**PHYSICS SCHEMES OF WORK**

**FORM FOUR 2016**

**TERM I**

**REFERENCES:**

1. Secondary Physics KLB
2. Comprehensive Secondary Physics
3. Principles of Physics
4. Golden Tips
5. Teacher’s Book

Compiled by Schools Net Kenya (SNK) in partnership with Jospa Publishers | P.O. Box 3029 – 00200 Nairobi |

Coordinated by KENPRO, Macjo Arcade, 4th Floor, Suite 15E, Off Magadi Road, Ongata Rongai |Tel: +254202319748 |

E-mail: infosnkenya@gmail.com | Website: [www.schoolsnetkenya.com/](http://www.schoolsnetkenya.com/)

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| **WK** | **LSN** | **TOPIC** | **SUB-TOPIC** | **OBJECTIVES** | **L/ACTIVITIES** | **L/T AIDS** | **REFERENCE** | **REMARKS** |
| **1** | **1-5** | **REPORTING AND REVISION OF LAST TERM’S EXAMS** |  |
| 2 | 1 | Lenses  | Conveying and diverging lenses | By the end of the lesson the learner should be able to Describe converging lensesDescribe diverging lenses | Using light beams to distinguish between diverging and converging lenses | Diverging lensesConverging lensesSource of light beamscreen | Comprehensive secondary physics students book 4 pages 1-2teachers book 3 pages 1-5Secondary physics KLB students book 4 page 1Principles of physics (M.Nelkon( pages 300-301Golden tips Physics pages 113-114 |  |
|  | 2-3 | Lenses | Parts of fair lenses | By the end of the lesson, the learner should be able toDescribe the principal focus using ray diagramDescribe the optical center using ray diagramDescribe 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 lensGraph paperDiverging lensConverging lens | Comprehensive secondary physics students book 4 pages 1-3teachers book 3 pages 1-5Secondary physics KLB students book 4 page 6-7Principles of physics (M.Nelkon( pages 301-304Golden tips Physics pages 114-116 |  |
|  | 4-5 | Lenses | Focal length | By the end of the lesson, the learner should be able toDetermine experimentally the focal length of a converging lensDetermine the focal length of a converging lens using estimation method | Experiment to determine the focal length of a fair lens | Converging lensesScreen Pinscandle | Comprehensive secondary physics students book 4 pages 2-3teachers book 3 pages 1-5Secondary physics KLB students book 4 page 17-20Principles of physics (M.Nelkon( pages 303Golden tips Physics pages 116 |  |
| 3 | 1 | Lenses | Images in fair lenses | By the end of the lesson, the learner should be able to:Construct the principal rays for converging lensConstruct the principal rays for diverging lenses | Constructing the principal rays for diverging lensesConstructing the principal rays for converging lenses | Converging lensesDiverging lensesGraph papersRuler | Comprehensive secondary physics students book 4 pages 3-6teachers book 3 pages 1-5Secondary physics KLB students book 4 page 7-12Principles of physics (M.Nelkon( pages 304-306Golden tips Physics pages 114-116 |  |
| 4 | 2-3 | Lenses | Images in converging lenses | By the end of the lesson, the learner should be able to:Locate imaged formed by converging lenses using ray construction methodDescribe the images formed in converging lenses | Describing the characteristics of images formed in converging lenses | Graph paperGeometrical setConverging lensesscreen | Comprehensive secondary physics students book 4 pages 5-6teachers book 3 pages 1-5Secondary physics KLB students book 4 page 7-10Principles of physics (M.Nelkon( pages 304-305Golden tips Physics pages 114-116 |  |
|  | 4-5 | Lenses | Images in diverging lenses | By the end of the lesson, the learner should be able toLocate imaged formed by diverging lenses using ray construction methodDescribe the images formed in diverging lenses | Describe the characteristics of the formed in diverging lenses | Graph paperGeometrical setDiverging lensesScreen  | Comprehensive secondary physics students book 4 pages 5teachers book 3 pages 1-5Secondary physics KLB students book 4 page 11Principles of physics (M.Nelkon( pages 307-308Golden tips Physics pages 114-116 |  |
| 5 | 1 | Lenses | The microscope | By the end of the lesson, the learner should be able to Explain the working of a simple microscopeExplain the working of a compound microscope | Drawing and labeling the parts of a microscope Describing the work of a microscope | Simple microscopeCompound microscopeMagnifying lens | Comprehensive secondary physics students book 4 pages 10-11teachers book 4 pages 1-5Principles of physics 27-29(M.Nelkon) pages 320-323Golden tips Physics pages 119-120 |  |
|  | 2-3 | Lenses | The telescope | By the end of the lesson, the learner should be able toDescribe the structure of a telescopeDescribe the working of a telescope | Drawing and labeling the parts of a telescopeDescribing how a telescope works | TelescopeLensesManilla paper | Comprehensive secondary physics students book 4 pages 11teachers book 4 pages 1-5Principles of physics (M.Nelkon( pages 322-323Golden tips Physics pages 121 |  |
|  | 4-5 | Lenses | The camera | By the end of the lesson, the learner should be able to:Describe the parts of a cameraExplain the working of a cameraExplain the use of lenses in a camera | Describing the parts of a cameraExplaining the use of lenses in a camera | CameraCharts showing the parts of a camera | Comprehensive secondary physics students book 4 pages 11-12teachers book 4 pages 1-5Secondary physics KLB students book 4 page 33Principles of physics (M.Nelkon( pages 316-317Golden tips Physics pages 120-121 |  |
| 6 | 1 | Lenses | Image formation in the human eye | By the end of the lesson, the learner should be able to:Describe the parts of a human eyeExplain the function of each part of the human eye | Describing the parts of the human eyeExplaining the function of each part of the human eye | Chart showing the parts of human eyeModel of the human eye | Comprehensive secondary physics students book 4 pages 12-13teachers book 34pages 1-5Secondary physics KLB students book 4 page 29-31Principles of physics (M.Nelkon) pages 313-314Golden tips Physics pages 120-121 |  |
|  | 2-3 | Lenses | Working of the human eye | By the end of the lesson, the learner should be able toExplain 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 13-14teachers book 34pages 1-5Secondary physics KLB students book 4 page 29-31Principles of physics (M.Nelkon) pages 313-314Golden tips Physics pages 120-121 |  |
|  | 4-5 | Lenses | Defects of vision | By the end of the lesson, the learner should be able to:Describe the defects of the human eyeExplain the corrections of human eye defects | Describing the defects of the human eyeExplaining the eye defects are corrected | Charts showing eye defects and how they are corrected | Comprehensive secondary physics students book 4 pages 13-14teachers book 34pages 1-5Secondary physics KLB students book 4 page 31-32Principles of physics (M.Nelkon) pages 315-316Golden tips Physics pages 118-119 |  |
| 7 | 1-2 | Lenses | Revision | By the end of the lesson, the learner should be able:Describe the uses of lens in various optical devisesSolve problems involving thin lenses formulaSolve numerical problem involving the magnification formula | Problem solvingExercisesAssignments | Questions from past papers | Comprehensive secondary physics students book 4 pages 15-17teachers book 34pages 5-10Secondary physics KLB students book 4 page 33-36Principles of physics (M.Nelkon) pages 310-312,326-327Golden tips Physics pages 121-123 |  |
|  | 3 | Uniform Circular Motion | Circular motion | By the end of the lesson, the learner should be able to:Define circular motion | Observing and running a hoopRotate a stone tied to the end of a rope | HoopString/ropestore | Comprehensive secondary physics students book 4 pages 18teachers book 34pages 10-12Secondary physics KLB students book 4 page 37-45Principles of physics (M.Nelkon) pages 42-44Golden 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:Define the radiant measureDefine the angular displacement and velocityExplain the angular displacement and velocity | DiscussionsExperiment  | Illustration of angular displacement and angular velocity on a chart | Comprehensive secondary physics students book 4 pages 18-20teachers book 34pages 10-12Secondary physics KLB students book 4 page 37-42Golden tips Physics pages 34-35 |  |
| 8 | 1-2 | Uniform Circular Motion | Centripetal force | By the end of the lesson, the learner should be able toDescribe simple experiment on centripetal forceIllustrate centripetal forceDetermine the magnitude of centripetal force experimentally | ExperimentsDiscussionsobservations | PendulumStringStone Round table Ball/bob Stop clock | Comprehensive secondary physics students book 4 pages 20-21teachers book 34pages 10-12Secondary physics KLB students book 4 page 42-47Principles of physics (M.Nelkon) pages 42-45Golden tips Physics pages 37 |  |
|  | 3-4 | Uniform Circular Motion | Application of uniform circular motion | By the end of the lesson, the learner should be able to:State various uniform circular motionExplain various uniform circular motion | DiscussionsExplanationsExperiments | StringStoneRuler | Comprehensive secondary physics students book 4 pages 22-25teachers book 34pages 10-12Secondary physics KLB students book 4 page 37Golden 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:Explain centrifugeExplain vertical and horizontal circlesExplain banked tracks | DiscussionsExplanationsExperiments | StringStoneRuler  | Comprehensive secondary physics students book 4 pages 22-25teachers book 34pages 10-12Secondary physics KLB students book 4 page 47-53Golden tips Physics pages 41 |  |
| 9 | 1 | Uniform Circular Motion | Revision  | By the end of the lesson, the learner should b e able to solve problems involving circular motion | Problem solvingQuestions and answers | Questions from past papersExercises | Comprehensive secondary physics students book 4 pages 26-27teachers book 34pages 12-14Secondary physics KLB students book 4 page 55-45Principles of physics (M.Nelkon) pages 61-63Golden tips Physics pages 42-43 |  |
|  | 2-3 | Floating And Sinking | Archimedes’ principle | By the end of the lesson, the learner should be able toState Archimedes’ principleVerify Archimedes principleUse of Archimedes principle to solve problems | ExperimentsDiscussionsCalculations based on Archimedes Principle | WaterMeasuring cylinderWeighing balanceOverflow canObjects denser than water | Comprehensive secondary physics students book 4 pages 28-29teachers book 34pages 14-17Secondary physics KLB students book 4 page 58-60Principles of physics (M.Nelkon) pages 106-108Golden tips Physics pages 53-54 |  |
|  | 4-5 | Floating And Sinking | The laws of floatationRelative density | By the end of the lesson, the learner should be able toState the law of floatationDefine relative density | DiscussionsMeasuring  | Density bottleOverflow canSpring balancemeasuring cylinder | Comprehensive secondary physics students book 4 pages 29-33teachers book 34pages 14-17Secondary physics KLB students book 4 page 64-70Principles of physics (M.Nelkon) pages 101,108-110 |  |
| 10 | 1-3 | Floating And Sinking | Applications of floating and sinking | By the end of the lesson, the learner should be able to:Describe the applications of Archimedes PrincipleDescribe the applications of relative density (hydrometer) | Discussionsexperiments | charts depicting the uses of Archimedes principle and the law of floatationA hydrometer | Comprehensive secondary physics students book 4 pages 33-35teachers book 34pages 14-17Secondary physics KLB students book 4 page 75-77Principles of physics (M.Nelkon) pages 113-115Golden tips Physics pages 53 |  |
|  | 4-5 | Floating And Sinking | Revision | By the end of the lesson, the learner should be able to:*© Education Plus Agencies*Solve problems involving Archimedes principleSolve problems involving relative density | Questions and answersDiscussionsExercisesassignments | test papersquestions from exercises | Comprehensive secondary physics students book 4 pages 35-36teachers book 34pages 18Secondary physics KLB students book 4 page 77-78Principles of physics (M.Nelkon) pages 116-118Golden tips Physics pages 54-55 |  |
| 11 | 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 79Principles of physics (M.Nelkon) pages 345Golden tips Physics pages 174 |  |
|  | 2-3 | Electromagnetic Spectrum | The properties of electromagnetic waves | By the end of the lesson, the learner should be able toState 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 80-81Principles of physics (M.Nelkon) pages 345Golden tips Physics pages 175 |  |
|  | 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 |  |
| 12 | 1-2 | Electromagnetic Spectrum | Applications of electromagnetic radiations | By the end of the lesson, the learner should be able toDescribe 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 82Principles of physics (M.Nelkon) pages 336Golden tips Physics pages 175-176 |  |
|  | 3-4 | Electromagnetic Spectrum | Problems on C=FX | By the end of the lesson, the learner should be able toSolve 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 |  |
|  | 5 | Electromagnetic Spectrum | Revision | By the end of the lesson, the learner should be able to:Solve problems involving electromagnetic spectrum | Problem solvingQuestions and answers | Exercises in students book 4Past papers questions | Comprehensive secondary physics students book 4 pages 45teachers book 34pages 20-21 |  |
| 13 | 1-2 | 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 86-91Principles of physics (M.Nelkon) pages 478-479Golden 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 toState 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 91-93Principles of physics (M.Nelkon) pages 483-484Golden tips Physics pages 153 |  |
|  | 5 | Electromagnetic Induction | Fleming’s right hand rule | By the end of the lesson, the learner should be able to:State Fleming’s right hand ruleApply Fleming’s right hand rule | Explanation of the motor ruleDiscussion of the application of electromagnetic induction | MagnetsWireSource of current | Comprehensive secondary physics students book 4 pages 49-50teachers book 34pages 21-25Secondary physics KLB students book 4 page 93-97Principles of physics (M.Nelkon) pages 481-482Golden tips Physics pages 153 |  |
| 14 | 1-2 | Electromagnetic Induction | Generators | By the end of the lesson, the learner should be able toExplain the working of an a.c generatorExplain the working of a d.c generator | Drawing the arrangement for a.c and 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 100-104Principles of physics (M.Nelkon) pages 488-490Golden tips Physics pages 156-157 |  |
|  | 3-4 | Electromagnetic Induction | Generators | By the end of the lesson, the learner should be able toExplain 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 Principles of physics (M.Nelkon) pages Golden tips Physics pages 154 |  |
| **15** |  | **END YEAR EXAMINATIONS** |  |

**PHYSICS SCHEMES OF WORK**

**FORM FOUR 2016**

**TERM II**

**REFERENCES:**

1. Secondary Physics KLB
2. Comprehensive Secondary Physics
3. Principles of Physics
4. Golden Tips
5. Teacher’s Book

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **WK** | **LSN** | **TOPIC** | **SUB-TOPIC** | **OBJECTIVES** | **L/ACTIVITIES** | **L/T AIDS** | **REFERENCE** | **REMARKS** |
| **1** | **1-5** | **REPORTING AND REVISION OF LAST TERM’S EXAMS** |  |
| 2 | 1-2 | Electromagnetic Induction | Eddy currents | By the end of the lesson, the learner should be able toExplain eddy currentsDemonstrate the effects of eddy currents | DiscussionsExperimentsExplanations  | PendulumCopper wireMagnets  | Comprehensive secondary physics students book 4 pages 53-54teachers book 4 pages 24 |  |
|  | 3 | Electromagnetic Induction | Eddy currents | By the end of the lesson, the learner should be able toExplain 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 Principles of physics (M.Nelkon) pages 483-484Golden tips Physics pages 158 |  |
|  | 4-5 | Electromagnetic Induction | Mutual inductance | By the end of the lesson, the learner should be able toDescribe 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 |  |
| 3 | 1-2 | Electromagnetic Induction | Transformers | By the end of the lesson, the learner should be able toExplain 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 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 toExplain the application of electromagnetic inductionSolve problems on transformers | DiscussionsExplanationsQuestions and answers | Induction coilMoving coil/loud speaker | Comprehensive secondary physics students book 4 pages 54-59teachers book 34pages 21-25Secondary physics KLB students book 4 page 107-112Principles 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 answersDiscussions  | Questions from past papers | Comprehensive secondary physics students book 4 pages 59-60teachers book 34pages 26-27Secondary physics KLB students book 4 page 112-116Principles of physics (M.Nelkon) page 494-495 Golden tips Physics pages 159 |  |
| 4 | 1 | Main Electricity | Source of main electricity | By the end of the lesson, the learner should be able to:State sources of main electricityExplain the sources of main electricity | DiscussionsEducational trips | Pictures and charts showing sources of main electricity | Comprehensive secondary physics students book 4 pages 61teachers book 3 pages 27-29Secondary physics KLB students book 4 page 117Golden tips Physics pages 160 |  |
|  | 2-3 | Main Electricity | Power transmission | By the end of the lesson the learner should be able toDescribe the transmission of electric power from the generating stationExplain the domestic wiring system | DiscussionsQuestions and answers | Photos of power transmissionLines and power substations | Comprehensive secondary physics students book 4 pages 62teachers book 3 pages 27-29Secondary physics KLB students book 4 page 117-122Principles of physics (M.Nelkon( pages 433-434Golden tips Physics pages 160-163 |  |
|  | 4-5 | 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 428Golden tips Physics pages 164 |  |
| 5 | 1-2 | Mains Electricity | Domestic wiring | By the end of the lesson, the learner should be able toExplain 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 125-121-122Principles of physics (M.Nelkon( pages 433-435Golden tips Physics pages 162 |  |
|  | 3 | 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 125-122-124Principles of physics (M.Nelkon( pages 433,435Golden 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 solvingDiscussionsQuestions and answers | Questions from past papersQuizzes Exercises | Comprehensive secondary physics students book 4 pages 70-71teachers book 4 pages 29-30Secondary physics KLB students book 4 page 125-128-130Principles of physics (M.Nelkon) pages 436-438Golden tips Physics pages 164-165 |  |
| 6 | 1-2 | 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 131-133Principles of physics (M.Nelkon) pages 532,535-536Golden tips Physics pages 166-167 |  |
|  | 3-4 | Cathode Rays | The cathode rays Oscilloscope | By the end of the lesson, the learner should be able toExplain the functioning of the cathode ray oscilloscopeExplain the functioning of a T.V tube | 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 73-75teachers book 4 pages 30-32Secondary physics KLB students book 4 page 133-134Principles of physics (M.Nelkon) pages 541-545Golden tips Physics pages 167-169 |  |
|  | 5 | Cathode Rays | The cathode rays of Oscilloscope | By the end of the lesson, the learner should be able toExplain 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 139Principles of physics (M.Nelkon) pages 541-544Golden tips Physics pages 169 |  |
| 7 | 1-2 | Cathode Rays | Revision | By the end of the lesson, the learner should be able to solve problems involving cathode rays | Problem solvingdiscussions | QuizzesExercises | Comprehensive secondary physics students book 4 pages 77-79teachers book 4 pages 32-34Secondary physics KLB students book 4 page 142-143Principles of physics (M.Nelkon) pages 554-555Golden 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: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 144-148Principles of physics (M.Nelkon) pages 545-547Golden tips Physics pages 171-173 |  |
| 8 | 1-2 | X-Rays | Dangers of x-rays | By the end of the lesson, the learner should be able to:Explain and state the dangers of X-rays Highlight the precautions to be undertaken when handling x-rays | DiscussionsExplanations | Charts showing the dangers of x-raysHospital with x-ray equipment | Comprehensive secondary physics students book 4 pages 84teachers book 4 pages 35-36Secondary physics KLB students book 4 page 149Principles of physics (M.Nelkon) pages 546Golden tips Physics pages 173 |  |
|  | 3 | X-Rays | Uses of x-rays | 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 148Golden tips Physics pages 174 |  |
|  | 4-5 | X-Rays | Revision | By the end of the lesson, the learner should be able to:Solve problems involving X-rays | DiscussionsProblem solving | QuizzesExercisePast papers questions | Comprehensive secondary physics students book 4 pages 85-86teachers book 4 pages 36-37Secondary physics KLB students book 4 page 146-147Golden tips Physics pages 172-173 |  |
| 9 | 1-2 | Photo Electric Effect | Photo electric emissions | 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 151-152Principles of physics (M.Nelkon) pages 547Golden tips Physics pages 177 |  |
|  | 3 | Photo-Electric | Factors effecting photoelectric emissions | By the end of the lesson, the learner should be able toState the factors affecting photo-electric emissionExplain the factors affecting the photoelectric emissions | DiscussionsDemonstrations | charts | Comprehensive secondary physics students book 4 pages 88-90teachers book 4 pages 38-40Secondary physics KLB students book 4 page 156-158Golden tips Physics pages 179 |  |
|  | 4-5 | Photo-Electric | Plank’s constant | By the end of the lesson, the learner should be able toDefine plank’s constant threshold frequency work function and photoelectric effectExplain threshold frequency, work function and photoelectric effect | DiscussionsDemonstration | charts | Comprehensive secondary physics students book 4 pages 90-91teachers book 4 pages 38-40Secondary physics KLB students book 4 page 153-156Golden tips Physics pages 177-179 |  |
| 10 | 1-5 | Photo-Electric | The quantum theory of light | By the end of the lesson, the learner should be able to:Determine the energy of p photosApply the equation E=hf to calculate the energy of photosExplain photoelectric effect using Einstein’s equation=hf+1/2mv2 | DiscussionsCalculations | Chart on the use of Einstein’s equation | Comprehensive secondary physics students book 4 pages 90-92teachers book 4 pages 38-40Secondary physics KLB students book 4 page 153-156Golden tips Physics pages 178-180 |  |
| 11 | 1-3 | Photo-Electric | Application of photoelectric effect | By the end of the lesson, the learner should be able toExplain the working of aPhoto emissive cellPhoto conductive cellPhoto voltaic cell | DemonstrationsDiscussions | Charts on the photo cell and how it worksSolar panelsWatch cells | Comprehensive secondary physics students book 4 pages 92-93teachers book 4 pages 38-40Secondary physics KLB students book 4 page 160-163Golden tips Physics pages 180-181 |  |
|  | 4-5 | Photo-Electric Effect | Revision | By the end of the lesson, the learner should be able to:Solve problems involving photo-electric effect | Questions and answers | Set questionsProjectsQuestions from past papers | Comprehensive secondary physics students book 4 pages 94-95teachers book 4 pages 40-42Secondary physics KLB students book 4 page 163-165Golden tips Physics pQuestions from past papers |  |
| 12 | 1-2 | Radio Activity | Types of radiation | By the end of the lesson, the learner should be able toDescribe the three types of radiations produced by radioactive elements | Discussions  | Radiationdetectors | Comprehensive secondary physics students book 4 pages 96-100Secondary physics KLB students book 4 page 167-171Principles of physics (M.Nelkon) pages 556-564Golden 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 | DemonstrationsDiscussions | Radiation detectors | Comprehensive secondary physics students book 4 pages 96-100Secondary physics KLB students book 4 page 172-175Principles of physics (M.Nelkon) pages 556-564Golden 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 | Demonstrationsdiscussions | Radiation detectors | Comprehensive secondary physics students book 4 pages 100Secondary physics KLB students book 4 page 173-174Principles of physics (M.Nelkon) pages 557-558Golden tips Physics pages 189 |  |
| **13** |  | **MID YEAR EXAMS** |  |
| **14** |  | **PREPARATION OF REPORTS AND CLOSING** |  |

**PHYSICS SCHEMES OF WORK**

**FORM FOUR 2016**

**TERM III**

**REFERENCES:**

1. Secondary Physics KLB
2. Comprehensive Secondary Physics
3. Principles of Physics
4. Golden Tips
5. Teacher’s Book

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| **WK** | **LSN** | **TOPIC** | **SUB-TOPIC** | **OBJECTIVES** | **L/ACTIVITIES** | **L/T AIDS** | **REFERENCE** | **REMARKS** |
| **1** | **1-5** | **REPORTING AND REVISION OF LAST TERM’S EXAMS** |  |
| 2 | 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 100-102teachers book 4 pages 42-45Secondary physics KLB students book 4 page 176-181Principles of physics (M.Nelkon) pages 566-568Golden tips Physics pages 186-187 |  |
|  | 3-5 | Radioactivity | Nuclear fission and fusion | By the end of the lesson, the learner should be able toDefine nuclear fission and nuclear fusionWrite balanced nuclear equationsState the application of radioactivity | DiscussionsProblem solving | Periodic table | Comprehensive secondary physics students book 4 pages 100-108teachers book 4 pages 42-45Secondary physics KLB students book 4 page 181-184Principles of physics (M.Nelkon) pages 573-578Golden tips Physics pages 190 |  |
| 3 | 1-3 | Radio-Activity | Hazards of radioactivity | By the end of the lesson, the learner should be able toExplain the dangers of radioactive emissions | discussions | diffusion cloud chamber | Comprehensive secondary physics students book 4 pages 105-106teachers book 4 pages 42-45Secondary physics KLB students book 4 page 182Principles of physics (M.Nelkon) pages 565-566Golden 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 questionsPast papers questionsExercises | Comprehensive secondary physics students book 4 pages 105-106teachers book 4 pages 45-48Secondary physics KLB students book 4 page 184-185Principles of physics (M.Nelkon) pages 579-581Golden tips Physics pages 191 |  |
| 4 | 1-2 | Electronics  | Conductors and semi-conductors | By the end of the lesson, the learner should be able toDifferentiate between conductors and semi-conductors | DiscussionsExperiments  | Some semi-conductorsSome insulator | Comprehensive secondary physics students book 4 pages 110-111teachers book 4 pages 45-48Secondary physics KLB students book 4 page 187-189Golden 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:Explain doping in semi-conductorsExplain the working of p-n junction diodeDistinguish between intrinsic and extrinsic semi-conductors | Discussions Experiments  | Samples of semi-conductorsComplete circuitTransistorsJunction diode | Comprehensive secondary physics students book 4 pages 111-112teachers book 4 pages 48-52Secondary physics KLB students book 4 page 189-194Principles of physics (M.Nelkon) pages 547-550Golden tips Physics pages 193-196 |  |
| 5 | 1-5 | Electronics | Characteristics of p-n junction | By the end of the lesson, the learner should be able tosketch the current voltage characteristics for a diode | experiments | junction diode | Comprehensive secondary physics students book 4 pages 161-117teachers book 4 pages 48-52Secondary physics KLB students book 4 page 189-194Golden tips Physics pages 194-196 |  |
| 6 | 1-5 | Electronics | Applications of diodes | By the end of the lesson, the learner should be able toexplain the application of diodes in rectifications | DiscussionsQuestions and answers | Chart showing the application of diode | Comprehensive secondary physics students book 4 pages 117-120teachers book 4 pages 48-52Secondary physics KLB students book 4 page 198-201Principles of physics (M.Nelkon) pages 198-201Golden tips Physics pages 196-198 |  |
| **7** |  | **REVISION FOR KCSE** |  |
| **8** |  | **KCSE EXAMS** |  |