

GRADE 10 PHYSICS SCHEMES OF WORK FOR TERM 1

NAME OF THE TEACHER:.....

SCHOOL:..... YEAR:.....

W K	LS N	STRAND	SUB- STRAND	LESSON LEARNING OUTCOME	LEARNING EXPERIENCES	KEY INQUIR Y QUESTI ON	LEARNING RESOURCES	ASSESS MENT	REFLECTI ON
1	1	1.0 Mechanics and Thermal Physics	1.1 Introduction to Physics	By the end of the lesson, the learner should be able to: Explain the meaning of Physics as a body of knowledge in science ² .	The learner is guided to: Work with others to search for the meaning of Physics as a branch of science ³ .	How is Physics relevant in day to day life? ⁴	2024 Senior School Curriculum Design, Physics Learner's Book, Digital devices, Internet.	Oral questions, Written quizzes.	
	2			By the end of the lesson, the learner should be able to: Describe the main branches of Physics as a field of study ⁵ .	The learner is guided to: Discuss with peers the main branches of Physics (mechanics, electricity, thermodynamics, etc.) ⁶ .		Charts showing branches of Physics, Physics Learner's Book.	Checklists, Oral discussion.	
	3			By the end of the lesson, the learner should be able to: Outline the importance of Physics in day-to-day life ⁷ .	The learner is guided to: Discuss with peers the importance of Physics in day-to-day life and share findings with the class ⁸ .		Digital devices, Physics Learner's Book, Video clips.	Oral presentation, Observation schedule.	

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	4			By the end of the lesson, the learner should be able to: Relate Physics to other fields of study ⁹ .	The learner is guided to: Discuss with peers the relationship of Physics with other fields of study (e.g., Biology, Geography, Chemistry) ¹⁰ .		Physics Learner's Book, Concept maps.	Written questions , Peer assessment.	
2	1	1.0 Mechanics and Thermal Physics	1.1 Introduction to Physics	By the end of the lesson, the learner should be able to: Identify possible career opportunities in the field of Physics ¹¹ .	The learner is guided to: Engage resource person(s) or use print/non-print media to search for information on career opportunities ¹² .		Resource person, Career pamphlets, Digital devices.	Oral questions , Checklists.	
	2			By the end of the lesson, the learner should be able to: Create career charts highlighting areas related to Physics ¹³ .	The learner is guided to: Design, produce, and present career charts highlighting areas related to Physics ¹⁴ .		Manila papers, Markers, Glue, Pictures.	Project assessment, Portfolio .	
	3		1.2 Pressure	By the end of the lesson, the learner should be able to: Describe atmospheric pressure as used in physics ¹⁵ .	The learner is guided to: Discuss with peers the meaning of atmospheric pressure ¹⁶ .	How does density of fluid affect	2024 Senior School Curriculum Design, Physics Learner's Book.	Oral questions , Written definition.	

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						pressure? 17			
	4			By the end of the lesson, the learner should be able to: Demonstrate the existence of atmospheric pressure in nature ¹⁸ .	The learner is guided to: Carry out activities to demonstrate the existence of atmospheric pressure in nature (e.g., crushing can experiment) ¹⁹ .		Tin cans, Heat source, Water, Crushing can apparatus.	Observation, Checklists.	
3	1	1.0 Mechanics and Thermal Physics	1.2 Pressure	By the end of the lesson, the learner should be able to: Investigate the effect of density on pressure in fluids ²⁰ .	The learner is guided to: Carry out activities to investigate how the density of a fluid affects pressure ²¹ .	How does density affect pressure in fluid? 22	Liquids of different densities, Manometers, Measuring cylinders.	Lab reports, Observation schedule.	
	2		Pressure	By the end of the lesson, the learner should be able to: Investigate the effect of depth on pressure in fluids ²³ .	The learner is guided to: Carry out activities to investigate how depth below the free surface affects pressure in fluids ²⁴ .	How does depth affect pressure in fluid? 25	Tall cylinders, Water, Pressure sensors/gauges.	Lab reports, Oral questions.	
	3		Pressure	By the end of the lesson, the learner should be able to: Derive the equation $P = \rho gh$ for pressure in fluids ²⁶ .	The learner is guided to: Carry out experiments/derivations to derive the equation $P = \rho$		Physics Learner's Book, Whiteboard, Notebooks.	Written derivation, Calculations.	

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					gh\$ to determine pressure in fluid ²⁷ .				
	4		Pressure	By the end of the lesson, the learner should be able to: Apply the equation $P = \rho gh$ to determine pressure in fluids ²⁸ .	The learner is guided to: Use the equation to solve numerical problems involving density, gravity, and height ²⁹ .		Calculator, Worksheets, Physics Learner's Book.	Written tests, Homework.	
4	1	1.0 Mechanics and Thermal Physics	1.2 Pressure	By the end of the lesson, the learner should be able to: Demonstrate transmission of pressure in fluids ³⁰ .	The learner is guided to: Carry out activities to demonstrate the principle of transmission of pressure in fluids (Pascal's Principle) ³¹ .		Pascal's vases, Syringes, Tubing, Water.	Observation, Oral discussion.	
	2			By the end of the lesson, the learner should be able to: Relate transmission of pressure to the fluid pressure formula ³² .	The learner is guided to: Discuss with peers the transmission of pressure in fluid and relate it with the fluid pressure formula ³³ .		Physics Learner's Book, Digital simulation.	Written questions, Peer review.	
	3		Pressure	By the end of the lesson, the learner should be able to: Discuss the application of	The learner is guided to: Discuss with peers the applications of transmission of		Diagrams of hydraulic systems, Video clips.	Oral questions, Checklists.	

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				pressure in hydraulic machines ³⁴ .	pressure in fluids specifically in hydraulic machines ³⁵ .				
	4		Pressure	By the end of the lesson, the learner should be able to: Solve problems involving hydraulic machines ³⁶ .	The learner is guided to: Apply knowledge of pressure transmission to solve numerical tasks regarding hydraulic lifts and brakes ³⁷ .		Worksheets, Calculators.	Written assessment.	
5	1	1.0 Mechanics and Thermal Physics	1.2 Pressure	By the end of the lesson, the learner should be able to: Explain the working mechanism of a drinking straw and syringe ³⁸ .	The learner is guided to: Use print or non-print media to search for information on the applications of atmospheric pressure in drinking straws and syringes ³⁹ .		Drinking straws, Syringes, Beakers, Water.	Observation, Oral explanation.	
	2		Pressure	By the end of the lesson, the learner should be able to: Describe the operation of a siphon ⁴⁰ .	The learner is guided to: Set up a simple siphon and explain how atmospheric pressure enables the transfer of liquid ⁴¹ .		Rubber tubes, Beakers, Water at different levels.	Practical assessment, Lab report.	

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	3		Pressure	By the end of the lesson, the learner should be able to: Explain the working mechanism of a bicycle pump ⁴² .	The learner is guided to: Dismantle or observe a bicycle pump to understand how valves and pressure work together ⁴³ .		Bicycle pump, Diagrams.	Checklists, Oral questions.	
	4		Pressure	By the end of the lesson, the learner should be able to: Describe mechanisms of water pumping ⁴⁴ .	The learner is guided to: Search for information on mechanisms of water pumping (e.g., lift pump, force pump) and discuss with peers ⁴⁵ .		Charts of pumps, Digital devices.	Written description, Sketches.	
6	1	1.0 Mechanics and Thermal Physics	1.3 Mechanical Properties of Materials	By the end of the lesson, the learner should be able to: Explain the properties of ductility and malleability ⁴⁶ .	The learner is guided to: Discuss with peers and carry out activities to demonstrate ductility and malleability of locally available materials ⁴⁷ .	Why is it important to study mechanical properties? ⁴⁸	Wires, Metal sheets, Hammer, Physics Learner's Book.	Observation, Oral questions.	
	2		Mechanical Properties of Materials	By the end of the lesson, the learner should be able to: Demonstrate the properties of	The learner is guided to: Carry out activities to demonstrate elasticity		Springs, Rubber bands, Chalk, Glass rod.	Checklist, Practical log.	

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				elasticity and brittleness ⁴⁹ .	(springs/rubber) and brittleness (chalk/glass) ⁵⁰ .				
	3			By the end of the lesson, the learner should be able to: Explain strength, hardness, and stiffness of materials ⁵¹ .	The learner is guided to: Carry out activities to compare strength, hardness, and stiffness of different locally available materials ⁵² .		Stones, Wood, Metal bars, Scratch tests.	Oral discussion, Written summary.	
	4		Relationship between tensile force and extension (Hooke's Law) ⁵³ .	By the end of the lesson, the learner should be able to: Investigate the relationship between tensile force and extension (Hooke's Law) ⁵³ .	The learner is guided to: Carry out activities to determine the relationship between tensile force and extension (constant of elasticity) ⁵⁴ .	Why does a string snap easily compared to a spring? ⁵⁵	Retort stands, Springs, Masses, Rulers.	Graph plotting, Lab report.	
7	1	1.0 Mechanics and Thermal Physics	1.3 Mechanical Properties of Materials	By the end of the lesson, the learner should be able to: Determine tensile stress and strain using formulae ⁵⁶ .	The learner is guided to: Use mathematical relationships to determine tensile stress (F/A) and tensile strain ($\Delta L/L_0$) ⁵⁷ .		Calculators, Worksheets.	Written calculations.	

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	2		Mechanical Properties of Materials	By the end of the lesson, the learner should be able to: Determine the modulus of elasticity (Young's Modulus) ⁵⁸ .	The learner is guided to: Calculate Young's modulus ($Y = \frac{\text{stress}}{\text{strain}}$) for different materials using provided data ⁵⁹ .		Physics Learner's Book, Data tables.	Written quiz.	
	3		Mechanical Properties of Materials	By the end of the lesson, the learner should be able to: Analyze breaking stress and elastic limit ⁶⁰ .	The learner is guided to: Interpret stress-strain graphs to identify elastic limit, yield point, and breaking stress ⁶¹ .		Graph papers, Pre-drawn stress-strain curves.	Data interpret ation exercises .	
	4		Mechanical Properties of Materials	By the end of the lesson, the learner should be able to: Describe applications of mechanical properties of materials ⁶² .	The learner is guided to: Use digital devices to search for industrial applications of various mechanical properties of materials ⁶³ .		Digital devices, Internet, Industry case studies.	Group presentat ion.	
8		MID-TERM							
9	1	1.0 Mechanic s and Thermal Physics	1.3 Mechanical Properties of Materials	By the end of the lesson, the learner should be able to: Appreciate the importance of	The learner is guided to: Discuss and present on why specific materials are chosen for specific tasks (e.g.,		Pictures of structures, Real- life objects.	Oral discussio n, Reflectio n journal.	

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				mechanical properties in day-to-day life ⁶⁴ .	bridges, car bodies) based on properties ⁶⁵ .				
	2		1.4 Temperature and Thermal Expansion	By the end of the lesson, the learner should be able to: Explain the meaning of temperature and its units ⁶⁶ .	The learner is guided to: Discuss the meaning of temperature and the SI and common units used ⁶⁷ .		Physics Learner's Book.	Oral questions	
	3			By the end of the lesson, the learner should be able to: Measure temperature using liquid expansion devices ⁶⁸ .	The learner is guided to: Carry out activities to measure temperature using liquid-in-glass thermometers ⁶⁹ .		Laboratory thermometers, Water baths (warm/cold).	Practical observati on.	
	4			By the end of the lesson, the learner should be able to: Describe temperature measurement using bimetallic devices and thermocouples ⁷⁰ .	The learner is guided to: Use digital media to search for information on bimetallic strips and thermocouples ⁷¹ .		Bimetallic strips, Digital resources, Videos.	Written descripti ons.	
10	1	1.0 Mechanic s and Thermal Physics	1.4 Temperature and Thermal Expansion	By the end of the lesson, the learner should be able to: Describe advanced temperature measurement technologies ⁷² .	The learner is guided to: Search for information on resistive temperature devices (RTDs),		Digital devices, Internet.	Research notes, Oral sharing.	

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					thermistors, and infrared radiators ⁷³ .				
	2		Thermal Expansion in solids	By the end of the lesson, the learner should be able to: Investigate thermal expansion in solids ⁷⁴ .	The learner is guided to: Carry out activities to demonstrate thermal expansion in solids (e.g., ball and ring experiment) ⁷⁵ .	Why does a lid of a sufuria made wider? ⁷⁶	Ball and ring apparatus, Burners.	Observation, Checklists.	
	3		linear expansivity of metals ⁷⁷	By the end of the lesson, the learner should be able to: Determine linear expansivity of metals ⁷⁷ .	The learner is guided to: Perform experiments to determine linear expansivity of metals like iron, steel, or copper ⁷⁸ .		Expansion apparatus, Metal rods, Micrometers.	Lab report, Calculations.	
	4			By the end of the lesson, the learner should be able to: Investigate thermal expansion in fluids ⁷⁹ .	The learner is guided to: Perform experiments to demonstrate thermal expansion in liquids and gases ⁸⁰ .		Flasks, Glass tubes, Colored water, Balloons.	Observation, Oral explanation.	
11	1	1.0 Mechanics and Thermal Physics	1.4 Temperature and Thermal Expansion	By the end of the lesson, the learner should be able to: Explain the unusual expansion of water ⁸¹ .	The learner is guided to: Discuss the anomalous expansion of water and its ecological significance (ice floating) ⁸² .	Why does a glass bottle break when water	Graphs of water density vs temp, Physics Learner's Book.	Written explanation.	

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						freezes? 83			
	2		Applications of thermal expansion	By the end of the lesson, the learner should be able to: Describe applications of thermal expansion: Thermostats ⁸⁴ .	The learner is guided to: Discuss the application of thermal expansion in thermostats used in electrical devices ⁸⁵ .		Real thermostats (if available), Diagrams.	Oral questions .	
	3		Applications of thermal expansion in construction	By the end of the lesson, the learner should be able to: Describe applications of thermal expansion in construction ⁸⁶ .	The learner is guided to: Search for information on expansion joints in bridges, power lines, and railway tracks ⁸⁷ .		Pictures of bridges/railways , Digital devices.	Case study analysis.	
	4		applications of thermal expansion	By the end of the lesson, the learner should be able to: Appreciate the applications of thermal expansion in day-to-day life ⁸⁸ .	The learner is guided to: Summarize various applications including flash light/indicator systems and metal work ⁸⁹ .		Posters, Charts.	Portfolio , Peer presentat ion.	
12		END OF TERM ASSESSMENT							
13		CLOSURE OF SCHOOL							