PHYSICS SCHEMES OF WORK FORM 3

TERM 2

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **WK** | **LSN** | **TOPIC** | **SUB-TOPIC** | **OBJECTIVES** | **T/L ACTIVITIES** | **T/L AIDS** | **REFERENCE** | **REM** |
| 1 | **Opening and Revision** |
| 2 | 1 | Energy, Work, Power And Machines  | Energy  | By the end of the lesson, the learner should be able to: Define energy Describe various forms of energy  | Defining energyStating the forms of energyIdentifying and describing energy transformation  | Chart on the forms of energy and transformation  | Comprehensive secondary physics students book 3 pages34-35Comprehensive secondary physics teachers book 3 pages 17-18Secondary physics KLB students book 3 page 121,122-125   |  |
| 2 | Energy, Work, Power And Machines  | Energy  | By the end of the lesson, the learner should be able to: Define energy Describe various forms of energy  | Defining energyStating the forms of energyIdentifying and describing energy transformation  | Chart on the forms of energy and transformation  | Comprehensive secondary physics students book 3 pages34-35Comprehensive secondary physics teachers book 3 pages 17-18Secondary physics KLB students book 3 page 121,122-125   |  |
| 3 | Energy, Work, Power And Machines  | Sources of energy Renewable Non-renewable  | By the end of the lesson, the learner should be able to: Describe renewable and non-renewable sources of energy  | Discussion on the sources of energyDescriptions of renewable and non-renewable sources of energy  | Chart on the sources of energy  | Comprehensive secondary physics students book 3 pages41Comprehensive secondary physics teachers book 3 pages 19-21Secondary physics KLB students book 3 page 121,122-125  |  |
| 4-5 | Energy, Work, Power And Machines  | Sources of energy Renewable Non-renewableKinetic energy Potential energy power  | By the end of the lesson, the learner should be able to: Describe renewable and non-renewable sources of energydefine powerexplain the meaning of power potential and kinetic energiesdistinguish between kinetic energy and potential energy  | Discussion on the sources of energyDescriptions of renewable and non-renewable sources of energyDiscussion and the meanings of kinetic energy and potential energyDefining powerDistinguishing between kinetic energy and potential energy  | Chart on the sources of energyObject that can be liftedSpring balance  | Comprehensive secondary physics students book 3 pages41Comprehensive secondary physics teachers book 3 pages 19-21Secondary physics KLB students book 3 page 121,122-125Comprehensive secondary physics students book 3 pages 43-45Comprehensive secondary physics teachers book 3 pages 18-22Secondary physics KLB students book 3 page 126-132,134-136   |  |
| 3 | 1 | Energy, Work, Power And Machines  | Simple machines  | By the end of the lesson, the learner should be able to: State and describe the efficiency of various machines  | Discussion on efficiency of different machinesExperiments to illustrate efficiency of various machinesProblem solving  | LeversPulleysInclined planesStringsMasses  | Comprehensive secondary physics students book 3 pages 45-51Comprehensive secondary physics teachers book 3 pages 18-22Secondary physics KLB students book 3 page 137-159   |  |
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| 3 | Energy, Work, Power And Machines  | The law of conservation of energy  | By the end of the lesson, the learner should be able to: State the laws of conservation of energy Explain the applications of the laws of conservations of energy  | Discussion on the law of conservation of energy  | Chart on the laws of conservation of energy  | Comprehensive secondary physics students book 3 pages 41-42Comprehensive secondary physics teachers book 3 pages 20-21Secondary physics KLB students book 3 page 132-134   |  |
| 4-5 | Energy, Work, Power And Machines Energy, Work, Power And Machines  | The law of conservation of energy Work  | By the end of the lesson, the learner should be able to: State the laws of conservation of energy Explain the applications of the laws of conservations of energyDefine workExplain the concept of work and energy  | Discussion on the law of conservation of energyExperiment on work done by moving objects through a distanceProblem solving  | Chart on the laws of conservation of energyMassesWooden blockSpring balance  | Comprehensive secondary physics students book 3 pages 41-42Comprehensive secondary physics teachers book 3 pages 20-21Secondary physics KLB students book 3 page 132-134 Comprehensive secondary physics students book 3 pages 42-43Comprehensive secondary physics teachers book 3 pages 18-22Secondary physics KLB students book 3 page 125-132   |  |
| 4 | 1 | Current Electricity Ii  | Electric current Scale reading  | By the end of the lesson, the learner should be able to: Define potentialDifferentiate and state its SI unitsMeasure potential difference and current in a circuit  | Defining potential differenceMeasuring P.dDiscussion on p.d and currentExperiments to illustrate p.d and current  | AmmeterVoltmeterBatteryConnecting wires  | Comprehensive secondary physics students book 3 pages 54-55Comprehensive secondary physics teachers book 3 pages 24-28Secondary physics KLB students book 3 page 161-164   |  |
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| 4-5 | Current Electricity Ii  | Ohm?s LawMeasurement of resistance  | By the end of the lesson, the learner should be able to: Derive and verify ohm?s lawState ohm?s lawDescribe experiment to measure resistance using ? voltmeter methodThe Wheatstone bridge methodThe meter bridge  | Experiments verifying ohm?s lawStating ohm?s lawExperiments to measure resistance of materials  | AmmeterVoltmeterRheostatWiresDry cellsAmmetersVoltmetersRheostatsConnecting wiresResistance wireDry cellsSwitchesMeter bridgeWheatstone bridgeResisters with known resistance  | Comprehensive secondary physics students book 3 pages 55-57Comprehensive secondary physics teachers book 3 pages 24-28Secondary physics KLB students book 3 page 168-171Comprehensive secondary physics students book 3 pages 57-59Comprehensive secondary physics teachers book 3 pages 26-28Secondary physics KLB students book 3 page 177-180  |  |
| 5 | 1 | Current Electricity  | Ammeters and voltmeters  | By the end of the lesson, the learner should be able to: Measure potential difference and current in a circuit using the ammeters  | Scale readingConverting units of measurementsDiscussing simple electric circuits  | AmmetersVoltmetersBatteryWiresRheostat  | Comprehensive secondary physics students book 3 pages 54-55Comprehensive secondary physics teachers book 3 pages 24-28Secondary physics KLB students book 3 page 164-168   |  |
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| 4-5 | Current Electricity  | Voltage-current relationships  | By the end of the lesson, the learner should be able to: Define resistance and state its SI unitDetermine experientially the voltage currentRelationship for resistance in series and parallel  | Defining resistanceExperiments to determine the relationship between voltage-current  | Resistance wireRheostatBatteryVoltmeterAmmeterConnecting wires  | Comprehensive secondary physics students book 3 pages 57-59Comprehensive secondary physics teachers book 3 pages 26-28Secondary physics KLB students book 3 page 171-177   |  |
| 6 | 1 | Current Electricity  | Effective resistance for registers in series and parallel  | By the end of the lesson, the learner should be able to: Derive effective resistance | Discussions on deriving the effective resistanceDeriving effective resistance of registers in parallel and series  | CellsResistorsAmmetersVoltmeterswires  | Comprehensive secondary physics students book 3 pages 60-66Comprehensive secondary physics teachers book 3 pages 24-28Secondary physics KLB students book 3 page 180-189  |  |
| 2 | Current Electricity  | Effective resistance for registers in series and parallel  | By the end of the lesson, the learner should be able to: Derive effective resistance | Discussions on deriving the effective resistanceDeriving effective resistance of registers in parallel and series  | CellsResistorsAmmetersVoltmeterswires  | Comprehensive secondary physics students book 3 pages 60-66Comprehensive secondary physics teachers book 3 pages 24-28Secondary physics KLB students book 3 page 180-189  |  |
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| 4-5 | Current Electricity  | E.m.f and internal resistance (E=V+1r)  | By the end of the lesson, the learner should be able to: Determine e.m.f Explain the internal resistance of a cell  | Explanation on internal resistanceDemonstration on e.m.f and internal resistanceDiscussion on e.m.f  | VoltmetersAmmeterCellsConnecting wires  | Comprehensive secondary physics students book 3 pages 62-63Comprehensive secondary physics teachers book 3 pages 24-28Secondary physics KLB students book 3 page 190-195   |  |
| 7 | 1 | Waves II  | Properties of waves  | By the end of the lesson, the learner should be able to: State and explain the properties of waves experimentallySketch wave fronts to illustrate the reflections  | Stating and explaining the properties of wavesSketching wave fronts illustrate reflection  | Rope/wireVarious reflections  | Comprehensive secondary physics students book 3 pages 67-69Comprehensive secondary physics teachers book 3 pages 29-32Secondary physics KLB students book 3 page 198-203  |  |
| 2 | Waves II  | Diffraction, refraction and interference of waves  | By the end of the lesson, the learner should be able to: Sketch various wave fonts to illustrate their diffraction, refraction and interference  | Sketching various wave fontsExperiments to illustrate refraction, diffraction and interference  | WaterBasinRippleTank  | Comprehensive secondary physics students book 3 pages 70-73Comprehensive secondary physics teachers book 3 pages 29-32Secondary physics KLB students book 3 page 203-212   |  |
| 3 | Waves II  | Diffraction, refraction and interference of waves  | By the end of the lesson, the learner should be able to: Sketch various wave fonts to illustrate their diffraction, refraction and interference  | Sketching various wave fontsExperiments to illustrate refraction, diffraction and interference  | WaterBasinRippleTank  | Comprehensive secondary physics students book 3 pages 70-73Comprehensive secondary physics teachers book 3 pages 29-32Secondary physics KLB students book 3 page 203-212   |  |
| 4-5 | Waves II  | Diffraction, refraction and interference of wavesConstructive and distractive waves  | By the end of the lesson, the learner should be able to: Sketch various wave fonts to illustrate their diffraction, refraction and interferenceExplain constructive and destructive interference  | Sketching various wave fontsExperiments to illustrate refraction, diffraction and interferenceDiscussion on constructive and destructive interferenceExperiments constructive and destructive interference  | WaterBasinRippleTankRipple tankRope/wire  | Comprehensive secondary physics students book 3 pages 70-73Comprehensive secondary physics teachers book 3 pages 29-32Secondary physics KLB students book 3 page 203-212 Comprehensive secondary physics students book 3 pages 73-74Comprehensive secondary physics teachers book 3 pages 29-32Secondary physics KLB students book 3 page 203-212   |  |
| 8 | **Mid Term Exams and Break** |
| 9 | 1 | Waves II  | Stationary waves  | By the end of the lesson, the learner should be able to: Describe experiments to illustrate stationary waves  | Demonstration and explaining of stationery waves  | Wires under tension  | Comprehensive secondary physics students book 3 pages 74Comprehensive secondary physics teachers book 3 pages 29-32Secondary physics KLB students book 3 page 212-215   |  |
| 2 | Waves II  | Stationary waves  | By the end of the lesson, the learner should be able to: Describe experiments to illustrate stationary waves  | Demonstration and explaining of stationery waves  | Wires under tension  | Comprehensive secondary physics students book 3 pages 74Comprehensive secondary physics teachers book 3 pages 29-32Secondary physics KLB students book 3 page 212-215   |  |
| 3 | Waves II  | Stationary waves  | By the end of the lesson, the learner should be able to: Describe experiments to illustrate stationary waves  | Demonstration and explaining of stationery waves  | Wires under tension  | Comprehensive secondary physics students book 3 pages 74Comprehensive secondary physics teachers book 3 pages 29-32Secondary physics KLB students book 3 page 212-215   |  |
| 4-5 | Waves II  | Stationary wavesVibrating air columns  | By the end of the lesson, the learner should be able to: Describe experiments to illustrate stationary wavesDescribe and explain closed pipe and open pipe  | Demonstration and explaining of stationery wavesDescribing vibrations in close and open pipes  | Wires under tensionOpen and closed pipes  | Comprehensive secondary physics students book 3 pages 74Comprehensive secondary physics teachers book 3 pages 29-32Secondary physics KLB students book 3 page 212-215 Comprehensive secondary physics students book 3 pages 74Comprehensive secondary physics teachers book 3 pages 29-32Secondary physics KLB students book 3 page 218-220   |  |
| 10 | 1 | Electrostatics Ii  | Electric field patterns  | By the end of the lesson, the learner should be able to: Sketch electric field patterns around charged bodies  | Discussion on electric field patternsObserving and plotting field patterns  | Charts on magnetic fields  | Comprehensive secondary physics students book 3 pages 76-77Comprehensive secondary physics teachers book 3 pages 34-39Secondary physics KLB students book 3 page 222-225P  |  |
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| 4-5 | Electrostatics Ii  | Electric field patternsCharge distribution on conductors  | By the end of the lesson, the learner should be able to: Sketch electric field patterns around charged bodiesDescribe charge distribution on conductors:Spherical and pear shaped conductors  | Discussion on electric field patternsObserving and plotting field patternsDiscussions on charge distribution on conductorsExperiment is demonstrated/illustrate charge distribution on conductors  | Charts on magnetic fieldsVande Graaf generatorChart showing charge distribution on different conductorsGold leaf electroscope | Comprehensive secondary physics students book 3 pages 76-77Comprehensive secondary physics teachers book 3 pages 34-39Secondary physics KLB students book 3 page 222-225PComprehensive secondary physics students book 3 pages 77-78Comprehensive secondary physics teachers book 3 pages 34-39Secondary physics KLB students book 3 page 225-228   |  |
| 11 | 1 | Electrostatics Ii  | Lighting arrestor  | By the end of the lesson, the learner should be able to: Explain how lightning arrestor works  | Discussions on the lighting arrestorExplanations on the lighting arrestor  | Improvised lighting arrestorPhotographs of lightning arrestor  | Comprehensive secondary physics students book 3 pages 79-80Comprehensive secondary physics teachers book 3 pages 34-39Secondary physics KLB students book 3 page 229-230   |  |
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| 4-5 | Electrostatics Ii  | Lighting arrestorCapacitance  | By the end of the lesson, the learner should be able to: Explain how lightning arrestor worksDefine capacitance and state its SI unitsDescribe the charging and discharging of a capacitorState and explain the factors that affect the capacitance of a parallel plate capacitor  | Discussions on the lighting arrestorExplanations on the lighting arrestorExperiments on charging and discharging capacitorDiscussion on factors affecting capacitanceDefining capacitance  | Improvised lighting arrestorPhotographs of lightning arrestorComplete circuitscapacitors  | Comprehensive secondary physics students book 3 pages 79-80Comprehensive secondary physics teachers book 3 pages 34-39Secondary physics KLB students book 3 page 229-230 Comprehensive secondary physics students book 3 pages 80-82Comprehensive secondary physics teachers book 3 pages 34-39Secondary physics KLB students book 3 page 230-237  |  |
| 12 | 1 | Electrostatics Ii  | Combinations of capacitors  | By the end of the lesson, the learner should be able to: Derive the effective capacitance of capacitors in series and parallel  | Deriving effective capacitance of capacitors in series and parallelSolving problemsDiscussion in the effective capacitance  | Capacitors in series and parallel connectionsCharts showing complete circuits  | Comprehensive secondary physics students book 3 pages 80-82Comprehensive secondary physics teachers book 3 pages 34-39Secondary physics KLB students book 3 page 237-241   |  |
| 2 | Electrostatics Ii  | Combinations of capacitors  | By the end of the lesson, the learner should be able to: Derive the effective capacitance of capacitors in series and parallel  | Deriving effective capacitance of capacitors in series and parallelSolving problemsDiscussion in the effective capacitance  | Capacitors in series and parallel connectionsCharts showing complete circuits  | Comprehensive secondary physics students book 3 pages 80-82Comprehensive secondary physics teachers book 3 pages 34-39Secondary physics KLB students book 3 page 237-241   |  |
| 3 | Electrostatics Ii  | Combinations of capacitors  | By the end of the lesson, the learner should be able to: Derive the effective capacitance of capacitors in series and parallel  | Deriving effective capacitance of capacitors in series and parallelSolving problemsDiscussion in the effective capacitance  | Capacitors in series and parallel connectionsCharts showing complete circuits  | Comprehensive secondary physics students book 3 pages 80-82Comprehensive secondary physics teachers book 3 pages 34-39Secondary physics KLB students book 3 page 237-241   |  |
| 4-5 | Electrostatics Ii  | Combinations of capacitorsEnergy stored in a charged capacitor  | By the end of the lesson, the learner should be able to: Derive the effective capacitance of capacitors in series and parallelDescribe the energy stored in a charged capacitor  | Deriving effective capacitance of capacitors in series and parallelSolving problemsDiscussion in the effective capacitanceDescribing the energy stored in a charged capacitor  | Capacitors in series and parallel connectionsCharts showing complete circuitsCapacitorsDry cellsCharts on capacitors used  | Comprehensive secondary physics students book 3 pages 80-82Comprehensive secondary physics teachers book 3 pages 34-39Secondary physics KLB students book 3 page 237-241 Comprehensive secondary physics students book 3 pages 82Comprehensive secondary physics teachers book 3 pages 34-39Secondary physics KLB students book 3 page 244   |  |
| 13-14 | **End Term Exams and closing** |