

CLASS – X
LESSON PLAN
CHAPTER-15: PROBABILITY

Unit	Geometry (Chapter 15: Probability)
Class Transaction	Total: 4 periods (approx. 40 min each)
Pre-requisite for the course	This lesson requires 1. Basic knowledge of Probability 2. An outcome and an event in probability. 3. Empirical or Experimental Probability.
Assessment of qualifying knowledge	1. Written test 2. Lab activity 3. HW notebook
Objective	• Students will be able to understand analyze the Theoretical Probability and critically examine the difference between Experimental and Theoretical Probability. • Students will also understand sure event and impossible event and their probability, thereby inculcating competencies like collaboration, critical thinking and creativity
Learning Outcomes	<u>KNOWLEDGE</u>- <i>Students will develop the ability to understand</i> • <i>Equally likely outcomes</i> • <i>Sum of probabilities of elementary events</i> • <i>Complementary events</i> • <i>Sure Events</i> • <i>Impossible Events</i> Theoretical approach of Probability <u>SKILLS and COMPETENCIES</u>-<i>Students would be able to</i> 1. Differentiate between Experimental and Theoretical Probability. 2. understand sure event and impossible event and their probability. 3. Know equally likely outcomes and develop critical thinking and collaboration in the process. 4. Analyze and solve simple problems on single events.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Strategy Used: Inductive and deductive reasoning, Brainstorming, graphic organizer, think pair and share Think Pair and Share: In this activity, students think about a particular question individually, then they form pairs to discuss their answers. Following this, the results are shared in a large classroom discussion. Alternatively, two pairs of students can pair up to compare and discuss answers. This process forces students to think individually, and then allows them to analyze and clarify their response collaboratively. Brain Storming: In this activity, students are asked to generate ideas on a certain topic, category or question while facilitator facilitate and record the answers on the board. Inductive and Deductive Learning: In Inductive type students proceed from particular to general statement(example to formula) and in Deductive type students proceed from general to particular. Students are given formula and they solve problems using them.

	Numbered Heads: Students are placed in groups and each person is given a number (from one to the maximum number in each group). The teacher poses a question and students "put their heads together" to figure out the answer. The teacher calls a specific number to respond as spokesperson for the group. Graphic Organizers: Graphic organizers are some of the most effective visual learning strategies for students and are applied across the curriculum to enhance learning and understanding of subject matter content. <i>Story Boarding-</i>The class would start with a discussion on what the students have already learnt in the previous classes and hence what is it that they would learn now. They would also be told the significance of the topic that they would be studying. <i>Introduction of the topic-</i> ppt and Digital Content would be shared <i>Guided practice followed by Independent Practice-</i> NCERT questions to be discussed in the classroom. Techniques to be used: Quiz Daily Practice Problem MCQ Peer Assessment Case Studies Lab Activities Any Other
Self Study, Home Work, Assignments	Independent Practice: Students would do some questions from NCERT and Exemplar in HW notebooks. HW notebooks to be marked as per the given plan: <i>Assessment Parameters:</i> The total marks for the activity is 5 marks On time submission.....1 mark Presentation/ Neatness.....1 mark Content.....3 marks It is also advised that the students come to the class with proper background knowledge of the topic under discussion. They can refer to the resources stated above.
Assessments	Collaborative approach towards learning will be assessed by 3 UNIT TESTS (20, 30, 30)80 Marks MID TERM EXAMINATION80 Marks HALF YEARLY EXAMINATION 80 Marks PRE BOARD-I EXAMINATION 80 Marks PRE BOARD-II EXAMINATION 80 Marks ANNUAL BOARD EXAMINATION 80 Marks PERIODIC TEST Average of the best two tests to be taken that will have a weightage of 10 marks. Best 2 Tests out of: Units tests, Midterm examination, Half Yearly examination.

	INTERNAL ASSESSMENT 20 Marks - Periodical Test 10 Marks - Note Book Submission 05 Marks - Lab Practical (Subject enrichment) 05 Marks - Through lab Practical Students are assessed for Collaboration, Character building
Addressing Classroom Diversity	Due to various social backgrounds and multiple intelligences, the classroom might be a diverse arena. The following techniques can be used for various groups: <i>For gifted students:</i> - High order thinking questions from NCERT Exemplar - Encouragement for referring other resources <i>For weak students:</i> - Buddy help to be provided - Provide grade-up classes <i>For differently abled students:</i> - Ignore spelling mistakes and formulae, if not written - Call parents at regular intervals - Provide grade-up classes
Marks	The weightage would be given by CBSE.
Assessment Questions	Q1 What is the sum of the probability of an event and non- event . Q2 A bag contains 5 black,7 red and 3 white balls. A ball is drawn from the bag at random. Find the probability that the ball drawn is (i) red (ii) black or white (iii) not black. Q3 A card is drawn from a well-shuffled pack of cards. Find the probability that the card drawn is: (a) a queen (b) a king bearing diamond sign (c) a black card (d) a jack and a queen. Q4 What are the total outcomes when we throw three coins simultaneously? Q5 A bag contains 100 identical tokens, on which numbers 1 to 100 are marked. A token is drawn at random. What is the probability that the number on the token is: (a) an even number (b) an odd number (c) a multiple of 3 (d) a multiple of 5 (f) a multiple of 3 and 5 (g) a multiple of 3 or 5 (h) a number less than 20.

DAY	ONE
Objective	Enhance ability to accurately recognize and use appropriate terminology related to probability and developing the art of communication and critical thinking through analysis of the situation occurred.
Assessment of qualifying knowledge	Quiz and knowledge testing on how to find probability of real life events.
Learning Outcomes	<u>KNOWLEDGE</u>- Students will know and identify the probability by analyzing to measure the chance of occurrence of a particular outcome in an experiment. <u>SKILLS and COMPETENCIES</u> Students would be able to Reason effectively and critically describe probability of real life events.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Strategy Used: Inductive and deductive reasoning, think pair and share Anticipatory Set: 10 min Facilitator will ask few questions to introduce the topic •What is chance? •How to measure uncertainty of events? •Examples of probable events in real life? Discussion of topic through Collaborative Learning: 15 min <u>Inquiry based learning</u> (Critical Thinking and Problem Solving) Students would be asked to write different real life situations in which they are supposed to make predictions and examine the probability of the thing. The facilitator would take rounds and ensure that each learner is engaged. Guided practice: 10 min The students will solve the questions from NCERT book, solved examples before Ex 15.1 in their notebook in the class with the help of their facilitator. The facilitator would take rounds and help the students in solving the questions. Independent Practice: Students will go through the solved examples before Ex 15.1 of NCERT text book. Closure: 5 min A short oral test would be taken to check proper assimilation of the topic discussed.
Resources	Text Book: NCERT text book for Mathematics Reference Book CBSE Exemplar
Self Study, Home Work, Assignments	Independent Practice: Students would do some questions from NCERT in their H.W. notebooks.
Assessments	Oral Test (5 minutes)
DAY	TWO
Objective	To solve the questions of Ex- 15.1 based on theoretical probability of an event
Assessment of qualifying knowledge	Written questions on probability.
Learning Outcomes	<u>KNOWLEDGE</u>- Students will know and Demonstrate the ability to find probability of an event <u>SKILLS and COMPETENCIES</u>- Students will be able to differentiate and classify the

	probabilities, in collaboration with each other.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Strategy Used: Brainstorming, think pair and share, graphic organiser Recapitulation: 5 min Oral test on the previous concept would be taken up. Discussion of topic through Collaborative Learning: 15 min (Critical thinking) Exercise 15.1 would be discussed and students would solve different questions per group and then the questions would be crosschecked. Digital content would be used. The facilitator would take rounds and help students with their doubts. Guided Practice: 15 min The students will solve the questions from NCERT book of Exercise – 15.1 in their notebook in the class with the help of their teacher. The teacher would ensure that each student tries to be independent at the work as well as be under the teacher’s guidance. Independent Practice: Students will complete the remaining HW parts given in Exercise 15.1 in their Math HW notebook. Closure: 5 min A short oral test would be taken to check proper assimilation of the topic discussed.
Resources	Text Book: NCERT text book for Mathematics Reference Book CBSE Exemplar
Self Study, Home Work, Assignments	Independent Practice: Students would do the given questions in their H.W. notebooks as mentioned
Assessments	Oral quiz (5 minutes)
DAY	THREE
Objective	To solve the questions of Ex- 15.1 based on theoretical probability of an event
Assessment of qualifying knowledge	Quiz and knowledge testing on how to find probability of real life events.
Learning Outcomes	<u>KNOWLEDGE</u>- Students will know and identify the probability by analyzing to measure the chance of occurrence of a particular outcome in an experiment. <u>SKILLS and COMPETENCIES</u> Students would be able to Reason effectively and critically describe probability of real life events.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Strategy Used: Inductive and deductive reasoning, think pair and share Recapitulation: 5 min Oral test on the previous concept would be taken up Discussion of topic through Collaborative Learning: 15 min (Critical thinking) Exercise 15.1 would be discussed and students would solve different questions per group and then the questions would be crosschecked. Digital content would be used. The facilitator would take rounds and help students with their doubts. Guided Practice: 15 min The students will solve the questions from NCERT book of Exercise – 15.1 in their notebook in the class with the help of their teacher. The teacher would ensure that each student tries to be independent at the work as well as be under the teacher’s guidance.

	Independent Practice: Students will complete the remaining parts of Exercise 15.1 in their Math HW notebook. Closure: 5 min A short oral test would be taken to check proper assimilation of the topic discussed.
Resources	Text Book: NCERT text book for Mathematics Reference Book CBSE Exemplar
Self Study, Home Work, Assignments	Independent Practice: Students would do some questions from NCERT in their H.W. notebooks.
Assessments	Oral Test (5 minutes)
DAY	FOUR
Objective	Demonstrate the ability to solve questions with 90% accuracy
Assessment of qualifying knowledge	Written questions on probability.
Learning Outcomes	<u>KNOWLEDGE</u>- Students will know and Demonstrate the ability to find probability of an event <u>SKILLS and COMPETENCIES</u>- Students will be able to differentiate and classify the probabilities, in collaboration with each other.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Strategies Used: Graphic Organizers Recapitulation: 5 min Oral Test would be taken up. Discussion of topic through Collaborative Learning: 10 min (Critical) Exemplar would be taken up. Guided Practice: 20 min The teacher would explain some questions from the Exemplar. Independent Practice: Students would try other questions from the Exemplar. Closure: 5 min Summarization, preferably by a student, would be taken to check proper assimilation of the topic discussed.
Resources	Text Book: NCERT text book for Mathematics Reference Book CBSE Exemplar
Self Study, Home Work, Assignments	Independent Practice: Students would some questions from Exemplar in their H.W. notebooks.
Assessments	Oral quiz (5 minutes)