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| **THEME:** | Direct and Inverse Proportion |
| **DATE**: | 25– 09 – 2024 |
| **CLASS**: | Js 3 |
| **TIME**: | 8:40-09:20am |
| **DURATION** | 40 MINUTES |
| **SUBJECT**: | Mathematics |
| **UNIT TOPIC:** | Inverse Proportion |
| **LESSON TOPIC:** | Inverse proportion: meaning and calculations |

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

1. Define Inverse proportion.
2. Solve problems on inverse proportions
3. Apply inverse proportion to practical problems

**INSTRUCTIONAL RESOURCES:**  Inverse proportion Chart and Graphs

**LESSON PRESENTATION**

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| **STEP 1** | **PREVIOUS KNOWLEDGE:** students were taught the meaning proportion in math and the calculations and applications on direct proportions | | Students recall. |
| **STEP 2** | **EXPLORATION:**  The teacher introduces the topic with the following questions:   1. What is inverse proportion? 2. Suppose x and y are in an inverse proportion such that, when x = 15, then y = 8. Find the value of y when x = 20 | | Students make attempt to answer the questions. |
| **STEP 3**  **Objective 1;**  **Objective 2;**  **Objective 3;** | **DISCUSSION:**  ***Teacher starts the discussion:***  When the value of one quantity increases with respect to decrease in other or vice-versa, then they are said to be **inversely proportional.** It means that the two quantities behave opposite in nature. For example, speed and time are in inverse proportion with each other. As you increase the speed, the time is reduced  Two quantities are said to be **inversely proportional**when one quantity is in direct proportion to the reciprocal of others  The symbol used to represent the proportionality is **“∝.”**  **Example: 1**  If x and y are two quantities which are in inverse variations, then  x ∝ 1/y  x = k(1/y)  Where “k” is a universally positive constant.  It can also be represented as xy = k  If x and y are in inverse variation and x has two values x1 and x2 corresponding to y having two values y1 and y2 respectively, then by the definition of inverse variation, we have  x1 y1 = x2 y2 = (k)  In this case, it becomes  x1/ x2 = y2 / y1 = k  Example 2  6 builders can build 10 houses in 30 months. How long would it take 18 builders to build the same number of houses?  **Step 1:**Multiply the number of months by the number of builders to get the time for 1 builder.  10 houses would take 1 builder 6×30=180 months  **Step 2:** Divide the time it would take for 1 builder by the 18 builders.  10 houses would take 18 builders =180÷18=10 months. | | Students listen attentively and take down notes. |
| **STEP 4** | **APPLICATION:** Suppose x and y are in an inverse proportion such that, when x = 15, then y = 8. Find the value of y when x = 20.  **Solution:**  Given,  x ∝ 1/y  x = k/y, where k is a constant  or k = xy  Substituting, x = 15 and y = 8, we get;  k = 15 x 8 = 120  Now, when x = 20, then;  20 y = 120  y = 120/20 = 6 | | Students ask questions on the topic which the teacher answers. |
| **STEP 5** | **EVALUATION:** the teacher evaluates the students with the following questions:   1. What is inverse proportion? 2. Y is directly proportional to the square of x. when Y is 5 and x is 3. Find: 3. The value of Y when x is 2 4. The value of x when Y is 8. | | The students answer the questions. |
| **Assignment**  **References**  **New concept mathematics for Jss3 by A. A. Arigbabu et al.**  **New general mathematics for Jss3 by M/ F. Macrae et al.** | |  |