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 energy Stating the forms of energy Identifying and describing energy transformation | Chart on the forms of energy and transformation | Comprehensive secondary physics students book 3 pages34-35 Comprehensive secondary physics teachers book 3 pages 17-18 Secondary 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 energy Stating the forms of energy Identifying and describing energy transformation | Chart on the forms of energy and transformation | Comprehensive secondary physics students book 3 pages34-35 Comprehensive secondary physics teachers book 3 pages 17-18 Secondary 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 energy Descriptions of renewable and non-renewable sources of energy | Chart on the sources of energy | Comprehensive secondary physics students book 3 pages41 Comprehensive secondary physics teachers book 3 pages 19-21 Secondary physics KLB students book 3 page 121,122-125 |  |
| 4-5 | Energy, Work, Power And Machines | Sources of energy Renewable Non-renewable Kinetic energy Potential energy power | By the end of the lesson, the learner should be able to:    Describe renewable and non-renewable sources of energy   define power explain the meaning of power potential and kinetic energies distinguish between kinetic energy and potential energy | Discussion on the sources of energy Descriptions of renewable and non-renewable sources of energy  Discussion and the meanings of kinetic energy and potential energy Defining power Distinguishing between kinetic energy and potential energy | Chart on the sources of energy  Object that can be lifted Spring balance | Comprehensive secondary physics students book 3 pages41 Comprehensive secondary physics teachers book 3 pages 19-21 Secondary physics KLB students book 3 page 121,122-125 Comprehensive secondary physics students book 3 pages 43-45 Comprehensive secondary physics teachers book 3 pages 18-22 Secondary 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 machines Experiments to illustrate efficiency of various machines Problem solving | Levers Pulleys Inclined planes Strings Masses | Comprehensive secondary physics students book 3 pages 45-51 Comprehensive secondary physics teachers book 3 pages 18-22 Secondary physics KLB students book 3 page 137-159 |  |
| 2 | 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 machines Experiments to illustrate efficiency of various machines Problem solving | Levers Pulleys Inclined planes Strings Masses | Comprehensive secondary physics students book 3 pages 45-51 Comprehensive secondary physics teachers book 3 pages 18-22 Secondary physics KLB students book 3 page 137-159 |  |
| 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 41-42 Comprehensive secondary physics teachers book 3 pages 20-21 Secondary 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 energy   Define work Explain the concept of work and energy | Discussion on the law of conservation of energy  Experiment on work done by moving objects through a distance Problem solving | Chart on the laws of conservation of energy  Masses Wooden block Spring balance | Comprehensive secondary physics students book 3 pages 41-42 Comprehensive secondary physics teachers book 3 pages 20-21 Secondary physics KLB students book 3 page 132-134  Comprehensive secondary physics students book 3 pages 42-43 Comprehensive secondary physics teachers book 3 pages 18-22 Secondary 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 potential Differentiate and state its SI units Measure potential difference and current in a circuit | Defining potential difference Measuring P.d Discussion on p.d and current Experiments to illustrate p.d and current | Ammeter Voltmeter Battery Connecting wires | Comprehensive secondary physics students book 3 pages 54-55 Comprehensive secondary physics teachers book 3 pages 24-28 Secondary physics KLB students book 3 page 161-164 |  |
| 2 | Current Electricity Ii | Electric current Scale reading | By the end of the lesson, the learner should be able to:    Define potential Differentiate and state its SI units Measure potential difference and current in a circuit | Defining potential difference Measuring P.d Discussion on p.d and current Experiments to illustrate p.d and current | Ammeter Voltmeter Battery Connecting wires | Comprehensive secondary physics students book 3 pages 54-55 Comprehensive secondary physics teachers book 3 pages 24-28 Secondary physics KLB students book 3 page 161-164 |  |
| 3 | Current Electricity Ii | Electric current Scale reading | By the end of the lesson, the learner should be able to:    Define potential Differentiate and state its SI units Measure potential difference and current in a circuit | Defining potential difference Measuring P.d Discussion on p.d and current Experiments to illustrate p.d and current | Ammeter Voltmeter Battery Connecting wires | Comprehensive secondary physics students book 3 pages 54-55 Comprehensive secondary physics teachers book 3 pages 24-28 Secondary physics KLB students book 3 page 161-164 |  |
| 4-5 | Current Electricity Ii | Ohm?s Law Measurement of resistance | By the end of the lesson, the learner should be able to:    Derive and verify ohm?s law State ohm?s law   Describe experiment to measure resistance using ? voltmeter method The Wheatstone bridge method The meter bridge | Experiments verifying ohm?s law Stating ohm?s law  Experiments to measure resistance of materials | Ammeter Voltmeter Rheostat Wires Dry cells  Ammeters Voltmeters Rheostats Connecting wires Resistance wire Dry cells Switches Meter bridge Wheatstone bridge Resisters with known resistance | Comprehensive secondary physics students book 3 pages 55-57 Comprehensive secondary physics teachers book 3 pages 24-28 Secondary physics KLB students book 3 page 168-171 Comprehensive secondary physics students book 3 pages 57-59 Comprehensive secondary physics teachers book 3 pages 26-28 Secondary 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 reading Converting units of measurements Discussing simple electric circuits | Ammeters Voltmeters Battery Wires Rheostat | Comprehensive secondary physics students book 3 pages 54-55 Comprehensive secondary physics teachers book 3 pages 24-28 Secondary physics KLB students book 3 page 164-168 |  |
| 2 | 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 reading Converting units of measurements Discussing simple electric circuits | Ammeters Voltmeters Battery Wires Rheostat | Comprehensive secondary physics students book 3 pages 54-55 Comprehensive secondary physics teachers book 3 pages 24-28 Secondary physics KLB students book 3 page 164-168 |  |
| 3 | 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 reading Converting units of measurements Discussing simple electric circuits | Ammeters Voltmeters Battery Wires Rheostat | Comprehensive secondary physics students book 3 pages 54-55 Comprehensive secondary physics teachers book 3 pages 24-28 Secondary physics KLB students book 3 page 164-168 |  |
| 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 unit Determine experientially the voltage current Relationship for resistance in series and parallel | Defining resistance Experiments to determine the relationship between voltage-current | Resistance wire Rheostat Battery Voltmeter Ammeter Connecting wires | Comprehensive secondary physics students book 3 pages 57-59 Comprehensive secondary physics teachers book 3 pages 26-28 Secondary 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 resistance Deriving effective resistance of registers in parallel and series | Cells Resistors Ammeters Voltmeters wires | Comprehensive secondary physics students book 3 pages 60-66 Comprehensive secondary physics teachers book 3 pages 24-28 Secondary 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 resistance Deriving effective resistance of registers in parallel and series | Cells Resistors Ammeters Voltmeters wires | Comprehensive secondary physics students book 3 pages 60-66 Comprehensive secondary physics teachers book 3 pages 24-28 Secondary physics KLB students book 3 page 180-189 |  |
| 3 | 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 resistance Deriving effective resistance of registers in parallel and series | Cells Resistors Ammeters Voltmeters wires | Comprehensive secondary physics students book 3 pages 60-66 Comprehensive secondary physics teachers book 3 pages 24-28 Secondary physics KLB students book 3 page 180-189 |  |
| 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 resistance Demonstration on e.m.f and internal resistance Discussion on e.m.f | Voltmeters Ammeter Cells Connecting wires | Comprehensive secondary physics students book 3 pages 62-63 Comprehensive secondary physics teachers book 3 pages 24-28 Secondary 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 experimentally Sketch wave fronts to illustrate the reflections | Stating and explaining the properties of waves Sketching wave fronts illustrate reflection | Rope/wire Various reflections | Comprehensive secondary physics students book 3 pages 67-69 Comprehensive secondary physics teachers book 3 pages 29-32 Secondary 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 fonts Experiments to illustrate refraction, diffraction and interference | Water Basin Ripple Tank | Comprehensive secondary physics students book 3 pages 70-73 Comprehensive secondary physics teachers book 3 pages 29-32 Secondary 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 fonts Experiments to illustrate refraction, diffraction and interference | Water Basin Ripple Tank | Comprehensive secondary physics students book 3 pages 70-73 Comprehensive secondary physics teachers book 3 pages 29-32 Secondary physics KLB students book 3 page 203-212 |  |
| 4-5 | Waves II | Diffraction, refraction and interference of waves Constructive 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 interference   Explain constructive and destructive interference | Sketching various wave fonts Experiments to illustrate refraction, diffraction and interference  Discussion on constructive and destructive interference Experiments constructive and destructive interference | Water Basin Ripple Tank  Ripple tank Rope/wire | Comprehensive secondary physics students book 3 pages 70-73 Comprehensive secondary physics teachers book 3 pages 29-32 Secondary physics KLB students book 3 page 203-212  Comprehensive secondary physics students book 3 pages 73-74 Comprehensive secondary physics teachers book 3 pages 29-32 Secondary 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 74 Comprehensive secondary physics teachers book 3 pages 29-32 Secondary 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 74 Comprehensive secondary physics teachers book 3 pages 29-32 Secondary 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 74 Comprehensive secondary physics teachers book 3 pages 29-32 Secondary physics KLB students book 3 page 212-215 |  |
| 4-5 | Waves II | Stationary waves Vibrating air columns | By the end of the lesson, the learner should be able to:    Describe experiments to illustrate stationary waves   Describe and explain closed pipe and open pipe | Demonstration and explaining of stationery waves  Describing vibrations in close and open pipes | Wires under tension  Open and closed pipes | Comprehensive secondary physics students book 3 pages 74 Comprehensive secondary physics teachers book 3 pages 29-32 Secondary physics KLB students book 3 page 212-215  Comprehensive secondary physics students book 3 pages 74 Comprehensive secondary physics teachers book 3 pages 29-32 Secondary 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 patterns Observing and plotting field patterns | Charts on magnetic fields | Comprehensive secondary physics students book 3 pages 76-77 Comprehensive secondary physics teachers book 3 pages 34-39 Secondary physics KLB students book 3 page 222-225 P |  |
| 2 | 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 patterns Observing and plotting field patterns | Charts on magnetic fields | Comprehensive secondary physics students book 3 pages 76-77 Comprehensive secondary physics teachers book 3 pages 34-39 Secondary physics KLB students book 3 page 222-225 P |  |
| 3 | 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 patterns Observing and plotting field patterns | Charts on magnetic fields | Comprehensive secondary physics students book 3 pages 76-77 Comprehensive secondary physics teachers book 3 pages 34-39 Secondary physics KLB students book 3 page 222-225 P |  |
| 4-5 | Electrostatics Ii | Electric field patterns Charge distribution on conductors | By the end of the lesson, the learner should be able to:    Sketch electric field patterns around charged bodies   Describe charge distribution on conductors: Spherical and pear shaped conductors | Discussion on electric field patterns Observing and plotting field patterns  Discussions on charge distribution on conductors Experiment is demonstrated/illustrate charge distribution on conductors | Charts on magnetic fields  Vande Graaf generator Chart showing charge distribution on different conductors Gold leaf electroscope | Comprehensive secondary physics students book 3 pages 76-77 Comprehensive secondary physics teachers book 3 pages 34-39 Secondary physics KLB students book 3 page 222-225 P Comprehensive secondary physics students book 3 pages 77-78 Comprehensive secondary physics teachers book 3 pages 34-39 Secondary 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 arrestor Explanations on the lighting arrestor | Improvised lighting arrestor Photographs of lightning arrestor | Comprehensive secondary physics students book 3 pages 79-80 Comprehensive secondary physics teachers book 3 pages 34-39 Secondary physics KLB students book 3 page 229-230 |  |
| 2 | 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 arrestor Explanations on the lighting arrestor | Improvised lighting arrestor Photographs of lightning arrestor | Comprehensive secondary physics students book 3 pages 79-80 Comprehensive secondary physics teachers book 3 pages 34-39 Secondary physics KLB students book 3 page 229-230 |  |
| 3 | 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 arrestor Explanations on the lighting arrestor | Improvised lighting arrestor Photographs of lightning arrestor | Comprehensive secondary physics students book 3 pages 79-80 Comprehensive secondary physics teachers book 3 pages 34-39 Secondary physics KLB students book 3 page 229-230 |  |
| 4-5 | Electrostatics Ii | Lighting arrestor Capacitance | By the end of the lesson, the learner should be able to:    Explain how lightning arrestor works   Define capacitance and state its SI units Describe the charging and discharging of a capacitor State and explain the factors that affect the capacitance of a parallel plate capacitor | Discussions on the lighting arrestor Explanations on the lighting arrestor  Experiments on charging and discharging capacitor Discussion on factors affecting capacitance Defining capacitance | Improvised lighting arrestor Photographs of lightning arrestor  Complete circuits capacitors | Comprehensive secondary physics students book 3 pages 79-80 Comprehensive secondary physics teachers book 3 pages 34-39 Secondary physics KLB students book 3 page 229-230  Comprehensive secondary physics students book 3 pages 80-82 Comprehensive secondary physics teachers book 3 pages 34-39 Secondary 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 parallel Solving problems Discussion in the effective capacitance | Capacitors in series and parallel connections Charts showing complete circuits | Comprehensive secondary physics students book 3 pages 80-82 Comprehensive secondary physics teachers book 3 pages 34-39 Secondary 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 parallel Solving problems Discussion in the effective capacitance | Capacitors in series and parallel connections Charts showing complete circuits | Comprehensive secondary physics students book 3 pages 80-82 Comprehensive secondary physics teachers book 3 pages 34-39 Secondary 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 parallel Solving problems Discussion in the effective capacitance | Capacitors in series and parallel connections Charts showing complete circuits | Comprehensive secondary physics students book 3 pages 80-82 Comprehensive secondary physics teachers book 3 pages 34-39 Secondary physics KLB students book 3 page 237-241 |  |
| 4-5 | Electrostatics Ii | Combinations of capacitors Energy 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 parallel   Describe the energy stored in a charged capacitor | Deriving effective capacitance of capacitors in series and parallel Solving problems Discussion in the effective capacitance  Describing the energy stored in a charged capacitor | Capacitors in series and parallel connections Charts showing complete circuits  Capacitors Dry cells Charts on capacitors used | Comprehensive secondary physics students book 3 pages 80-82 Comprehensive secondary physics teachers book 3 pages 34-39 Secondary physics KLB students book 3 page 237-241  Comprehensive secondary physics students book 3 pages 82 Comprehensive secondary physics teachers book 3 pages 34-39 Secondary physics KLB students book 3 page 244 |  |
| 13-14 | **End Term Exams and closing** | | | | | | | |