Thermoplastics and thermosets • Thermoplastics: o thermoforming o line bending (+ animation) o vacuum forming (+ animation) o plug and yoke (+ animation) o expanded polystyrene (+ animation) o structural foam o rotational moulding o injection moulding (+ animation) o gas assisted injection moulding (+ animation) o injection blow moulding (+ animation) o extrusion blow moulding (+ animation) o inserts in plastic moulding o blown film (+ animation) • Thermosets o resins o hand lay-up of GRP (+ animation) o spraying resin and reinforcing material o resin transfer moulding (+ animation) o pultrusion process (+ animation) o injection moulding o compression moulding (DMC) (+ animation) o compression moulding (SMC) (+	Learners brainstorm to practice on the processes involved in working with resistant materials.

		animation)	

Name of Teacher: **School:** **District:**