Lesson plan/note for week 5 ending, 10th February,2023

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| Term | 2nd term |
| Week | Week 6 |
| Date | 6th/9th February,2023 |
| Class | JSS 3 |
| Subject | Basic Science |
| Topic | Electrical energy |
| Sub-topic | Electric meter reading and billing. |
| Period | 8th/9th |
| Time | 1:20-200pm/2:00-2:30pm |
| Duration | 40 minutes/ 30 minutes |
| Number in class | Thirteen |
| Average age | 13 years |
| Sex | Mixed |
| Specific objectives | By the end of the lesson, the students should be able to:  1.Draw a simple electric circuit  2.Differentiate between series and parallel circuit  3.State the importance of fuses and circuit breakers  4.Calculate the cost of electricity |
| Rationale | To enable students understand the concept of electrical energy as well as how to calculate the cost of electricity used at a particular period of time. |
| Previous knowledge | Students are familiar with electricity and electric meter |
| Instructional resources | Pictures from textbook |
| Reference material | 1.Excellence in Basic Science and Technology for JSS 3 by Olushola Felix Bello et al.  2.Fundamentals of Basic Science for JSSS 3 by Adebesin O Michael |

LESSON DEVELOPMENT

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| Steps | Teacher’s Activities | Students’ Activities | Learning |
| Introduction | Teacher asks students to explain what they know about electricity | Students respond to teacher’s question | To arouse students' interest |
| Step I | Teacher explains electrical energy and how it work | Students listen to teacher | To keep students focus on the lesson |
| Step II | Teacher differentiates between series and parallel circuit with explanation. | Students listen and ask questions where necessary | To keep students focus on the lesson |
| Step III | Teacher explains the importance of fuses and circuit breakers | Students pay attention | To keep students focus on the lesson |
| Step IV | Teacher explains how to read and cost(bill) electric meter and guides students to solve the calculation involved | Students take part in class activity | To encourage critical thinking |
| Board summary | Electrical Energy  There are two types of electricity:. 1.Static electricity: Electricity that accumulates and stays on a substance.  2.Current electricity: Electricity that flows when connected.  Flow of Electrons  Electrons are negative changes which flow along conductors. The floe of electrons through a conductor is called current electricity represented by I. Current electricity moves in a continuous path called electric circuit.    Series and Parallel Circuit  There are two types of circuit: Series and Parallel.  In a series circuit, the circuit floes in a single path. The current is the same at all points in circuit but the voltage is different at different parts in the circuit.  In a series circuit, electricity has only one path to follow. The current that flows across each component connected in series is the same. If a light bulb(resistor) is missing or broken in a series circuit, the other bulb will not light because the path the electricity needs to follow is broken.  In a series arrangement, the total resistance, R is the sum of all the resistance.  >R= R1 + R2 + --------  Parallel Circuit  In a parallel circuit, the current is split into branching paths, but the voltage is the same at all points in the circuits.  In a parallel circuit, electricity has more than one path to follow. If a light bulb is missing or broken in a parallel circuit, the other bulb will light because electricity can move in different direction.  In a parallel arrangement, the total resistance is given as the sum of inverse of all the resistance.  >1/R= 1/R1+ 1/R2+----+1/Rz    Calculations  Example 1: Calculate the total resistance in a circuit with three resistance: 2, 3 and 2 connected in parallel.  Solution  1/R = 1/R1+1/R2+1/R3  1/R = ½+ 1/3 +1/2  = 3+2+3 = 8/6  6  1/R = 4/3  R= 3/4 ohms.  Example 2: Calculate the resistance of two 4ohm resistor connected in series.  Solution  R= R1+R2  = 4+4  =8 Ohms.  Fuses and Circuit Breakers  Fuses and circuit breakers are safety devices in house wiring. They cut off power to an electrical circuit if it becomes dangerously overloaded or if a fault in an appliance causes too much current flow. This protects the wiring and the appliance of something goes wrong.  The fuse contains a piece of wire that melts easily. If the current going through the fuse is too great, the wire heats up until it melts and breaks the circuit. Fuse in plugs are made with standard ratings. The most common are: 3A, 5A and 13A. The fuse should be rated at a slightly higher current than the device needs. For example, if the differences vice works at 3A, a fuse of 5A should be used.  The circuit breaker does the same job as the fuse, but it works in a different way. A spring loaded push switch is held in the close position by a springboard d soft iron bolt, the electromagnet pulls the bolt towards itself, which releases the pushed switch into the open position. An electromagnet is arranged so that it can pull the bolt from the switch if the current increases beyond a set limit.  Note: Fuses are used in older buildings while circuit breakers are used in modern or new buildings.  Electric Meter Reading and Billings  Electric meter record the total amount of electricity used in KWH (Kilo-Watt Hour).  The speed at which electrical energy is converted into a different form of energy is called power.  Power is measured in Watt(W)  Power = Work (electric energy)  Time  Electric energy or work =Electric power × Time  =Watt-Hour  Electrical energy consumed over time in homes and offices can be measured in Kulo-Watt Hour(KWH)  1KWH is the energy consumed over a period of 1 hour when 1KW of electricity is supplied.  Example  If the readings of an electric meter taken a month apart are: 5600KWH and 4800KWH and electricity sells at #5 per kilo-watt Hour, what will be the cost?  Solution  Difference in reading  =Present reading– Previous reading  = 5600KWH –4800KWH  =800KWH  Cost = difference in reading ×rate  = 800KWH × #5  Cost= #4000 | Students copy note | To serve as reference point to students |
| Evaluation | Teacher asks students the following questions:  1.Draw a simple electric circuit  2.Differentiate between series and parallel circuit  3.State the importance of fuses and circuit breakers  4.Solve the electric meter reading calculation in your examination digest, year 2018. Theory question 1d. | Students respond to teacher’s questions. | To ascertain students’ understanding of the lesson. |
| Conclusion | Teacher assesses students and make corrections where necessary | Students take correction | To ensure a better understanding |
| Assignment | A.Draw the diagrams and symbols used in the following circuit components:  1.Cell  2.Battery  3.Bulb  4.Conducting wire  5.Switch  B.Explain the following:  1.Resistance  2.Resistor  C.Calculate the resistance of two 5 ohms resistance connected in parallel. | Students write down the assignment | To engage students at home. |