5 Step Lesson Design for Mathematics

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General objectives of Mathematics Teaching:

1. To develop mathematical attitude among students.

2. To develop knowledge of mathematical facts.

3. To develop power of logical thinking.

(Note: Mention the general objectives on the first page of lesson plan book. No need to mention them with each lesson.)

Date:
Class: 8th
Subject: Mathematics
Topic: Equations in one variable which are not linear

Entry behaviour:

Students are expected to have knowledge about equations, root of an equation, linear equation.

Learning outcomes: SWBAT

- Reduce the equations to simpler and linear form.

Learning resources:

- Flash card of equations of the form ax+b=k
- Flash card of root of an equation of the form ax+b=k is x=k-b/a
- Flash card of equations of the form ax+b/c=k

OPENING: (Introduction or Launch)

Using appropriate flash cards the teacher may ask the following questions.

1. What do you mean by an equation?

Exp Ans: - An equation is a statement of equality which contains an unknown quantity or variable.

2. What is the root of an equation?

Exp Ans: - Any value of the variable which makes the statement true is called root of the equation.

3. What do you mean by a linear equation?

Exp Ans: - An equation in which the highest powers of the variables are one is called a linear equation.

4. Do you have any idea about equations in one variable which are not linear?

Exp Ans: - No response. Now today we will discuss about equations in one variable which are not linear

I DO (Modelling/Explain):

How to solve an equation:- (The teacher will show on black board or white board)

Equations of the form (ax+b)/(cx+d) =k

Let us consider an equation (3x+5)/(2x+7)=4 it is an equation of the form (ax+b)/(cx+d)=k where a=3, b=5, c=2, d=7, k=4

It is an equation in one variable but it is not linear. We can solve these type of equations by converting them into the form of linear equations

Let's take an example:

Example:- Solve the equation (5x-7)/(3x)= 2

Sol:- we have

(5x-7)/3x = 2

Multiplying both sides by 3x,we get

[(5x-7)/(3x)] 3x = 2(3x)

5x - 7 = 6x

5x - 6x = 7

-x = 7

x= -7

Method of cross multiplication:-

Solve the equation (2-y)/(y+7)=3/5

sol:- we have:

(2-y)/(y+7) = 3/5

By cross multiplication

(2-y)5 = 3(y+7)

10 - 5y = 3y + 21

y = -11/8

We Do: (EXPLORE)

The teacher divides the students into groups and gives them questions

Solve the following equations

1. $(3x+5)/(2x+7) = 4$

2. $(2y+5)/(y+7) = 1$

Now the teacher ask questions from students of any group to solve them on the board

1. $(y-2)/2y = 1$

sol:- $y - 2 = 2y$

$y + 2y = 2$

$3y = 2$

$y = 2/3$

You Do: (Independent practice/Summarise)

The teacher gives some problems to the students to solve independently

1.$(4 - x)/ (2 + x) = 1$

2. $(3-2x)/(5-3x) = 2$

3. $(z-4)/(z+2) = 6$

Closing:-

Evaluate:

1. What are equations in one variable which are not linear?
2. What is the difference between linear and which are not linear equations in one variable?

At the end of session the teacher tell students to practice at home.