**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

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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 lenses  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  Describe the principal focus using ray diagram  Describe the optical center using ray diagram  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  Determine experimentally the focal length of a converging lens  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 |  |
| 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 lens  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 |  |
| 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 method  Describe the images formed in converging lenses | Describing the characteristics of images formed in converging lenses | Graph paper  Geometrical set  Converging lenses  screen | Comprehensive secondary physics students book 4 pages 5-6  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  Locate imaged formed by diverging lenses using ray construction method  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 |  |
| 5 | 1 | Lenses | The microscope | By the end of the lesson, the learner should be able to  Explain the working of a simple microscope  Explain the working of a compound microscope | 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 27-29(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  Describe the structure of a telescope  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:  Describe the parts of a camera  Explain the working of a camera  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 |  |
| 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 eye  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  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:  Describe the defects of the human eye  Explain the corrections of human eye defects | Describing the defects of the human eye  Explaining the eye defects are corrected | Charts showing eye defects and how they are corrected | Comprehensive secondary physics students book 4 pages 13-14  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 |  |
| 7 | 1-2 | Lenses | Revision | By the end of the lesson, the learner should be able:  Describe the uses of lens in various optical devises  Solve problems involving thin lenses formula  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:  Define circular motion | Observing and running a hoop  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:  Define the radiant measure  Define the angular displacement and velocity  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 |  |
| 8 | 1-2 | Uniform Circular Motion | Centripetal force | By the end of the lesson, the learner should be able to  Describe simple experiment on centripetal force  Illustrate centripetal force  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 | Uniform Circular Motion | Application of uniform circular motion | By the end of the lesson, the learner should be able to:  State various uniform circular motion  Explain various uniform circular motion | 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 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:  Explain centrifuge  Explain vertical and horizontal circles  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 |  |
| 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 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  State Archimedes’ principle  Verify Archimedes principle  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  State the law of floatation  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 |  |
| 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 Principle  Describe the applications of relative density (hydrometer) | 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  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:  *© Education Plus Agencies*  Solve problems involving Archimedes principle  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 |  |
| 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 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  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:  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 |  |
| 12 | 1-2 | 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 42-45  teachers book 34pages 18-20  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  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:  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 |  |
| 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 induction  State the factors affecting the magnitude of an induced e.m.f  State the factors affecting the direction induced by e.m.f | Experiments  discussions | magnets  complete  electric circuit | Comprehensive secondary physics students book 4 pages 46-48  teachers book 34pages 21-25  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  State Faraday’s law  State Lenz’s law  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:  State Fleming’s right hand rule  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 |  |
| 14 | 1-2 | Electromagnetic Induction | Generators | By the end of the lesson, the learner should be able to  Explain the working of an a.c generator  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  Explain the working of an a.c generator  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 |  |
| **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 to  Explain eddy currents  Demonstrate the effects of eddy currents | Discussions  Experiments  Explanations | Pendulum  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  Explain eddy currents  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  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 |  |
| 3 | 1-2 | Electromagnetic Induction | Transformers | By the end of the lesson, the learner should be able to  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  Explain the application of electromagnetic induction  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 |  |
| 4 | 1 | Main Electricity | Source of main electricity | By the end of the lesson, the learner should be able to:  State sources of main electricity  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  Describe the transmission of electric power from the generating station  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:  Define kilowatt hour  Determine the electrical energy consumption and cost | Discussions  calculations | Chats on power consumptions | Comprehensive secondary physics students book 4 pages 63-66  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 |  |
| 5 | 1-2 | Mains Electricity | Domestic wiring | By the end of the lesson, the learner should be able to  Explain the domestic wiring system  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:  Explain the function of fuse in domestic wiring  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 |  |
| 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 rays  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  Explain the functioning of the cathode ray oscilloscope  Explain 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 73-75  teachers book 4 pages 30-32  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  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 |  |
| 7 | 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:  Explain the production of x-rays  State and explain the properties of X-rays  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 |  |
| 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 | 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  State the uses of X-rays  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:  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 |  |
| 9 | 1-2 | Photo Electric Effect | Photo electric emissions | By the end of the lesson ,the learner should be able to  Perform simple experiments to illustrate photo electric effect  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  State the factors affecting photo-electric emission  Explain the factors affecting the photoelectric emissions | Discussions  Demonstrations | charts | Comprehensive secondary physics students book 4 pages 88-90  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  Define plank’s constant threshold frequency work function and photoelectric effect  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 |  |
| 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 photos  Apply the equation E=hf to calculate the energy of photos  Explain photoelectric effect using Einstein’s equation=hf+1/2mv2 | 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 |  |
| 11 | 1-3 | Photo-Electric | Application of photoelectric effect | By the end of the lesson, the learner should be able to  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:  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 |  |
| 12 | 1-2 | Radio Activity | Types of radiation | By the end of the lesson, the learner should be able to  Describe the three types of radiations produced by radioactive elements | Discussions | Radiation  detectors | Comprehensive secondary physics students book 4 pages 96-100  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  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  Secondary physics KLB students book 4 page 173-174  Principles of physics (M.Nelkon) pages 557-558  Golden 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 100-102  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  Define nuclear fission and nuclear fusion  Write balanced nuclear equations  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 |  |
| 3 | 1-3 | Radio-Activity | Hazards of radioactivity | By the end of the lesson, the learner should be able to  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 |  |
| 4 | 1-2 | Electronics | Conductors and semi-conductors | By the end of the lesson, the learner should be able to  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:  Explain doping in semi-conductors  Explain the working of p-n junction diode  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 |  |
| 5 | 1-5 | Electronics | Characteristics of p-n junction | By the end of the lesson, the learner should be able to  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 |  |
| 6 | 1-5 | Electronics | Applications of diodes | By the end of the lesson, the learner should be able to  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 |  |
| **7** |  | **REVISION FOR KCSE** | | | | | |  |
| **8** |  | **KCSE EXAMS** | | | | | |  |