LESSON PLAN FOR WEEK TWO ENDING 22ND SEPTEMBER, 2023

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| THEME: | Heat |
| DATE: | 18 – 09 – 2023 |
| CLASS: | SS2 |
| TIME: | 8:40am - 09:20am |
| DURATION | 40 MINUTES |
| PERIOD | 1 |
| SUBJECT: | Physics |
| UNIT TOPIC: | Measurement of Heat Energy |
| LESSON TOPIC: | Heat Capacity and Specific Heat Capacity |

SPECIFIC OBJECTIVE: By the end of the lesson, learners should be able to

1. Define Heat Capacity?
2. Define specific heat capacity of a solid?
3. State the mathematical expressions of specific heat capacity and heat capacity?

INSTRUCTIONAL RESOURCES: Charts showing different substances and their approximate specific heat capacities

LESSON PRESENTATION

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| STEP 1 | PREVIOUS KNOWLEDGE: The students are conversant thermometers. | | Students recall. |
| STEP 2 | EXPLORATION: The teacher arouses the interests of the learners by telling them why apiece of steel bar and copper bar of the same mass do not become hot at the same rate when supplied with same quantity of heat, using his chart. | |  |
| STEP 3 | DISCUSSION:  **MEASUREMENT OF HEAT ENERGY**  In order to assess the quantity of heat energy possessed by a body, three quantities are needed. They are:   * the change in temperature () * the specific heat capacity of the body () * mass of the body ()   The quantity of heat of a body is a product of the three quantities above as expressed by the equation.    It is measured in Joules  Heat capacity  This is the quantity of heat required to raise the temperature of a substance by one degree. It is measured in or .    Specific heat capacity  Specific heat capacity of a substance is the heat required to raise the temperature of a unit mass of the substance through one degree change in temperature  The quantity of heat Q received by a body is proportional to its mass (m), and temperature change and on the nature of the material the body is made of.  Thus;        C is a constant of proportionality called the specific heat capacity of the body, which depends on the nature of the body.  are the initial and final temperature values.    The unit of specific heat capacity is or | | Students listen attentively and take down notes. |
| STEP 4 | APPLICATION:  How much heat is required to change 10kg of an object from 20OC to 70OC? [Specific heat capacity of the object is 200JKg-1K-1]  Solution | | Students ask questions on the topic which the teacher answers. |
| STEP 5 | EVALUATION: The teacher evaluates the students using the following:   1. Define heat capacity? 2. State the mathematical definition of specific heat capacity? 3. What is the S.I Unit of specific heat capacity? | | The students answer the questions. |
| Assignment   1. A waterfall is 630m high. What is the change in temperature of a quantity of water that falls from the top to the bottom of the waterfall? [Neglect heat lost to the surroundings, take acceleration due to gravity as 10ms-2 and Specific capacity of water as 4200 JKg-1K-1]   References  **Extensive physics for Senior Secondary Schools and Colleges, by OSINUBI SAHEED et al. New School Physics for SS2 by M.W ANYAKOHA {Ph D}. Senior Secondary Physics for SS2 by P. N OKEKE et al.** | |  |