SCHEME OF WORK 2022/2023 : PHYSICS FOR SENIOR ONE

District: GASABO

Academic year: 2022/2023

School: ……………………………..…………………………………………………

Teacher’s names: …………………………………………………………………….

TERM 1, 2022/2023

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| **WEEKS****& DATES** | **UNIT TITLE** | **LESSON TITLE****+EVALUATION** | **LEARNING OBJECTIVES + KEY UNIT COMPETENCE** | **TEACHING METHODS & TECHNIQUES +EVALUATION PROCEDURES** | **RESOURC ES&REFE RENCES** | **OBSERV ATIONS** |
| ***WEEK 1*** ***26-30/9/2022*** ***WEEK 2******3-7/10/2022*** ***WEEK 3******10-14/10/2022*** | **Unit1:** Laborator y Safety Rules and Measurement of Physical Quantities | **Lesson titles**1. Nature of Physics and the importance of studying Physics.
2. Laboratory safety rules rules and precaution measures.
3. Different instruments for measuring physical quantities
4. Definition of density & Calculations
 | **Learning objectives**-Explain the nature of Physics and its application.-Discuss characteristics of physics. - Discuss branches of Physics and their benefits to humankind’s development. - Identify career opportunities related to Physics.-Explain the basic fundamental physical quantities.-Differentiate between derived physical quantities and fundamental quantities. - Introduce international system (SI) of measurements units.-State and explain basic laboratory safety rules.-State /recall 𝑚𝑣 | The teacher should provide a short QuizLearners do the test individually by writing.Brain storming Group work Individual work | Senior 1 Student's BookNew Physics Physics for Rwanda secondary schools book 1 Internet Fountain |  |

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|  |  | **Formative Assessment 1** | **KEY UNIT COMPETENCE:** By the endof this Unit, the learner should be able to explain the importance of physics, measure physical quantities and express findings in appropriate units. | **Written test** | physicsSenior 1 Student's Book New Physics Physics for Rwanda secondary schoolsbook 1 |  |
| ***WEEK 4*** ***17-21/10/2022******WEEK 5***24-28/10/2022 | **Unit2:** Qualitativ e analysis of linear motion. | **Lesson titles**1. Explanation for distance, displacement, speed, velocity and Acceleration.
2. Draw and interpret graphs of motion.
 | **Learning objectives**-Define and explain the terms: trajectory, displacement, distance, velocity, speed and Acceleration.* State the difference Between velocity/- speed and displacement / distance − Calculate Speed.
* Recall formulae of speed/velocity and Acceleration.
 | The teacher should provide a short QuizLearners do the test individually by writing.Group work Individual work |  |
|  |  | **Formative Assessment 2** | **KEY UNIT COMPETENCE:**By the end of the Unit, the learner should be able to describe objects in motion in one dimension using the principles ofkinematics | **Written Test** | Internet Fountain physicsSenior 1 Student's BookNew Physics Physics for Rwanda secondary schools book 1 Internet Fountain physics |  |
| ***WEEK 6***31/10-4/11/2022***WEEK 7***7-11/11/2022 | **Unit 3:**Force (I) | **Lesson Titles**1. Definition of force.
2. Types of forces and difference between contact and non-contact forces.
3. Resultant force and turning effect.
 | **Learning objectives**-Define and explain the Concept of force. - Identify different types of forces in Nature.- Represent a force as a Vector.-Combine parallel forces and non-parallel forces using parallelogram method and Scale drawing.− Demonstrate the effect of Balanced and unbalanced Forces. | Group work. Class discussions.Question and answers. Class demonstrations.Role-play. |  |
| **Formative Assessment 3** | **KEY UNIT COMPETENCE:**By the end of this Unit, the learner should be able to define, Explain and describe forces and their effects. | **Written test** |  |

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| ***WEEK 8***14-18/11/2022***WEEK 9***21-25/11/2022 | **Unit 4:** Newton’s Laws of Motion (I) | **Lesson Titles**1. Relationship between mass and inertia.
2. Newton’s First law (law of inertia).
3. Newton’s Second law (impulse) F= ma.
4. Newton’s Third law (principle of action and reaction).
5. Newton’s law of universal

Gravitation | **Knowledge and understanding;*** Define Acceleration, action and reaction, inertia, net force, free body diagram.
* State Newton’s three laws of motion.

**Skills:*** Observe and interpret change of position of a body due to force acting on it. − Conduct Appropriate Experiments illustrating Newton’s laws of motion. − Solve simple problems Involving Newton’s laws of motion.

**Attitudes and Values:*** Appreciate applications of Newton’s laws of motion.
* Appreciate the need to observe and report.
* Acquire ability to think logically and systematically in pursue of particular thought.
* Recognize the value of applying the scientific method in solving problems.
 | Discuss in groups Newton’s laws of motion and make presentations.Group discussion, Individual work, Storytelling.Work in groups to perform experiments related Newton’s law s of motion and make presentations.Work in groups to solve simple problems related to applications of Newton’s law of motion.* Compare gravitational forces between Earth and sun and between earth and moon.
* Use Internet search engines to get more details of Newton’s laws of motion.
* Use simulations and scientific skills to demonstrate Newton’s law of motion report and Interpret the results.
 | Senior 1 Student's BookNew Physics Physics for Rwanda secondary schools book 1 Internet Fountain physicsSenior 1 Student's BookNew Physics Physics for Rwanda secondary schools book 1 Internet Fountain physicsSenior 1 Student's Book |  |

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| ***WEEK 10***28/11-2/12/2022 |  | 1. Weight= mg.
2. Applications of Newton’s laws of motion on frictionless horizontal surface.
3. Determination of acceleration due to gravity of bodies using usual formula.
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|  |  | **Summative Evaluation 4** | **KEY UNIT COMPETENCE:**By the end of this Unit, the learner should be able to state Newton’s laws to describe the effects of forces onobjects | **Written test** |  |  |
| ***WEEK 11***5-9/12/2022 | Revision |
| ***WEEK 12***12-16/12/2022 | Exams |
| ***WEEK 13***19-23/12/2022 | Writing school report + Proclamation |

TERM 2 , 2022/2023

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| **WEEKS****& DATES** | **UNIT TITLE** | **LESSON TITLE****+EVALUATION** | **LEARNING OBJECTIVES + KEY UNIT COMPETENCE** | **TEACHING METHODS & TECHNIQUES +EVALUATION PROCEDURES** | **RESOURC ES&REFE RENCES** | **OBSERV ATIONS** |
| ***WEEK 1*** | **Unit 5:** | **Lesson Titles** | **Knowledge and understanding;** | Brain storming |  |  |
| 09-13/01/2023 | Centre of Gravity | 1. Definition of Centre of mass and centre of gravity.
2. Determine experimentally of position of centre of gravity of lamina (regular and irregular)
 | * Differentiate between centre of mass and centre gravity.
* Define centre of gravity and determine its position for objects of regular shape. − Identify position of centre of gravity for bodies of Different shapes.

**Skills:*** Predict the equilibrium of body based on position of centre of gravity.
* Apply knowledge of centre of gravity and centre of mass to state equilibrium of a body (stable, neutral, unstable).
* Describe the working of toys with in relation to equilibrium.
* Determine experimentally the position of centre of gravity for bodies of different shapes (Regular and Irregular).

**Attitudes and Values:*** Appreciate the role of centre of gravity in determining the stability of a body.
* Recognize that when there is no resultant force and no resultant turning effect a system is in equilibrium Accept that position of centre of gravity of a body determines its state of equilibrium.
* Recognize c.o.g (centre of gravity) of uniform triangular, circular or rectangular shaped bodies.
* Show concern about stability of bodies in
 | Group work Individual work Group discussion Question and answersCarryout experiment to determine the position of centre of gravity ofa lamina. |
| ***WEEK 2***16-20/01/2023 | **Lesson Titles**1. Discuss effect of position of the center of gravity to the stability of simple objects.
2. Differentiate between center of mass and center gravity.
3. State of equilibrium of a body with no resultant force or turning effect acting on it.
 | Make presentations about states of equilibrium for different shapes.Role play about states of equilibrium in relation to position of cog and resulting consequences unstable equilibriumUse internet to search for information on determination of centre of mass and gravity. |  |
|  |  |  | particular positions. |  |

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|  |  | **Summative Evaluation 1** | **KEY UNIT COMPETENCE:**By the end of the Unit, the learner should be able to determine the position of centre of gravity of a body. | **Written test** |  |  |

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| ***WEEK3***23-27/01/2023 | **Unit 6:** Work, Power and Energy(I) | **Lesson Titles**1. Forms of energy (potential energy, kinetic energy, light energy, heat energy, sound energy, electrical energy, mechanical energy and chemical energy).
2. Transformation of

kinetic energy to potential energy and vice-versa. | **Knowledge and understanding:*** Explain the concepts of work, power and energy.
* Identify forms of mechanical of energy.
* Explain transformation of energy.
* Illustrate how potential

Energy changes into Kinetic energy and vice versa.* State the law of Conservation of energy. − Enumerate types of energy and their sources.
* Identify ways of conserving energy.

**Skills:*** Estimate the kinetic and potential energy of bodies in different situations.
* Solve problems related to work, power and energy.
* Estimate power of an individual climbing a flight of steps.
* Calculate the work done on an object pulled along a Horizontal surface using a spring balance.
* Analyze the process of energy transformation.
* Describe ways of conserving energy. − Explain the principle of Energy conservation.
 | Work in groups to determine the work done by pulling an object along a horizontal surface using a spring balance.Use group work to investigate the effect of falling objects from different heights on a surface.Devise on typical example of energy transformation.Group discussion on energy transformation potential energy to kinetic energy and vice-versa.Discuss in groups’ energy sources and ways of energy conservation.Carry out experiment highlighting the process of energy transformation e.g. simple pendulum,Search Internet for details on | Student's BookNew Physics Physics for Rwanda secondary schools book 1 Internet Fountain physicsSenior 1 Student's BookNew Physics Physics for Rwanda secondary schools book 1 |  |
| ***WEEK4***30/01-03/02/2023 | **3**. Sources of energy: Electrical energy; light energy, Chemical energy, Solar energy, Wind energy; Biogas energy, Geothermal energy, Methane, Thermal energy, Flowing water, Wood; Nuclear fuels like Uranium. |  |

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|  |  | 1. Different ways to conserve energy.
2. Law of conservation of mechanical energy.
 | **Attitudes and Values:*** Appreciate the role of work, power and energy in our daily life.
* Use correctly the terms work power and energy in a Scientific context.
* Optimize the efficiency in relation to work, energy and Power.
* Be aware of danger of High-speed objects or falling objects.
* Show concern about shortage of energy sources in our country.
 | conservation of mechanical energy. | Internet Fountain |  |
|  |  | physics |
|  | Group work. |  |
|  |  | Senior 1 |
|  |  | Student's |
|  | Class discussions. | Book |
|  |  | New |
|  | Question and answers. | PhysicsPhysics for |
|  |  | Rwanda |

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|  |  | **Summative Evaluation 2** | **KEY UNIT COMPETENCE:**By the end of the Unit, the learner should be able to analyze the process of energy transformations and conservation | **Written test** | secondary schools book 1InternetFountain physics Senior 1 Student's Book |  |
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| ***WEEK5***06-10/2/2023 | **Unit 7:** Simple Machines (I) | **Lesson Titles**1. Definition of simple machine.
2. Examples of simple machines (level, pulley, wedge, wheel and axle, inclined plan, screw).
3. Working principle of lever, a pulley and an inclined plane wheel and axle,

Screw | **Knowledge and understanding;*** Outline examples of simple machines. − Explain the principles behind simple machines used in daily life.
* Define machine, work, energy, power and efficiency of machines.
* Determine output work of simple machines. **Skills;**
* Explain the working principles of simple machines.
* Explain efficiency of Simple machine.
* Evaluate efficiency of Simple machines. − Use simple machine to perform a given task.
* Design and use simple machines.
* Solve problems on simple Machines.

**Attitudes and Values:*** Appreciate the importance of simple machines in our daily life.
* Recognize the work output of simple machines.
* Recognize the effect of friction on efficiency of simple machines.
 | Group work. Class discussions.Question and answers. Class demonstrations. | New Physics Physics for Rwanda secondary schools book 1 Internet Fountain physicsSenior 1 Student's BookNew Physics Physics for Rwanda secondary schools book 1Senior 1Student's Book |  |
| ***WEEK*** 6***13-17/02/2023*** | 1. Machine work out and friction in the machine.
2. Mechanical advantage and velocity ratio of a machine.
3. Determination of output of simple machine (Efficiency)
4. Experiment to verify efficiency of simple machines.
 | Group presentation of applications of simple machines.Experiment and demonstration of how a simple machine makes work easy.Design simple machines and use them to perform tasks.Solve problems on simple machines. |  |
|  | **Summative Evaluation 3** | **KEY UNIT COMPETENCE:**By the end this Unit, the learner should be able to analyze relationship between among energy, work and power for simplemachines | **Written Test** |  |

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| ***WEEK 7***20-24/02/2023 | **Unit 8:** Kinetic theory and states of matter | **Lesson Titles**1. Simple kinetic theory.
2. Description of physical properties of solids (hardness, malleability, conductivity, Elasticity, melting).
 | **Knowledge and understanding:*** Describe physical properties of matter.
* State physical properties of matter.

**Skills:*** Classify materials using physical properties. − Explain physical properties of solids, liquids and gases using the kinetic theory of matter. − Separate mixture using physical properties − Determine boiling point and melting point of Different substances.
* Perform an experiment to Illustrate viscosity.

**Attitudes and Values:*** Appreciate the application of properties of materials in daily life.
* Show concern on how to use different materials in daily life
* Show concern on the use of Solid materials based properties of stiffness, sharpness and softness.
 | Observe the difference in viscosity of water and honey.Observe difference of stretching materials and analyze their elasticity.Investigate boiling and melting points of different substances.Perform class experiment to separate mixture considering their physical properties.Perform an experiment to illustrate viscosity in fluids.Use Internet sites to get information on physical properties of solids, liquids and gases. | Fountain physics Senior 1 Student's BookNew Physics Physics for Rwanda secondary schools book 1 Internet Fountain physics |  |
| ***WEEK 8***27/02-03/03/2023 | 1. Description of physical properties of liquids (viscosity, melting point, boiling point, freezing point and density).
2. Description of physical properties of gases (Compressibility).
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| ***WEEK9***6-10/03/2023 | **Lesson Titles**1. Application of physical properties (Filtration and Distillation).
2. Recognize Physical

properties of matter |  |
|  | **Summative Evaluation 6** | **KEY UNIT COMPETENCE:**By the end of this Unit, the learner should be able to relate physical properties ofsolids, liquids and gases to temperature. | **Written test** |  |
| ***WEEK 10***13-17/03/2023 | Revision period |  |  |
| ***WEEK*** 1120-24/03/2023 | Summative evaluation (Exams) |  |  |
| ***WEEK 12***27-31/03/2023 | Writing school reports & proclamation |  |  |

TERM 3 , 2022/2023

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| **WEEKS****& DATES** | **UNIT TITLE** | **LESSON TITLE +EVALUATION** | **LEARNING OBJECTIVES + KEY UNIT COMPETENCE** | **TEACHING METHODS &****TECHNIQUES +EVALUATION PROCEDURES** | **RESOURC****ES&REFE RENCES** | **OBSERV ATIONS** |
| ***WEEK 1*** 17-21/04/2023 | **Unit 9: Heat and temperat ure** | **Lesson Titles**1. Heat as a form of energy.
2. Difference between heat and temperature, Temperature scales (Kelvin, Fahrenheit, Celsius, and Reaumur).
3. Types of thermometers (Laboratory and Clinical thermometer, maximum and minimum).
 | **Knowledge and understanding**-Explain the difference between heat and temperature.* Explain temperature as degree of coldness and hotness.

-Read temperature from different thermometers.* Explain steps of calibrating a thermometer.

**Skills**Evaluate temperatures of different substances.* Differentiate between heat and temperature.
* Describe different thermometer scales and thermometric liquids used. − Convert temperature from one Temperature scale to another.

**Attitudes and Values**Appreciate the applications of measuring body temperature.* Appreciate that feeling cold and hot is subjective.
* Recognize the advantages of mercury

over alcohol as a thermometric liquid. | Use group activities to investigate melting and boiling point of different liquids.Working in groups, learners discuss degree of hotness and coldness and make presentationsWorking in groups, learners convert temperatures between different scales.Group discussions on advantages of different types of thermometric liquids | -Abott, A.(1989).Ordinary Level Physics. Chicago: Heinman Educational Publisher.-David, V. F., Griffith, T., John, G.L., Jay, M.,Beth, M., Steve, M., & Camille, W. (20 (Abott,1989)06).Science Explorer. Mexico: Pearson Prentice hall. |  |
| ***WEEK 2*** 24-28/04/2023 | **Lesson Titles**1. Measurement of temperature of substances.
2. Thermal equilibrium.
3. Functioning of thermometers.
4. Liquids for thermometers (advantages and disadvantages).
5. Temperature conversion
6. Effects of solutes on boiling points of liquids
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|  |  | **Summative Evaluation 1** | **KEY UNIT COMPETENCE:**By the end of this Unit, the learners should be able to explain principle of thermometry and comparedifferent temperature scale. | **Written Test** | -Elizabeth, C., Donald, C., Linda, C., Lisowski, M., & Jan, J.(2006).Science Explorer. |  |
| ***WEEK 3*** 1-5/5/2023 | **Unit 10: Magnetis m (I)** | **Lesson Titles**1. Definition of a magnet.
2. Examples of magnetic and nonmagnetic materials.
 | **Knowledge and understanding**:-State properties of magnets* Identify the poles of a bar magnet.
* Draw magnetic field patterns on a round magnet.
 | Group work to determine the poles of bar magnet.Use the earth’s magnetic field to |  |

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|  |  | 1. Types of magnets (permanent and Temporary magnets).
2. The poles of a bar magnet (using the earth’s magnetic field).
3. Test for a magnetism
 | * Identify the poles of a bar magnet. − State and explain the basic law of magnetism (attraction and repulsion). **Skills:**

Predict what happens when a magnet is brought near various solid materials.* Distinguish magnetic and nonmagnetic materials.
* Identify the poles of a bar magnet using the earth’s magnetic field. **Attitude and values:**

-Appreciate application of magnetic materials.* Recognize the importance of magnetism in lifting heavy magnetic materials.

-Appreciate the use of magnets in Separating magnetic from non- magnetic materials.* Appreciate the existence of magnetic force of attraction and repulsion. **-** Recognize solids in the environment
 | identify the poles of a magnet.Describe the interactions between magnetic poles.Experiment to reveal magnetic field patterns using iron filings.Working in groups, suspended magnets freely to identify magnetic and non- magnetic materials.Working in groups to separate mixture of ferromagnetic & non-magnetic materials using magnets | Mexico: Pearson Prentice Hall-David, V. F., Griffith, T., John, G.L., Jay, M.,Beth, M., Steve, M., & Camille, W. (20 (Abott,1989)06).Science Explorer. Mexico: Pearson Prentice hall.-Elizabeth, C., Donald, C., Linda, C.,Lisowski, M., & Jan, J.(2006).Science Explorer. Mexico: Pearson Prentice Hall |  |
|  | **Summative Evaluation 2** | **KEY UNIT COMPETENCE:**By the end of this Unit, the learner should be able to differentiate magnetic and non-magnetic materials. | **Written Test** |  |
| ***WEEK 4*** 8-12/05/2023 | **Unit 11**: **Electrosta tics (I)** | **Lesson Titles**1. Types of electrostatic charge and SI Units of charge.
2. Methods of charging bodies (induction, rubbing/friction, and contact).
3. Laws of electrostatic charges

and Coulomb’s law. | **Knowledge and understanding:**-Describe atomic structure of atoms.* Identify types of charges.
* State the laws of electric charges.
* Describe methods of charging. − Explain the principle of charge conservation.
 | Discuss methods of charging and report.Group work to describe electrostatic charging of materials.Discus and list insulators and conductors. |  |

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| ***WEEK 5***15-19/05/2023 |  | 1. Insulators and conductors.
2. Electric field and electric potential **6**. Distributions of electric charges on metallic conductors Applications of electrostatic charges
 | * Explain effects of electric charges on a conductor.
* Differentiate between insulators and conductors.
* Explain factors that affect the magnitude of force between two charged bodies.
* Describe electrostatic phenomena,
 | Group discussion on different Phenomena resulting from interaction of Electric chargesGroup work to find out effects caused | -Abott, A.(1989).Ordinary Level |  |

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|  |  |  | using, concepts, laws, theories and models.* Recall Coulomb`s law, electric field and potential **Skills:**

-− Explain the fundamental law of electrostatics* Differentiate insulators from conductor
* Discuss methods of charging bodies − Demonstrate and explain charge distribution on a conductor

-Evaluate distribution of electrostatic charges on a conductor.* Analysis and critically evaluate Electrostatic related issues. **Attitude and values:**

-Appreciate the application of static charges.* Develop positive attitudes of curiosity, honesty, respect for evidence, and perseverance and tolerance in the study of electrostatics.
* Show concern on the danger caused by electrostatic charges and be aware of safety precautions to be observed during rainstorms. − Show concern on the use of An electroscope.
 | By distribution of electric charges on a conductor.Working in groups compute problems involving attraction and repulsion of two or more charges by using Coulomb’s law.Access Internet for information on Electrostatic charges and distribution of charges on conductors.Group work Individual workBrainstorming | Physics. Chicago: Heinman Educational Publisher.-David, V. F., Griffith, T., John, G.L., Jay, M.,Beth, M., Steve, M., & Camille, W. (20 (Abott,1989)06).Science Explorer. Mexico: Pearson Prentice hall.-Abott, A.(1989).Ordinary Level Physics. Chicago: |  |
|  | **Summative Evaluation 3** | **KEY UNIT COMPETENCE:**By the end of this Unit, the learner should be able to explain charging of materials and distribution ofelectric charges on conductors. | **Written Test** | Heinman Educational Publisher.-David, V. |  |

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| ***WEEK 6*** 22-26/05/2023 | **Unit 12: Current Electricity (I)** | **Lesson Titles**1. Definition of simple electric circuit and its components.
2. Electric components used in simple electric circuit. (cells, batteries, wires).
3. Simple electric circuit diagrams. **4**. Electric current and electric potential difference.

**5**. Measurement of current and voltageusing Ammeter and Voltmeter. | **Knowledge and understanding:*** Outline simple electric circuit components and define them.
* Explain the functioning of cells and batteries.
* Illustrate the effects of electric current (heating, magnetic and chemical). − Explain applications of earth wire, fuse, and circuit breaker in Preventing electrical shocks and short circuits.
 | Observe and set up simple electric circuits.Discuss production of current from cells/batteries.Demonstrate how electricity is used in motors, bulbs, and other devices. | F., Griffith, T., John, G.L., Jay, M.,Beth, M., Steve, M., & Camille, W. (20 (Abott,1989)06).Science Explorer. |  |

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|  |  | **6**. Ohm’s law | * State and describe different effects of electric current. **Skills:**

-Apply the knowledge of electric current in electrolysis.* Set up simple electric circuits. − Explain different effects of Electric current.
* Distinguish between simple cells and batteries
* Apply knowledge of safety precaution to avoid overheating of devices (uses of fuses and circuit breakers).
* Explain what would happen to a house without fuses or circuit

Breakers during electric circuit overload and short- circuiting.* Measure current, Voltage and resistance. − Verify Ohm`s law.

**Attitudes and values:*** Recognize how to measure Electric current and potential Difference using ammeter and voltmeter.
* Appreciate the application of effects of electric current.
* Appreciate that chemical reactions produce current.
* Appreciate that if electrical circuit is not properly used and controlled, it

can cause fires. | Discuss characteristics of magnetic field produced by current.Perform experiment to investigate the heating effect of an electric current.Discuss chemical effect of current (electrolysis) and make class presentations.Access and search Internet for information on effects of electricity and safety to be taken while using electricity and its precautions | Mexico: |  |
|  | Pearson Prentice hall. |
| ***WEEK 7*** | **7.** Electrical energy and power |  |
|  ***29/05- 2/06/2023*** | **8.** Effect of electric current |  |
|   | (magnetic effect, heat (Joule’s law = I2Rt) and chemical effect of electricity)1. Safety precautions to observe when handling electrical appliances.
2. Experiment to verify Ohm’s law.
 | -Abott, A.(1989).Ordinary Level Physics. Chicago:Heinman |
|  | **11.** Graphs of voltage against current. | Educational Publisher. |
|  |  | -David, V. |
|  |  | F., Griffith, T., John, G.L., Jay, M.,Beth, M., Steve, M., & Camille, W. (20 (Abott,1989)06).Science Explorer. Mexico: Pearson Prentice hall. |

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|  |  | **Summative Evaluation 4** | **KEY UNIT COMPETENCE:** |  |  |  |
|  | By the end of this Unit, the learnersshould be able to explain different | **Written Test** |  |
|  | effects of electricity and safety |  |  |
|  | precautions to observe while using |  |  |
|  | electricity |  |  |
| ***WEEK 8***5-9/06/2023 | **Unit 13: Rectilinear Propagation of light** | **Lesson Titles**1. Different sources of light (luminous and non-luminous sources).
2. Rays and Beams (parallel, converging and diverging).
3. Classification of materials as Transparent, translucent and opaque.
4. Experiments on light propagation. Rectilinear propagation of light.
5. Types of reflection (Regular and diffuse reflection).
6. Formation of shadows and eclipses (penumbra and umbra).
 | **Knowledge and understanding**:* State sources of light.
* Explain the nature of light.
* Describe transparent, Translucent and opaque materials.
* Explain how light travels in a straight line.
* Describe the formation of penumbra and umbra.
* State characteristics of images formed by plane mirrors. − State laws of reflection. − Explain applications of reflections at plane mirrors.
* Describe images formed by a pinhole camera.
* State characteristics of images formed by pinhole camera.
* Explain applications of light reflected
 | Discuss sources of light.Group presentations on the applications of light.Demonstrate light is propagated in a straight line | -Abott, A.(1989).Ordinary |  |
|  |  | at plane mirror surfaces. |  |  |

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| ***WEEK 9***12-16/06/2023 |  |  | * Illustrate penumbra and umbra using a torch

-Describe the nature of images formed by pinhole camera. − Explain functioning of pin-hole. − Verify experimentally laws of reflection.**Attitude and values:*** Appreciate light is important for seeing and photosynthesis.
* Adapt the need to report scientifically
 | Make a project that investigates on different sources of light.Discuss characteristics of image in mirrorsProject works develop pinhole camera or periscopeUse Internet to search details on light Propagation and do presentation. | Level Physics. Chicago: Heinman Educational Publisher.David, V. F., Griffith, T., John, G.L., Jay, M.,Beth, M., Steve, M., & |  |

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| ***WEEK 10***16-23/06/2023 |  | 1. Lunar and solar eclipses.
2. Law of reflection.
3. Characteristics of images formed in plane mirrors.
4. Ray diagrams and number of images formed in inclined mirrors.
5. Pinhole camera image formation and magnification.
6. Problems on pinhole camera
 | and critical thinking in performing experiments related to light.− Recognize light travels in straight lines. |  | Camille, W. (20 (Abott,1989)06).Science Explorer. Mexico: Pearson Prentice hall. |  |
|  | and mirrors inclined at an angle |  | New |
|  |  |  | Physics |
|  |  |  | Physics for Rwanda secondary schools book 1 |
|  |  |  | Internet |
|  | **Summative Evaluation 5** | **KEY UNIT COMPETENCE:** |  |  |  |
|  | By the end of this Unit, the learnersshould be able to explain the nature of | **Written test** |  |
|  | l\ight, rectilinear propagation of light and |  |  |
|  | reflection at plane mirror |  |  |
| ***WEEK 11***26-30/06/2023 |  | Revision period |  |  |

|  |  |  |  |  |
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| ***WEEK 12***3-7/07/2023 |  | Summative evaluation (Exams) |  |  |
| ***WEEK 13*** 10-14/07/2023 |  | Writing school reports & proclamation |  |  |

END