Class – XI
Lesson Plan 2

Topic: Sets and Relations

Brief Description of the lesson:

The lesson Sets and Relations in Class 11 Mathematics deals with the basic concepts of sets and relations. It begins with an introduction to the different types of sets, such as finite sets, infinite sets, empty sets, and singleton sets. It then discusses the different ways of representing sets, such as roster form, set-builder form, and Venn diagrams. The chapter also covers the important topics of subset, superset, equal sets, disjoint sets, union of sets, intersection of sets, and difference of sets. The next section of the chapter deals with the concept of relations. A relation is a way of connecting two sets. There are many different types of relations, such as reflexive, symmetric, transitive, and equivalence relations.

Objectives:

I - Specific Objectives:

Students will be able to:
S1 define sets and relations (**Knowledge/Recalling)**
S2 identify different types of sets and relations **(Understand/Classifying)**
S3 represent sets and relations using Venn diagrams and other graphical representations **(Synthesis**)
S4 apply the properties of sets and relations to solve problems. **(Apply/Implementation)**

II - Behavioural Objectives:

By understanding and solving variety of problems, students will attain following behavioural objectives:
1) B1 Given a set, students will be able to list its elements (**Knowledge/Recalling)**
2) B2 Given a relation, students will be able to determine whether it is a function. (**Knowledge/Recalling)**
3) B3 Given a Venn diagram, students will be able to identify the different sets and their relationships. (**Knowledge/Recalling)**
4) B4 Given a problem involving sets or relations, students will be able to solve it using the appropriate properties. **(Apply/Implementation)**

Process / Activities:

1) ACT1 Create Venn diagrams to represent different sets and their relationships **(Synthesis**)
2) ACT2 Card games: There are many card games that can be used to teach set concepts. For example, in the game Set, players must identify sets of three cards that have the same number, colour, or shape. **(Apply/Implementation)**

Skills:

1) Problem solving
2) Application

Assessment:

Assessment of activity will be done based on decided rubrics:
A1 Assessment of activity will be done based on the following questions
(a) Construction of venn diagram for a given word problem **(Synthesis)**
(b) Construction of Arrow diagrams for given sets and identify domain and range of relation **(Synthesis)**

Expected Learning Outcomes:

The students would be able to:
1) Set concepts: **(Knowledge/Recalling)**
Define a set and its elements.
Identify different types of sets (e.g., finite, infinite, empty).
Determine whether two sets are equal, equivalent, or neither.
Find the cardinality of a set.
Use set notation correctly.
2) Set operations: **(Apply/Implementation)**
Find the union, intersection, and complement of two sets.
Apply set operations to solve problems.
3) Relations: **(Understand/Interpret)**
Define a relation and its domain and range. Determine whether a relation is a function.

Placements of Objectives, Instructional Activities and Assessment:

Topic/Start Date/Assessment					
Knowledge	Understanding	Application	Analysis	Synthesis	Evaluation
S1	S2	S4		S3	
B1		B4		ACT1	
B2		ACT2		A1	
B3					

REVIEW OF THE LESSON PLAN
(To be done when the lesson gets over)

Problems Faced:
1. Few students find this topic very easy and did not pay required attention in the class and lost marks in assessment/tests.
2. A very few students had difficulty in making Venn diagrams out of the given information and students were not ready to use Venn diagrams in learning properties of set operations rather than mugging them up.

Success: about 98% of the students understand the topic better and have ability to express it properly.
Failure: about 02% of students were not be able to solve a particular set of questions, requiring a good understanding of Venn diagrams and operations on sets

Real Learning Outcomes: Students were able to
1. define and identify sets and relations.

2. understand and apply the basic operations on sets, such as union, intersection, difference, and complement.
3. use sets to model real-world problems and to solve them using mathematical methods.

Student's response/participation: Students participations was good.

Teacher's learning:
1. Sets and relations are abstract concepts, but they are also essential for understanding many other mathematical topics. Teachers can learn how to explain abstract concepts in a way that is accessible to students by using concrete examples, analogies, and diagrams.

2. Teachers can learn how to develop students' problem-solving skills by providing them with opportunities to work on challenging problems, both individually and in groups.