**PHYSICS SCHEMES OF WORK FORM 4**

**TERM 2**

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| **WK** | **LSN** | **TOPIC** | **SUB-TOPIC** | **OBJECTIVES** | **T/L ACTIVITIES** | **T/L AIDS** | **REFERENCE** | **REMARKS** |
| 1 | **Opening and Revision** |
| 2 | 1 | Electromagnetic Spectrum  | The electromagnetic spectrum  | By the end of the lesson, the learner should be able to: Describe a complete electromagnetic spectrum  | Discussions on the charge in wave length of electromagnetic radiationsexplanations  | charts showing the components of the electromagnetic spectrum  | Comprehensive secondary physics students book 4 pages 37teachers book 34pages 18-20Secondary physics KLB students book 4 page 79   |  |
| 2 | Electromagnetic Spectrum  | The properties of electromagnetic waves  | By the end of the lesson, the learner should be able to: 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 37-38teachers book 34pages 18-20Secondary physics KLB students book 4 page 80-81   |  |
| 3 | Electromagnetic Spectrum  | The properties of electromagnetic waves  | By the end of the lesson, the learner should be able to: 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 37-38teachers book 34pages 18-20Secondary physics KLB students book 4 page 80-81   |  |
| 4-5 | Electromagnetic Spectrum  | Detection of electromagnetic radiations  | By the end of the lesson, the learner should be able to: Describe the methods of detective electromagnetic radiations  | Demonstrating and explaining how to detect electromagnetic radiations  | Radiation detectorsCharts showing detectors of electromagnetic radiation  | Comprehensive secondary physics students book 4 pages 38-39teachers book 34pages 18-20Secondary physics KLB students book 4 page 81Golden tips Physics pages 175-176  |  |
| 3 | 1 | Electromagnetic Spectrum  | Applications of electromagnetic radiations  | By the end of the lesson, the learner should be able to: Describe the applications of electromagnetic radiations including green house effect  | Discussions of application of electromagnetic radiations  | Pictures and chart on application of electromagnetic radiations  | Comprehensive secondary physics students book 4 pages 42-45teachers book 34pages 18-20Secondary physics KLB students book 4 page 82   |  |
| 2 | Electromagnetic Spectrum  | Applications of electromagnetic radiations  | By the end of the lesson, the learner should be able to: Describe the applications of electromagnetic radiations including green house effect  | Discussions of application of electromagnetic radiations  | Pictures and chart on application of electromagnetic radiations  | Comprehensive secondary physics students book 4 pages 42-45teachers book 34pages 18-20Secondary physics KLB students book 4 page 82   |  |
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| 4-5 | Electromagnetic Spectrum  | Problems on C=FX  | By the end of the lesson, the learner should be able to: Solve numerical problems involving C=fx  | Problem solvingDiscussionsExplanationsQuestions and answers  | Questions and answersexercises  | Comprehensive secondary physics students book 4 pages 45teachers book 34pages 20-21Secondary physics KLB students book 4 page 80  |  |
| 4 | 1 | Electromagnetic Induction  | Induced e.m.f  | By the end of the lesson, the learner should be able to: Perform and describe simple experiments to illustrate electromagnetic inductionState the factors affecting the magnitude of an induced e.m.fState the factors affecting the direction induced by e.m.f  | Experimentsdiscussions  | magnetscompleteelectric circuit  | Comprehensive secondary physics students book 4 pages 46-48teachers book 34pages 21-25Secondary physics KLB students book 4 page 86-91   |  |
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| 3 | Electromagnetic Induction  | Faraday?s law and Lenz?s law  | By the end of the lesson, the learner should be able to: State Faraday?s lawState Lenz?s lawIllustrate Faraday law and Lens?s law  | DiscussionsExperiments to illustrate Faraday?s law and Lenz?s law  | MagnetsSolenoidSource of current  | Comprehensive secondary physics students book 4 pages 48-50teachers book 34pages 21-25Secondary physics KLB students book 4 page 91-93   |  |
| 4-5 | Electromagnetic Induction  | Faraday?s law and Lenz?s lawFleming?s right hand rule  | By the end of the lesson, the learner should be able to: State Faraday?s lawState Lenz?s lawIllustrate Faraday law and Lens?s lawState Fleming?s right hand ruleApply Fleming?s right hand rule  | DiscussionsExperiments to illustrate Faraday?s law and Lenz?s lawExplanation of the motor ruleDiscussion of the application of electromagnetic induction  | MagnetsSolenoidSource of currentMagnetsWireSource of current  | Comprehensive secondary physics students book 4 pages 48-50teachers book 34pages 21-25Secondary physics KLB students book 4 page 91-93 Comprehensive secondary physics students book 4 pages 49-50teachers book 34pages 21-25Secondary physics KLB students book 4 page 93-97   |  |
| 5 | 1 | Electromagnetic Induction  | Generators  | By the end of the lesson, the learner should be able to: Explain the working of an a.c generatorExplain the working of a d.c generator  | Drawing the arrangement for a.c and a d.c generatorsDemonstration of motor principle  | CoilPinsSource of currentmagnets  | Comprehensive secondary physics students book 4 pages 50-53teachers book 34pages 21-25Secondary physics KLB students book 4 page   |  |
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| 4-5 | Electromagnetic Induction  | Eddy currents  | By the end of the lesson, the learner should be able to: Explain eddy currentsDemonstrate the effects of eddy currents  | DiscussionsExperimentsExplanations  | PendulumCopper wireMagnets  | Comprehensive secondary physics students book 4 pages 53-54teachers book 4 pages 24  |  |
| 6 | 1 | Electromagnetic Induction  | Mutual inductance  | By the end of the lesson, the learner should be able to: Describe simple experiments to illustrate mutual inductance  | DiscussionsExperimentsExplanations  | Iron care with primary and secondary coil  | Comprehensive secondary physics students book 4 pages 54-55teachers book 34pages 21-25Secondary physics KLB students book 4 pages 97-101 Golden tips Physics pages 158  |  |
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| 3 | Electromagnetic Induction  | Transformers  | By the end of the lesson, the learner should be able to: Explain the working of a transformer  | DiscussionsExperiments  | TransformerMagnetsWires Metallic rods  | Comprehensive secondary physics students book 4 pages 54-59teachers book 34pages 21-25Secondary physics KLB students book 4 page 100-104   |  |
| 4-5 | Electromagnetic Induction  | TransformersApplications of electromagnetic induction  | By the end of the lesson, the learner should be able to: Explain the working of a transformerExplain the application of electromagnetic inductionSolve problems on transformers  | DiscussionsExperimentsDiscussionsExplanationsQuestions and answers  | TransformerMagnetsWires Metallic rodsInduction coilMoving coil/loud speaker  | Comprehensive secondary physics students book 4 pages 54-59teachers book 34pages 21-25Secondary physics KLB students book 4 page 100-104 Comprehensive secondary physics students book 4 pages 54-59teachers book 34pages 21-25Secondary physics KLB students book 4 page 107-112   |  |
| 7 | 1 | Electromagnetic Induction  | Eddy currents  | By the end of the lesson, the learner should be able to: Explain eddy currentsDemonstrate the effects of eddy currents  | DiscussionsExperimentsExplanations  | PendulumCopper wireMagnets  | Comprehensive secondary physics students book 4 pages 53-54teachers book 34pages 24Secondary physics KLB students book 4 pages,104   |  |
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| 4-5 | Main Electricity  | Source of main electricityPower transmission  | By the end of the lesson, the learner should be able to: State sources of main electricityExplain the sources of main electricityBy the end of the lesson the learner should be able toDescribe the transmission of electric power from the generating stationExplain the domestic wiring system  | DiscussionsEducational tripsDiscussionsQuestions and answers  | Pictures and charts showing sources of main electricityPhotos of power transmissionLines and power substations  | Comprehensive secondary physics students book 4 pages 61teachers book 3 pages 27-29Secondary physics KLB students book 4 page 117 Comprehensive secondary physics students book 4 pages 62teachers book 3 pages 27-29Secondary physics KLB students book 4 page 117-122   |  |
| 8 | **Mid Term Exams and Break** |
| 9 | 1 | Main Electricity  | Power consumption  | By the end of the lesson, the learner should be able to: Define kilowatt hourDetermine the electrical energy consumption and cost  | Discussionscalculations  | Chats on power consumptions  | Comprehensive secondary physics students book 4 pages 63-66teachers book 3 pages 27-29Secondary physics KLB students book 4 page 125-128Principles of physics (M.Nelkon( pages 428   |  |
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| 4-5 | Mains Electricity  | Domestic wiring  | By the end of the lesson, the learner should be able to: Explain the domestic wiring systemDescribe the domestic wiring system  | DiscussionsDemonstrations on building wiringDrawing circuits  | FusesWiresSwitchesElectrical appliances  | Comprehensive secondary physics students book 4 pages 66-69teachers book 4 pages 27-29Secondary physics KLB students book 4 page 125-121-122   |  |
| 10 | 1 | Mains Electricity  | Domestic electrical appliances  | By the end of the lesson, the learner should be able to: Explain the function of fuse in domestic wiringExplain the function of a two-way switch in domestic wiring  | Discussions demonstration  | domestic electrical appliances  | Comprehensive secondary physics students book 4 pages 66-69teachers book 4 pages 27-29Secondary physics KLB students book 4 page 125-122-124   |  |
| 2 | Mains Electricity  | Domestic electrical appliances  | By the end of the lesson, the learner should be able to: Explain the function of fuse in domestic wiringExplain the function of a two-way switch in domestic wiring  | Discussions demonstration  | domestic electrical appliances  | Comprehensive secondary physics students book 4 pages 66-69teachers book 4 pages 27-29Secondary physics KLB students book 4 page 125-122-124   |  |
| 3 | Cathode Rays  | Production of cathode rays  | By the end of the lesson, the learner should be able to: Describe the production of cathode raysState and explain the properties of cathode rays  | Describing the production of cathode raysStating the properties of cathode rays  | Chart on the properties of cathode rays  | Comprehensive secondary physics students book 4 pages 72-73teachers book 4 pages 30-32Secondary physics KLB students book 4 page 131-133   |  |
| 4-5 | Cathode Rays  | Production of cathode raysThe cathode rays Oscilloscope  | By the end of the lesson, the learner should be able to: Describe the production of cathode raysState and explain the properties of cathode raysExplain the functioning of the cathode ray oscilloscopeExplain the functioning of a T.V tube  | Describing the production of cathode raysStating the properties of cathode raysDiscussions of parts and functions of C.R.O  | Chart on the properties of cathode raysChart of parts and functions of C.R.O  | Comprehensive secondary physics students book 4 pages 72-73teachers book 4 pages 30-32Secondary physics KLB students book 4 page 131-133 Comprehensive secondary physics students book 4 pages 73-75teachers book 4 pages 30-32Secondary physics KLB students book 4 page 133-134   |  |
| 11 | 1 | Cathode Rays  | The cathode rays of Oscilloscope  | By the end of the lesson, the learner should be able to: 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 73-75teachers book 4 pages 30-32Secondary physics KLB students book 4 page 139   |  |
| 2 | Cathode Rays  | The cathode rays of Oscilloscope  | By the end of the lesson, the learner should be able to: 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 73-75teachers book 4 pages 30-32Secondary physics KLB students book 4 page 139   |  |
| 3 | X-Rays  | Production of X-rays  | By the end of the lesson, the learner should be able to: Explain the production of x-raysState and explain the properties of X-raysDistinguish between hard and soft x-rays  | DemonstrationsDiscussionsCalculations involving x-rays  | X-ray tubeCharts  | Comprehensive secondary physics students book 4 pages 80-84teachers book 4 pages 35-36Secondary physics KLB students book 4 page 144-148   |  |
| 4-5 | X-Rays  | Production of X-raysDangers of x-rays  | By the end of the lesson, the learner should be able to: Explain the production of x-raysState and explain the properties of X-raysDistinguish between hard and soft x-raysExplain and state the dangers of X-rays Highlight the precautions to be undertaken when handling x-rays  | DemonstrationsDiscussionsCalculations involving x-raysDiscussionsExplanations  | X-ray tubeChartsCharts showing the dangers of x-raysHospital with x-ray equipment  | Comprehensive secondary physics students book 4 pages 80-84teachers book 4 pages 35-36Secondary physics KLB students book 4 page 144-148 Comprehensive secondary physics students book 4 pages 84teachers book 4 pages 35-36Secondary physics KLB students book 4 page 149   |  |
| 12 | 1 | X-Rays  | Uses of x-rays  | By the end of the lesson, the learner should be able to: By the end of the lesson the learner should be able toState the uses of X-raysExplain the uses of X-rays  | Discussions  | Hospital with X-ray equipment  | Comprehensive secondary physics students book 4 pages 84teachers book 4 pages 35-36Secondary physics KLB students book 4 page 148  |  |
| 2 | X-Rays  | Uses of x-rays  | By the end of the lesson, the learner should be able to: By the end of the lesson the learner should be able toState the uses of X-raysExplain the uses of X-rays  | Discussions  | Hospital with X-ray equipment  | Comprehensive secondary physics students book 4 pages 84teachers book 4 pages 35-36Secondary physics KLB students book 4 page 148  |  |
| 3 | X-Rays  | Uses of x-rays  | By the end of the lesson, the learner should be able to: By the end of the lesson the learner should be able toState the uses of X-raysExplain the uses of X-rays  | Discussions  | Hospital with X-ray equipment  | Comprehensive secondary physics students book 4 pages 84teachers book 4 pages 35-36Secondary physics KLB students book 4 page 148  |  |
| 4 | Photo Electric Effect  | Photo electric emissions  | By the end of the lesson, the learner should be able to: By the end of the lesson ,the learner should be able toPerform simple experiments to illustrate photo electric effectDescribe simple experiments to illustrate photoelectric effect  | Experimentsdiscussions  | source of lightMetallic surfacesPhoto cell  | Comprehensive secondary physics students book 4 pages 87-88teachers book 4 pages 38-40Secondary physics KLB students book 4 page 151-152   |  |
| 4-5 | Photo Electric Effect  | Photo electric emissions  | By the end of the lesson, the learner should be able to: By the end of the lesson ,the learner should be able toPerform simple experiments to illustrate photo electric effectDescribe simple experiments to illustrate photoelectric effect  | Experimentsdiscussions  | source of lightMetallic surfacesPhoto cell  | Comprehensive secondary physics students book 4 pages 87-88teachers book 4 pages 38-40Secondary physics KLB students book 4 page 151-152   |  |
| 13-14 | **End Term Exams and closing** |