DOYEN PUBLISHERS

HIGH SCHOOL SCHEMES OF WORK

PHYSICS FORM 4

(Term 1, 2 & 3)

0797988020

admin@doyenpublishers.com

PHYSICS FORM 4 SCHEMES OF WORK – TERM 1

WEEK	LESSON	TOPIC	SUB - TOPIC	OBJECTIVES	LEARNING/TEACHING ACTIVITIES	LEARNING/TEACHING RESOURCES	REFERENCES	REMARKS
1	1	LENSES	Conveying and diverging lenses	By the end of the lesson the learner should be able to (i) Describe converging lenses (ii) Describe diverging lenses	• Using light beams to distinguish between diverging and converging lenses	• Diverging lenses • Converging lenses • Source of light beam • screen	• Comprehensive secondary physics students book 4 pages 1-2 teachers book 3 pages 1-5 • Secondary physics KLB students book 4 page 1 • Principles of physics (M.Nelkon(pages 300-301 • Golden tips Physics pages 113-114	
	2-3	LENSES	Parts of fair lenses	By the end of the lesson, the learner should be able to (i) Describe the principal focus using ray diagram (ii) Describe the optical center using ray diagram (iii) Describe the focal length of thin lenses using ray diagram	• Description of principal focus, optical centre and focal length of a thin lens	• Chart showing the parts of thin lens • Graph paper • Diverging lens • Converging lens	• Comprehensive secondary physics students book 4 pages 1-3 teachers book 3 pages 1-5 • Secondary physics KLB students book 4 page 6-7 • Principles of physics (M.Nelkon(pages 301-304 • Golden tips Physics pages 114-116	

	4-5	LENSES	Focal length	By the end of the lesson, the learner should be able to (i) Determine experimentally the focal length of a converging lens (ii) Determine the focal length of a converging lens using estimation method	• Experiment to determine the focal length of a fair lens	• Converging lenses • Screen • Pins • candle	• Comprehensive secondary physics students book 4 pages 2-3 teachers book 3 pages 1-5 • Secondary physics KLB students book 4 page 17-20 • Principles of physics (M.Nelkon(pages 303 • Golden tips Physics pages 116	
2	**1**	LENSES	Images in fair lenses	By the end of the lesson, the learner should be able to: (i) Construct the principal rays for converging lens (ii) Construct the principal rays for diverging lenses	• Constructing the principal rays for diverging lenses • Constructing the principal rays for converging lenses	• Converging lenses • Diverging lenses • Graph papers • Ruler	• Comprehensive secondary physics students book 4 pages 3-6 teachers book 3 pages 1-5 • Secondary physics KLB students book 4 page 7-12 • Principles of physics (M.Nelkon(pages 304-306 • Golden tips Physics pages 114-116	
3	**2-3**	LENSES	Images in converging lenses	By the end of the lesson, the learner should be able to:	• Describing the characteristics of images formed in converging lenses	• Graph paper • Geometrical set • Converging lenses	• Comprehensive secondary physics students book 4 pages 5-6	

				(i) Locate imaged formed by converging lenses using ray construction method (ii) Describe the images formed in converging lenses		• screen	teachers book 3 pages 1-5 • Secondary physics KLB students book 4 page 7-10 • Principles of physics (M.Nelkon(pages 304-305 • Golden tips Physics pages 114-116	
	4-5	LENSES	Images in diverging lenses	By the end of the lesson, the learner should be able to (i) Locate imaged formed by diverging lenses using ray construction method (ii) Describe the images formed in diverging lenses	• Describe the characteristics of the formed in diverging lenses	• Graph paper • Geometrical set • Diverging lenses • Screen	• Comprehensive secondary physics students book 4 pages 5 teachers book 3 pages 1-5 • Secondary physics KLB students book 4 page 11 • Principles of physics (M.Nelkon(pages 307-308 • Golden tips Physics pages 114-116	
4	**1**	LENSES	The microscope	By the end of the lesson, the learner should be able to (i) Explain the working of a simple microscope (ii) Explain the working of a	• Drawing and labeling the parts of a microscope • Describing the work of a microscope	• Simple microscope • Compound microscope • Magnifying lens	• Comprehensive secondary physics students book 4 pages 10-11 teachers book 4 pages 1-5 • Principles of physics 27-	

				compound microscope			29(M.Nelkon) pages 320-323 • Golden tips Physics pages 119-120	
	2-3	LENSES	The telescope	By the end of the lesson, the learner should be able to (i) Describe the structure of a telescope (ii) Describe the working of a telescope	• Drawing and labeling the parts of a telescope • Describing how a telescope works	• Telescope • Lenses • Manilla paper	• Comprehensive secondary physics students book 4 pages 11 teachers book 4 pages 1-5 • Principles of physics (M.Nelkon(pages 322-323 • Golden tips Physics pages 121	
	4-5	LENSES	The camera	By the end of the lesson, the learner should be able to: (i) Describe the parts of a camera (ii) Explain the working of a camera (iii) Explain the use of lenses in a camera	• Describing the parts of a camera • Explaining the use of lenses in a camera	• Camera • Charts showing the parts of a camera	• Comprehensive secondary physics students book 4 pages 11-12 teachers book 4 pages 1-5 • Secondary physics KLB students book 4 page 33 • Principles of physics (M.Nelkon(pages 316-317 • Golden tips Physics pages 120-121	

5	**1**	LENSES	Image formation in the human eye	By the end of the lesson, the learner should be able to: (i) Describe the parts of a human eye (ii) Explain the function of each part of the human eye	• Describing the parts of the human eye • Explaining the function of each part of the human eye	• Chart showing the parts of human eye • Model of the human eye	• Comprehensive secondary physics students book 4 pages 12-13 teachers book 34pages 1-5 • Secondary physics KLB students book 4 page 29-31 • Principles of physics (M.Nelkon) pages 313-314 • Golden tips Physics pages 120-121	
	2-3	LENSES	Working of the human eye	By the end of the lesson, the learner should be able to (i) Explain the image formation in the human eye	• Explaining the image formation in the eye	• Chart showing the image formation in the human eye	• Comprehensive secondary physics students book 4 pages 13-14 teachers book 34pages 1-5 • Secondary physics KLB students book 4 page 29-31 • Principles of physics (M.Nelkon) pages 313-314 • Golden tips Physics pages 120-121	
	4-5	LENSES	Defects of vision	By the end of the lesson, the learner should be able to:	• Describing the defects of the human eye	• Charts showing eye defects and how they are corrected	• Comprehensive secondary physics students book 4 pages 13-14	

				(i) Describe the defects of the human eye (ii) Explain the corrections of human eye defects	• Explaining the eye defects are corrected		teachers book 34pages 1-5 • Secondary physics KLB students book 4 page 31-32 • Principles of physics (M.Nelkon) pages 315-316 • Golden tips Physics pages 118-119	
6	**1-2**	LENSES	Revision	By the end of the lesson, the learner should be able: (i) Describe the uses of lens in various optical devises (ii) Solve problems involving thin lenses formula (iii) Solve numerical problem involving the magnification formula	• Problem solving • Exercises • Assignments	• Questions from past papers	• Comprehensive secondary physics students book 4 pages 15-17 teachers book 34pages 5-10 • Secondary physics KLB students book 4 page 33-36 • Principles of physics (M.Nelkon) pages 310-312,326-327 • Golden tips Physics pages 121-123	
	3	UNIFORM CIRCULAR MOTION	Circular motion	By the end of the lesson, the learner should be able to: (i) Define circular motion	(i) Observing and running a hoop (ii) Rotate a stone tied to the end of a rope	• Hoop • String/rope • store	• Comprehensive secondary physics students book 4 pages 18 teachers book 34pages 10-12 • Secondary physics KLB students book 4 page 37-45	

							• Principles of physics (M.Nelkon) pages 42-44 • Golden tips Physics pages 34	
	4-5	UNIFORM CIRCULAR MOTION	Radiant, angular displacement and angular velocity	By the end of the lesson, the learner should be able to: (i) Define the radiant measure (ii) Define the angular displacement and velocity (iii) Explain the angular displacement and velocity	• Discussions • Experiment	• Illustration of angular displacement and angular velocity on a chart	• Comprehensive secondary physics students book 4 pages 18-20 teachers book 34pages 10-12 • Secondary physics KLB students book 4 page 37-42 • Golden tips Physics pages 34-35	
7	**1-2**	UNIFORM CIRCULAR MOTION	Centripetal force	By the end of the lesson, the learner should be able to (i) Describe simple experiment on centripetal force (ii) Illustrate centripetal force (iii) Determine the magnitude of centripetal force experimentally	• Experiments • Discussions • observations	• Pendulum • String • Stone • Round table • Ball/bob • Stop clock	• Comprehensive secondary physics students book 4 pages 20-21 teachers book 34pages 10-12 • Secondary physics KLB students book 4 page 42-47 • Principles of physics (M.Nelkon) pages 42-45 • Golden tips Physics pages 37	
	3-4				• Discussions • Explanations	• String • Stone		

		UNIFORM CIRCULAR MOTION	Application of uniform circular motion	By the end of the lesson, the learner should be able to: (i) State various uniform circular motion (ii) Explain various uniform circular motion	• Experiments	• Ruler	• Comprehensive secondary physics students book 4 pages 22-25 teachers book 34pages 10-12 • Secondary physics KLB students book 4 page 37 • Golden tips Physics pages 39-40	
	5	UNIFORM CIRCULAR MOTION	Application of uniform circular motion	By the end of the lesson, the learner should be able to: (i) Explain centrifuge (ii) Explain vertical and horizontal circles (iii) Explain banked tracks	• Discussions • Explanations • Experiments	• String • Stone • Ruler	• Comprehensive secondary physics students book 4 pages 22-25 teachers book 34pages 10-12 • Secondary physics KLB students book 4 page 47-53 • Golden tips Physics pages 41	
8	**1**	UNIFORM CIRCULAR MOTION	Revision	By the end of the lesson, the learner should b e able to solve problems involving circular motion	• Problem solving • Questions and answers	• Questions from past papers • Exercises	• Comprehensive secondary physics students book 4 pages 26-27 teachers book 34pages 12-14 • Secondary physics KLB students book 4 page 55-45 • Principles of physics (M.Nelkon) pages 61-63 • Golden tips Physics pages 42-43	

	2-3	FLOATING AND SINKING	Archimedes' principle	By the end of the lesson, the learner should be able to (i) State Archimedes' principle (ii) Verify Archimedes principle (iii) Use of Archimedes principle to solve problems	• Experiments • Discussions • Calculations based on Archimedes Principle	• Water • Measuring cylinder • Weighing balance • Overflow can • Objects denser than water	• Comprehensive secondary physics students book 4 pages 28-29 teachers book 34pages 14-17 • Secondary physics KLB students book 4 page 58-60 • Principles of physics (M.Nelkon) pages 106-108 • Golden tips Physics pages 53-54	
	4-5	FLOATING AND SINKING	The laws of floatation Relative density	By the end of the lesson, the learner should be able to (i) State the law of floatation (ii) Define relative density	• Discussions • Measuring	• Density bottle • Overflow can • Spring balance • measuring cylinder	• Comprehensive secondary physics students book 4 pages 29-33 teachers book 34pages 14-17 • Secondary physics KLB students book 4 page 64-70 • Principles of physics (M.Nelkon) pages 101,108-110	
9	**1-3**	FLOATING AND SINKING	Applications of floating and sinking	By the end of the lesson, the learner should be able to: (i) Describe the applications of Archimedes Principle	• Discussions • experiments	• charts depicting the uses of Archimedes principle and the law of floatation • A hydrometer	• Comprehensive secondary physics students book 4 pages 33-35 teachers book 34pages 14-17	

				(ii) Describe the applications of relative density (hydrometer)			• Secondary physics KLB students book 4 page 75-77 • Principles of physics (M.Nelkon) pages 113-115 • Golden tips Physics pages 53	
	4-5	FLOATING AND SINKING	Revision	By the end of the lesson, the learner should be able to: (i) Solve problems involving Archimedes principle (ii) Solve problems involving relative density	• Questions and answers • Discussions • Exercises • assignments	• test papers • questions from exercises	• Comprehensive secondary physics students book 4 pages 35-36 teachers book 34pages 18 • Secondary physics KLB students book 4 page 77-78 • Principles of physics (M.Nelkon) pages 116-118 • Golden tips Physics pages 54-55	
10	**1**	ELECTROMAGNETIC SPECTRUM	The electromagnetic spectrum	By the end of the lesson, the learner should be able to: (i) Describe a complete electromagnetic spectrum	• Discussions on the charge in wave length of electromagnetic radiations • explanations	• charts showing the components of the electromagnetic spectrum	• Comprehensive secondary physics students book 4 pages 37 teachers book 34pages 18-20 • Secondary physics KLB students book 4 page 79 • Principles of physics (M.Nelkon) pages 345 • Golden tips Physics pages 174	

	2-3	ELECTROMAGNETIC SPECTRUM	The properties of electromagnetic waves	By the end of the lesson, the learner should be able to (i) State the properties of electromagnetic waves	• Explaining the properties of each component of the electromagnetic spectrum	• Charts showing the properties of electromagnetic waves	• Comprehensive secondary physics students book 4 pages 37-38 teachers book 34pages 18-20 • Secondary physics KLB students book 4 page 80-81 • Principles of physics (M.Nelkon) pages 345 • Golden tips Physics pages 175	
	4-5	ELECTROMAGNETIC SPECTRUM	Detection of electromagnetic radiations	By the end of the lesson, the learner should be able to: (i) Describe the methods of detective electromagnetic radiations	• Demonstrating and explaining how to detect electromagnetic radiations	• Radiation detectors • Charts showing detectors of electromagnetic radiation	• Comprehensive secondary physics students book 4 pages 38-39 teachers book 34pages 18-20 • Secondary physics KLB students book 4 page 81 • Golden tips Physics pages • 175-176	
11	**1-2**	ELECTROMAGNETIC SPECTRUM	Applications of electromagnetic radiations	By the end of the lesson, the learner should be able to (i) Describe the applications of electromagnetic radiations including	• Discussions of application of electromagnetic radiations	• Pictures and chart on application of electromagnetic radiations	• Comprehensive secondary physics students book 4 pages 42-45 teachers book 34pages 18-20	

				green house effect			• Secondary physics KLB students book 4 page 82 • Principles of physics (M.Nelkon) pages 336 • Golden tips Physics pages 175-176	
	3-4	ELECTROMAGNETIC SPECTRUM	Problems on C=FX	By the end of the lesson, the learner should be able to (i) Solve numerical problems involving C=fx	• Problem solving • Discussions • Explanations • Questions and answers	• Questions and answers • exercises	• Comprehensive secondary physics students book 4 pages 45 teachers book 34pages 20-21 • Secondary physics KLB students book 4 page 80	
	5	ELECTROMAGNETIC SPECTRUM	Revision	By the end of the lesson, the learner should be able to: (i) Solve problems involving electromagnetic spectrum	• Problem solving • Questions and answers	• Exercises in students book 4 • Past papers questions	• Comprehensive secondary physics students book 4 pages 45 teachers book 34pages 20-21	
12	**1-2**	ELECTROMAGNETIC INDUCTION	Induced e.m.f	By the end of the lesson, the learner should be able to: (i) Perform and describe simple experiments to illustrate	• Experiments • discussions	• magnets • complete • electric circuit	• Comprehensive secondary physics students book 4 pages 46-48 teachers book 34pages 21-25	

				electromagnetic induction (ii) State the factors affecting the magnitude of an induced e.m.f (iii) State the factors affecting the direction induced by e.m.f			• Secondary physics KLB students book 4 page 86-91 • Principles of physics (M.Nelkon) pages 478-479 • Golden tips Physics pages 152-154	
	3-4	ELECTROMAGNETIC INDUCTION	Faraday's law and Lenz's law	By the end of the lesson, the learner should be able to (i) State Faraday's law (ii) State Lenz's law (iii) Illustrate Faraday law and Lens's law	• Discussions • Experiments to illustrate Faraday's law and Lenz's law	• Magnets • Solenoid • Source of current	• Comprehensive secondary physics students book 4 pages 48-50 teachers book 34pages 21-25 • Secondary physics KLB students book 4 page 91-93 • Principles of physics (M.Nelkon) pages 483-484 • Golden tips Physics pages 153	
	5	ELECTROMAGNETIC INDUCTION	Fleming's right hand rule	By the end of the lesson, the learner should be able to: (i) State Fleming's right hand rule (ii) Apply Fleming's right hand rule	• Explanation of the motor rule • Discussion of the application of electromagnetic induction	• Magnets • Wire • Source of current	• Comprehensive secondary physics students book 4 pages 49-50 teachers book 34pages 21-25 • Secondary physics KLB students book 4 page 93-97	

							• Principles of physics (M.Nelkon) pages 481-482 • Golden tips Physics pages 153	
13	**1-2**	ELECTROMAGNETIC INDUCTION	Generators	By the end of the lesson, the learner should be able to (i) Explain the working of an a.c generator (ii) Explain the working of a d.c generator	• Drawing the arrangement for a.c and d.c generators • Demonstration of motor principle	• Coil • Pins • Source of current • Magnets	• Comprehensive secondary physics students book 4 pages 50-53 teachers book 34pages 21-25 • Secondary physics KLB students book 4 page 100-104 • Principles of physics (M.Nelkon) pages 488-490 • Golden tips Physics pages 156-157	
	3-4	ELECTROMAGNETIC INDUCTION	Generators	By the end of the lesson, the learner should be able to (i) Explain the working of an a.c generator (ii) Explain the working of a d.c generator	• Drawing the arrangement for a.c and a d.c generators • Demonstration of motor principle	• Coil • Pins • Source of current • magnets	• Comprehensive secondary physics students book 4 pages 50-53 teachers book 34pages 21-25 • Secondary physics KLB students book 4 page • Principles of physics (M.Nelkon) pages • Golden tips Physics pages 154	
					• Discussions	• Pendulum		

14	**1-2**	ELECTROMAGNETIC INDUCTION	Eddy currents	By the end of the lesson, the learner should be able to (i) Explain eddy currents (ii) Demonstrate the effects of eddy currents	• Experiments • Explanations	• Copper wire • Magnets	• Comprehensive secondary physics students book 4 pages 53-54 teachers book 4 pages 24	
	3	ELECTROMAGNETIC INDUCTION	Eddy currents	By the end of the lesson, the learner should be able to (i) Explain eddy currents (ii) Demonstrate the effects of eddy currents	• Discussions • Experiments • Explanations	• Pendulum • Copper wire • Magnets	• Comprehensive secondary physics students book 4 pages 53-54 teachers book 34pages 24 • Secondary physics KLB students book 4 pages,104 • Principles of physics (M.Nelkon) pages 483-484 • Golden tips Physics pages 158	
	4-5	ELECTROMAGNETIC INDUCTION	Mutual inductance	By the end of the lesson, the learner should be able to (i) Describe simple experiments to illustrate mutual inductance	• Discussions • Experiments • Explanations	• Iron care with primary and secondary coil	• Comprehensive secondary physics students book 4 pages 54-55 teachers book 34pages 21-25 • Secondary physics KLB students book 4 pages 97-101 • Golden tips Physics pages 158	

15	**1-2**	ELECTROMAGNETIC INDUCTION	Transformers	By the end of the lesson, the learner should be able to (i) Explain the working of a transformer	• Discussions • Experiments	• Transformer • Magnets • Wires • Metallic rods	• Comprehensive secondary physics students book 4 pages 54-59 teachers book 34pages 21-25 • Secondary physics KLB students book 4 page 100-104 • Principles of physics (M.Nelkon) pages 488-490 • Golden tips Physics pages 156-157	
	3-4	ELECTROMAGNETIC INDUCTION	Applications of electromagnetic induction	By the end of the lesson, the learner should be able to (i) Explain the application of electromagnetic induction (ii) Solve problems on transformers	• Discussions • Explanations • Questions and answers	• Induction coil • Moving coil/loud speaker	• Comprehensive secondary physics students book 4 pages 54-59 teachers book 34pages 21-25 • Secondary physics KLB students book 4 page 107-112 • Principles of physics (M.Nelkon) pages 468,473 • Golden tips Physics pages 158	
	5	ELECTROMAGNETIC INDUCTION	Revision	By the end of the lesson the learner should be able to solve problems involving electromagnetic induction	• Questions and answers • Discussions	• Questions from past papers	• Comprehensive secondary physics students book 4 pages 59-60 teachers book 34pages 26-27	

							• Secondary physics KLB students book 4 page 112-116 • Principles of physics (M.Nelkon) page 494-495 • Golden tips Physics pages 159	

PHYSICS FORM 4 SCHEMES OF WORK – TERM 2

WEEK	LESSON	TOPIC	SUB - TOPIC	OBJECTIVES	LEARNING/TEACHING ACTIVITIES	LEARNING/TEACHING RESOURCES	REFERENCES	REMARKS
1	1	MAIN ELECTRICITY	Source of main electricity	By the end of the lesson, the learner should be able to: (i) State sources of main electricity (ii) Explain the sources of main electricity	• Discussions • Educational trips	• Pictures and charts showing sources of main electricity	• Comprehensive secondary physics students book 4 pages 61 teachers book 3 pages 27-29 • Secondary physics KLB students book 4 page 117 • Golden tips Physics pages 160	
	2-3	MAIN ELECTRICITY	Power transmission	By the end of the lesson the learner should be able to (i) Describe the transmission of electric power from the generating station (ii) Explain the domestic wiring system	• Discussions • Questions and answers	Photos of power transmission Lines and power substations	• Comprehensive secondary physics students book 4 pages 62 teachers book 3 pages 27-29 • Secondary physics KLB students book 4 page 117-122 • Principles of physics (M.Nelkon(pages 433-434 • Golden tips Physics pages 160-163	
	4-5	MAIN ELECTRICITY	Power consumption	By the end of the lesson, the learner should be able to:	• Discussions • calculations	Chats on power consumptions	• Comprehensive secondary physics students book 4 pages 63-66	

				(i) Define kilowatt hour (ii) Determine the electrical energy consumption and cost			teachers book 3 pages 27-29 • Secondary physics KLB students book 4 page 125-128 • Principles of physics (M.Nelkon(pages 428 • Golden tips Physics pages 164	
2	**1-2**	MAINS ELECTRICITY	Domestic wiring	By the end of the lesson, the learner should be able to (i) Explain the domestic wiring system (ii) Describe the domestic wiring system	• Discussions • Demonstrations on building wiring • Drawing circuits	• Fuses • Wires • Switches • Electrical appliances	• Comprehensive secondary physics students book 4 pages 66-69 teachers book 4 pages 27-29 • Secondary physics KLB students book 4 page 125-121-122 • Principles of physics (M.Nelkon(pages 433-435 • Golden tips Physics pages 162	
	3	MAINS ELECTRICITY	Domestic electrical appliances	By the end of the lesson, the learner should be able to: (i) Explain the function of fuse in domestic wiring (ii) Explain the function of a two-way switch in domestic wiring	• Discussions • demonstration	• domestic electrical appliances	• Comprehensive secondary physics students book 4 pages 66-69 teachers book 4 pages 27-29 • Secondary physics KLB students book 4 page 125-122-124 • Principles of physics (M.Nelkon(pages 433,435 • Golden tips Physics pages 162	

	4-5	MAINS ELECTRICITY	Revision	By the end of the lesson, the learner should be able to solve problems involving mains electricity	• Problem solving • Discussions • Questions and answers	• Questions from past papers • Quizzes • Exercises	• Comprehensive secondary physics students book 4 pages 70-71 teachers book 4 pages 29-30 • Secondary physics KLB students book 4 page 125-128-130 • Principles of physics (M.Nelkon) pages 436-438 • Golden tips Physics pages 164-165	
3	**1-2**	CATHODE RAYS	Production of cathode rays	By the end of the lesson, the learner should be able to: (i) Describe the production of cathode rays (ii) State and explain the properties of cathode rays	• Describing the production of cathode rays • Stating the properties of cathode rays	• Chart on the properties of cathode rays	• Comprehensive secondary physics students book 4 pages 72-73 teachers book 4 pages 30-32 • Secondary physics KLB students book 4 page 131-133 • Principles of physics (M.Nelkon) pages 532,535-536 • Golden tips Physics pages 166-167	
	3-4	CATHODE RAYS	The cathode rays Oscilloscope	By the end of the lesson, the learner should be able to (i) Explain the functioning of the cathode ray oscilloscope	• Discussions of parts and functions of C.R.O	• Chart of parts and functions of C.R.O	• Comprehensive secondary physics students book 4 pages 73-75 teachers book 4 pages 30-32	

				(ii) Explain the functioning of a T.V tube			• Secondary physics KLB students book 4 page 133-134 • Principles of physics (M.Nelkon) pages 541-545 • Golden tips Physics pages 167-169	
	5	CATHODE RAYS	The cathode rays of Oscilloscope	By the end of the lesson, the learner should be able to (i) Explain the uses of a C.R.O	• Describing the working of a T.V tube	• T.V tube	• Comprehensive secondary physics students book 4 pages 73-75 teachers book 4 pages 30-32 • Secondary physics KLB students book 4 page 139 • Principles of physics (M.Nelkon) pages 541-544 • Golden tips Physics pages 169	
4	**1-2**	CATHODE RAYS	Revision	By the end of the lesson, the learner should be able to solve problems involving cathode rays	• Problem solving • discussions	• Quizzes • Exercises	• Comprehensive secondary physics students book 4 pages 77-79 teachers book 4 pages 32-34 • Secondary physics KLB students book 4 page 142-143 • Principles of physics (M.Nelkon) pages 554-555 • Golden tips Physics pages 170-171	

	3-5	X-RAYS	Production of X-rays	By the end of the lesson, the learner should be able to: (i) Explain the production of x-rays (ii) State and explain the properties of X-rays (iii) Distinguish between hard and soft x-rays	• Demonstrations • Discussions • Calculations involving x-rays	• X-ray tube • Charts	• Comprehensive secondary physics students book 4 pages 80-84 teachers book 4 pages 35-36 • Secondary physics KLB students book 4 page 144-148 • Principles of physics (M.Nelkon) pages 545-547 • Golden tips Physics pages 171-173	
5	**1-2**	X-RAYS	Dangers of x-rays	By the end of the lesson, the learner should be able to: (i) Explain and state the dangers of X-rays (ii) Highlight the precautions to be undertaken when handling x-rays	• Discussions • Explanations	• Charts showing the dangers of x-rays • Hospital with x-ray equipment	• Comprehensive secondary physics students book 4 pages 84 teachers book 4 pages 35-36 • Secondary physics KLB students book 4 page 149 • Principles of physics (M.Nelkon) pages 546 • Golden tips Physics pages 173	
	3	X-RAYS	Uses of x-rays	By the end of the lesson the learner should be able to (i) State the uses of X-rays (ii) Explain the uses of X-rays	• Discussions	• Hospital with X-ray equipment	• Comprehensive secondary physics students book 4 pages 84 teachers book 4 pages 35-36	

							• Secondary physics KLB students book 4 page 148 • Golden tips Physics pages 174	
	4-5	X-RAYS	Revision	By the end of the lesson, the learner should be able to: (i) Solve problems involving X-rays	• Discussions • Problem solving	• Quizzes • Exercise • Past papers questions	• Comprehensive secondary physics students book 4 pages 85-86 teachers book 4 pages 36-37 • Secondary physics KLB students book 4 page 146-147 • Golden tips Physics pages 172-173	
6	**1-2**	PHOTO ELECTRIC EFFECT	Photo electric emissions	By the end of the lesson ,the learner should be able to (i) Perform simple experiments to illustrate photo electric effect (ii) Describe simple experiments to illustrate photoelectric effect	• Experiments • discussions	• source of light • Metallic surfaces • Photo cell	• Comprehensive secondary physics students book 4 pages 87-88 teachers book 4 pages 38-40 • Secondary physics KLB students book 4 page 151-152 • Principles of physics (M.Nelkon) pages 547 • Golden tips Physics pages 177	
	3	PHOTO-ELECTRIC	Factors effecting photoelectric emissions	By the end of the lesson, the learner should be able to (i) State the factors	• Discussions • Demonstrations	• charts	• Comprehensive secondary physics students book 4 pages 88-90	

				affecting photo-electric emission (ii) Explain the factors affecting the photoelectric emissions			teachers book 4 pages 38-40 • Secondary physics KLB students book 4 page 156-158 • Golden tips Physics pages 179	
	4-5	PHOTO-ELECTRIC	Plank's constant	By the end of the lesson, the learner should be able to (i) Define plank's constant threshold frequency work function and photoelectric effect (ii) Explain threshold frequency, work function and photoelectric effect	• Discussions • Demonstration	• charts	• Comprehensive secondary physics students book 4 pages 90-91 teachers book 4 pages 38-40 • Secondary physics KLB students book 4 page 153-156 • Golden tips Physics pages 177-179	
7	**1-5**	PHOTO-ELECTRIC	The quantum theory of light	By the end of the lesson, the learner should be able to: (i) Determine the energy of p photos (ii) Apply the equation E=hf to calculate the energy of photos (iii) Explain photoelectric effect using Einstein's	• Discussions • Calculations	• Chart on the use of Einstein's equation	• Comprehensive secondary physics students book 4 pages 90-92 teachers book 4 pages 38-40 • Secondary physics KLB students book 4 page 153-156 • Golden tips Physics pages 178-180	

				equation=$hf+{}^{1}/_{2}mv^{2}$				
8	**1-3**	PHOTO-ELECTRIC	Application of photoelectric effect	By the end of the lesson, the learner should be able to (i) Explain the working of a - Photo emissive cell - Photo conductive cell - Photo voltaic cell	• Demonstrations • Discussions	• Charts on the photo cell and how it works • Solar panels • Watch cells	• Comprehensive secondary physics students book 4 pages 92-93 teachers book 4 pages 38-40 • Secondary physics KLB students book 4 page 160-163 • Golden tips Physics pages 180-181	
	4-5	PHOTO-ELECTRIC EFFECT	Revision	By the end of the lesson, the learner should be able to: (i) Solve problems involving photo-electric effect	• Questions and answers	• Set questions • Projects • Questions from past papers	• Comprehensive secondary physics students book 4 pages 94-95 teachers book 4 pages 40-42 • Secondary physics KLB students book 4 page 163-165 • Golden tips Physics p • Questions from past papers	
9	**1-2**	RADIO ACTIVITY	Types of radiation	By the end of the lesson, the learner should be able to	• Discussions	• Radiation detectors	• Comprehensive secondary physics students book 4 pages 96-100	

				(i) Describe the three types of radiations produced by radioactive elements			teachers book 4 pages 42-45 • Secondary physics KLB students book 4 page 167-171 • Principles of physics (M.Nelkon) pages 556-564 • Golden tips Physics pages 184-185	
	3-4	RADIO-ACTIVITY	Detecting nuclear radiations	By the end of the lesson, the learner should be able to explain how to detect radio-active emissions	• Demonstrations • Discussions	Radiation detectors	• Comprehensive secondary physics students book 4 pages 96-100 teachers book 4 pages 42-45 • Secondary physics KLB students book 4 page 172-175 • Principles of physics (M.Nelkon) pages 556-564 Golden tips Physics pages 185-186	
	5	RADIO-ACTIVITY	Detecting nuclear radiations	By the end of the lesson, the learner should be able to explain how a diffusion cloud chamber works	• Demonstrations • discussions	Radiation detectors	• Comprehensive secondary physics students book 4 pages 100 teachers book 4 pages 42-45 • Secondary physics KLB students book 4 page 173-174	

							• Principles of physics (M.Nelkon) pages 557-558 • Golden tips Physics pages 189	
10	**1-2**	RADIO-ACTIVITY	Radio-active decay	By the end of the lesson, the learner should be able to define radio-active decay and half life	• discussion	• Charts on radio-active decay	• Comprehensive secondary physics students book 4 pages 100-102 teachers book 4 pages 42-45 • Secondary physics KLB students book 4 page 176-181 • Principles of physics (M.Nelkon) pages 566-568 • Golden tips Physics pages 186-187	
	3-5	RADIOACTIVITY	Nuclear fission and fusion	By the end of the lesson, the learner should be able to (i) Define nuclear fission and nuclear fusion (ii) Write balanced nuclear equations (iii) State the application of radioactivity	• Discussions • Problem solving	• Periodic table	• Comprehensive secondary physics students book 4 pages 100-108 teachers book 4 pages 42-45 • Secondary physics KLB students book 4 page 181-184 • Principles of physics (M.Nelkon) pages 573-578 • Golden tips Physics pages 190	

11	**1-3**	RADIO-ACTIVITY	Hazards of radioactivity	By the end of the lesson, the learner should be able to (i) Explain the dangers of radioactive emissions	• discussions	• diffusion cloud chamber	• Comprehensive secondary physics students book 4 pages 105-106 teachers book 4 pages 42-45 • Secondary physics KLB students book 4 page 182 • Principles of physics (M.Nelkon) pages 565-566 • Golden tips Physics pages 190	
	4-5	RADIO-ACTIVITY	Revision	By the end of the lesson, the learner should be able to solve problems involving radioactivity and half life	• Questions and answers	• Set questions • Past papers questions • Exercises	• Comprehensive secondary physics students book 4 pages 105-106 teachers book 4 pages 45-48 • Secondary physics KLB students book 4 page 184-185 • Principles of physics (M.Nelkon) pages 579-581 • Golden tips Physics pages 191	

PHYSICS FORM 4 SCHEMES OF WORK – TERM 3

WEEK	LESSON	TOPIC	SUB - TOPIC	OBJECTIVES	LEARNING/TEACHING ACTIVITIES	LEARNING/TEACHING RESOURCES	REFERENCES	REMARKS
1	1-2	ELECTRONICS	Conductors and semi-conductors	By the end of the lesson, the learner should be able to (i) Differentiate between conductors and semi-conductors	• Discussions • Experiments	• Some semi-conductors • Some insulator	• Comprehensive secondary physics students book 4 pages 110-111 teachers book 4 pages 45-48 • Secondary physics KLB students book 4 page 187-189 • Golden tips Physics pages 192-193	
	3-5	ELECTRONICS	Intrinsic and extrinsic semi-conductors	By the end of the lesson, the learner should be able to: (i) Explain doping in semi-conductors (ii) Explain the working of p-n junction diode (iii) Distinguish between intrinsic and extrinsic semi-conductors	• Discussions • Experiments	• Samples of semi-conductors • Complete circuit • Transistors • Junction diode	• Comprehensive secondary physics students book 4 pages 111-112 teachers book 4 pages 48-52 • Secondary physics KLB students book 4 page 189-194 • Principles of physics (M.Nelkon) pages 547-550 • Golden tips Physics pages 193-196	

2	**1-5**	ELECTRONICS	Characteristics of p-n junction	By the end of the lesson, the learner should be able to (i) sketch the current voltage characteristics for a diode	• experiments	• junction diode	• Comprehensive secondary physics students book 4 pages 161-117 teachers book 4 pages 48-52 • Secondary physics KLB students book 4 page 189-194 • Golden tips Physics pages 194-196	
3	**1-5**	ELECTRONICS	Applications of diodes	By the end of the lesson, the learner should be able to (i) explain the application of diodes in rectifications	• Discussions • Questions and answers	• Chart showing the application of diode	• Comprehensive secondary physics students book 4 pages 117-120 teachers book 4 pages 48-52 • Secondary physics KLB students book 4 page 198-201 • Principles of physics (M.Nelkon) pages 198-201 • Golden tips Physics pages 196-198	
4	**1-5**		Revision and exams	By the end of the lesson, the learner should be able to (i) ensure that he/she is well prepared to sit for the national exams	• Discussions • Questions and answers technical questions • Problem solving • Assignment and tests	• Revision exercises • Test papers • Mock examinations • Marking schemes	• Comprehensive secondary physics students book form 1-4 teachers book 4 form 1-4	

							• Secondary physics KLB students book 4 page 1-4 • Principles of physics (M.Nelkon) pages 198-201 • Golden tips Physics pages • Past papers (mocks)	
5-9 REVISION FOR THE FINAL EXAMINATIONS								