

LESSON PLAN
MATHEMATICS VIII
CH-2 LINEAR EQUATION IN ONE VARIABLE

Unit	Algebra (Chapter 2: Linear Equation in One Variable)
Class Transaction	Total: 12 periods (approx. 40 min each)
Pre-requisite for the course	This lesson requires 1. Basic knowledge of equations. 2. Knowledge of transposition method to find variable
Assessment of qualifying knowledge	1. Written test 2. Lab activity 3. HW notebook
Objective	Students would be able to identify linear equation in one variable and develop skills of performing various operations of transposition to find variable and solve real life situations, thereby inculcating competencies like collaboration, critical thinking and creativity
Learning Outcomes	<u>KNOWLEDGE</u>- <i>Students will develop the ability to understand</i> 1. Solve the Equations of the type $ax+b = cx+d$ 2. Solve the Equations of the type $(ax+b)/(cx+d) = k$, $cx+d \neq 0$. 3. They will also solve some word problems on linear equations in one variable SKILLS and COMPETENCIES- <i>Students would be able to</i> 4. Develop the ability to analyze and differentiate between various equations . 5. Perform numerical skills like forming equations from word problems and develop critical thinking and collaboration in the process.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, Muddiest point of discussion, think pair share. Dimensions of learning- D1,D2, D3 Transaction would proceed in the following manner- Brain Storming-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						
Resources	Text Book: NCERT text book for Mathematics Reference Book 1. CBSE Exemplar						
Self Study, Home Work, Assignments	Independent Practice: Students would do the given questions in their H.W. notebooks. H.W. 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	Through Pen Paper Test Students will be assessed creatively and critically <table> <tr> <td>4 UNIT TESTS</td> <td>20 Marks each</td> </tr> <tr> <td>HALF YEARLY EXAMINATION</td> <td>80 Marks</td> </tr> <tr> <td>ANNUAL BOARD EXAMINATION</td> <td>80 Marks</td> </tr> </table> INTERNAL ASSESSMENT 10 Marks - Note Book Submission 05 Marks - Lab Practical (Subject Enrichment) 05 Marks Through lab Practical Students are assessed for Collaboration, Character building, Character Building	4 UNIT TESTS	20 Marks each	HALF YEARLY EXAMINATION	80 Marks	ANNUAL BOARD EXAMINATION	80 Marks
4 UNIT TESTS	20 Marks each						
HALF YEARLY EXAMINATION	80 Marks						
ANNUAL BOARD EXAMINATION	80 Marks						
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> - HOTs questions to be done - 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 • Encourage and motivate them at every level.
Marks	The weightage would be given by CBSE.

ASSIGNMENT QUESTIONS

1. Find the solution of $3x - 4 = 12$
2. Solve: $5x - 9 = 8$
3. What should be subtracted from thrice the rational number $-\frac{8}{3}$ to get $\frac{5}{2}$?
4. The sum of three consecutive multiples of 7 is 63. Find these multiples.
5. Solve $3x/4 - 7/4 = 5x + 12$
6. Perimeter of a rectangle is 13cm. if its width is $1\frac{1}{4}$ cm, find its length.

DAY	ONE
Objective	Enhance ability to solve equations to find value of variable using transposition method.
Assessment of qualifying knowledge	Quiz and knowledge testing .
Learning Outcomes	<u>KNOWLEDGE</u>- Students will know and identify variables and equations. <u>SKILLS and COMPETENCIES</u> Students would be able to Reason effectively and critically differentiate various equations.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning Dimensions of learning- D1, D3 Transaction would proceed in the following manner- Anticipatory Set: <u>10 min</u> Facilitator will ask few questions to introduce the topic • What is a variable? • What is an equation? • What is linear equation? • What is linear equation in one variable? • What is transposition method? • How to form equations from word problems and statements? Discussion of topic through Collaborative Learning: <u>15 min</u> <u>Inquiry based learning</u> (Critical Thinking and Problem Solving) Students would be asked to solve various equations. The facilitator would take rounds and ensure that each learner is engaged. Guided practice: <u>10 min</u> The students will solve the questions from NCERT book, solved examples before Ex 2.1 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 2.1 of NCERT text book. Closure: <u>5 min</u> 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.
Assessments	Oral Test (5 minutes)
DAY	TWO
Objective	To solve the questions of Ex- 2.1
Assessment of qualifying knowledge	Written questions on solving equations.
Learning Outcomes	<u>KNOWLEDGE</u>- <i>Students will develop the ability to understand the</i> To find value of variables using different methods. <u>SKILLS and COMPETENCIES</u>- <i>Students would be able to critically apply the concepts in given situations and collaboratively realize the fact that linear equation can have maximum degree 1 and only one variable in given equation.</i>
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning Dimensions of learning- D1,D3 Transaction would proceed in the following manner- Recapitulation: <u>5 min</u> Oral test on the previous concept would be taken up. Discussion of topic through Collaborative Learning: <u>15 min</u> (Critical thinking) Exercise 2.1 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: <u>15 min</u> The students will solve the questions from NCERT book of Exercise – 2.1 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 2.1 in their Math HW notebook. Closure: <u>5 min</u> 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.
Assessments	MCQ (5 minutes)
DAY	THREE

Objective	To enable students to form linear equations using examples from daily life related to age, money, speed, numbers.
Assessment of qualifying knowledge	Written test on forming equations from statements and vice-versa.
Learning Outcomes	<u>KNOWLEDGE</u>- Students will develop the ability to understand the Relationship between equations and real life situations. <u>SKILLS and COMPETENCIES</u> - Students would be able to 1. Critically apply the concepts in given situations and collaboratively apply their knowledge in solving the practical problems.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, Muddiest point of discussion, think pair share. Dimensions of learning- D2, D3 Transaction would proceed in the following manner- Recapitulation: 5 min Quick revision on the previous concept would be taken up. Discussion of topic through Collaborative Learning: 15 min (Creativity, Collaboration) Word problems would be introduced to students to enable them to solve real life situations. This would be discussed in detail with vivid examples. Guided Practice: 15 min The students will solve the questions from NCERT book, solved examples before Ex 2.2 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 find various irrational numbers in view of its definition. Closure: 5 min Discussion of muddiest point.
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.
Assessments	Written test (5 minutes)
DAY	FOUR
Objective	To solve the questions of Ex- 2.2 based on practical problems of age, money, numbers etc.
Assessment of qualifying knowledge	Written questions on solving equations.

Learning Outcomes	<u>KNOWLEDGE</u>- Students will develop the ability to understand the Word problems and form equations accordingly. <u>SKILLS and COMPETENCIES</u> - Students would be able to • critically apply the concepts in given situations and collaboratively realize the fact that linear equation can be used to solve practical situations effectively. • Apply critically the knowledge meaningfully and creatively.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Muddiest point of discussion, think pair share. Dimensions of learning- D2, D3 Transaction would proceed in the following manner- Recapitulation: 5 min Oral test on the previous concept would be taken up. Discussion of topic through Collaborative Learning: 15 min (Critical thinking) Exercise 2.2 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 –2.2 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 of Exercise 2.2 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.
Assessments	MCQ (5 minutes)
DAY	FIVE
Objective	To solve the questions of Ex- 2.2 based on practical problems of age, money, numbers etc.
Assessment of qualifying knowledge	Written questions on solving equations.
Learning Outcomes	<u>KNOWLEDGE</u>- Students will develop the ability to understand the

	Word problems and form equations accordingly. SKILLS and COMPETENCIES - <i>Students would be able to</i> 1. Apply critically the knowledge meaningfully and creatively. 2. apply the concepts in given situations and collaboratively realize the fact that linear equation can be used to solve practical situations effectively.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, think pair share. Dimensions of learning- D2, D3 Transaction would proceed in the following manner- Recapitulation: 5 min Oral test on the previous concept would be taken up. Discussion of topic through Collaborative Learning: 15 min (Critical thinking) Exercise 2.2 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 –2.2 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 of Exercise 2.2 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.
Assessments	Written test (5 minutes)
DAY	SIX
Objective	Students would be able to solve to the equation of the type $(ax+b)/(cx+d) = k$, $cx+d \neq 0$
Assessment of qualifying knowledge	Written test on solving equations.
Learning Outcomes	KNOWLEDGE- <i>Students will know and understand</i> 1. The various kinds of equations to find variables.

	<u>SKILLS and COMPETENCIES</u> - <i>Students would be able to</i> 1. Critically visualize the representation of variables in equations. 2. Differentiate between different types of equations and methods to solve them.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, Muddiest point of discussion, graphic organizers. Dimensions of learning- D1,D2, D3 Transaction would proceed in the following manner- Recapitulation: <u>5 min</u> One-minute test would be taken. Discussion of topic through Collaborative Learning: <u>15 min</u> (Creativity) Students would be introduced to the equation of the type $(ax+b)/(cx+d) = k$, $cx+d \neq 0$ Mind mapping would be used Digital content would be used. Guided Practice: <u>15 min</u> The facilitator would explain through different examples. Collaborative approach would be taken up. Independent Practice: Students will go through Ex 2.3 of NCERT text book. Closure: <u>5 min</u> 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 do the given questions in their H.W. notebooks.
Assessments	Written test (5 minutes)
DAY	SEVEN
Objective	To enable students to form linear equations using examples from daily life related to age, money, speed, numbers.
Assessment of qualifying knowledge	Oral test on terminating and non-terminating decimal expansion of given number.
Learning Outcomes	<u>KNOWLEDGE-</u> <i>Students will develop the ability to understand the</i> Relationship between equations and real life situations. <u>SKILLS and COMPETENCIES</u> - <i>Students would be able to</i> 1. Critically apply the concepts in given situations and collaboratively apply their knowledge in solving the practical problems.

Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- think pair share. Dimensions of learning- D1,D3 Transaction would proceed in the following manner- Recapitulation: 5 min Quick revision on the previous concept would be taken up. Discussion of topic through Collaborative Learning: 15 min (Creativity, Collaboration) Word problems would be introduced to students to enable them to solve real life situations. Students will explained through technology some applications of the equations having variations on both the sides. word problems–age, money, speed, numbers. This would be discussed in detail with vivid examples. Guided Practice: 15 min The students will solve the questions from NCERT book, solved examples before Ex 2.4 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 find various irrational numbers in view of its definition. Closure: 5 min Discussion of muddiest point.
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.
Assessments	Oral test (5 minutes)
DAY	EIGHT
Objective	To solve the questions of Ex- 2.4 based on practical problems of age, money, numbers etc.
Assessment of qualifying knowledge	Written questions on solving equations.
Learning Outcomes	<u>KNOWLEDGE-</u> Students will develop the ability to understand the Word problems and form equations accordingly. <u>SKILLS and COMPETENCIES</u> - Students would be able to • critically apply the concepts in given situations and collaboratively realize the fact that linear equation can be used to solve practical situations effectively. • Apply critically the knowledge meaningfully and creatively.

Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, Muddiest point of discussion Dimensions of learning- D3 Transaction would proceed in the following manner- Recapitulation: 5 min Oral test on the previous concept would be taken up. Discussion of topic through Collaborative Learning: 15 min (Critical thinking) Exercise 2.4 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 –2.4 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 of Exercise 2.4 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 .
Assessments	MCQ (5 minutes)
DAY	NINE
Objective	To solve the questions of Ex- 2.4 based on practical problems of age, money, numbers etc.
Assessment of qualifying knowledge	Written questions on solving equations.
Learning Outcomes	<u>KNOWLEDGE-</u> Students will develop the ability to understand the Word problems and form equations accordingly. <u>SKILLS and COMPETENCIES</u> - Students would be able to 3. Apply critically the knowledge meaningfully and creatively.

	4. apply the concepts in given situations and collaboratively realize the fact that linear equation can be used to solve practical situations effectively.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, think pair share. Dimensions of learning- D1, D3 Transaction would proceed in the following manner- Recapitulation: 5 min Oral test on the previous concept would be taken up. Discussion of topic through Collaborative Learning: 15 min (Critical thinking) Exercise 2.4 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 –2.4 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 of Exercise 2.4 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.
Assessments	MCQ test (5 minutes)
DAY	TEN
Objective	Student will be introduced through examples how equations can be reduced to the simpler form
Assessment of qualifying knowledge	Written test on solving equations.
Learning Outcomes	<u>KNOWLEDGE-</u> Students will know and understand 2. The various kinds of equations to find variables. <u>SKILLS and COMPETENCIES</u> - Students would be able to 3. Critically visualize the representation of variables in equations.

	4. Differentiate between different types of equations and methods to solve them.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning Dimensions of learning- D2, D3 Transaction would proceed in the following manner- Recapitulation: 5 min One-minute test would be taken. Discussion of topic through Collaborative Learning: 15 min (Creativity) Student will be introduced through examples how equations can be reduced to the simpler form .Mind mapping would be used Digital content would be used. Guided Practice: 15 min The facilitator would explain through different examples. Collaborative approach would be taken up. Independent Practice: Students will go through Ex 2.5 of NCERT text book. 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 do the given questions in their H.W. notebooks.
Assessments	Quiz (5 minutes)
DAY	ELEVEN
Objective	Student will be able to solve NCERT questions of exercise 2.5.
Assessment of qualifying knowledge	Written test on solving equations.
Learning Outcomes	<u>KNOWLEDGE</u> - <i>Students will know and understand</i> 3. The various kinds of equations to find variables. <u>SKILLS and COMPETENCIES</u> - <i>Students would be able to</i> 5. Critically visualize the representation of variables in equations. 6. Differentiate between different types of equations and methods to solve them.
Transaction Methodology (The teacher can use the mentioned techniques,	Strategies used- Inductive deductive reasoning, Muddiest point of discussion. Dimensions of learning- D1,D2 Transaction would proceed in the following manner- Recapitulation: 5 min

wherever applicable, and can use any other too.)	One-minute test would be taken. Discussion of topic through Collaborative Learning: <u>15 min</u> (Creativity) Student will be introduced through examples how equations can be reduced to the simpler form .Mind mapping would be used Digital content would be used. Guided Practice: <u>15 min</u> The facilitator would explain through different examples. Collaborative approach would be taken up. Independent Practice: Students will go through Ex 2.5 of NCERT text book. Closure: <u>5 min</u> 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 do the given questions in their H.W. notebooks.
Assessments	board test (5 minutes)
DAY	TWELVE
Objective	Students will be introduced the equations reducible to the linear form.
Assessment of qualifying knowledge	Oral test on various concepts being used in chapter.
Learning Outcomes	<u>KNOWLEDGE</u>- <i>Students will know and understand</i> 4. The various kinds of equations to find variables. <u>SKILLS and COMPETENCIES</u> - <i>Students would be able to</i> 7. Critically visualize the representation of variables in equations. 8. Differentiate between different types of equations and methods to solve them.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Strategies used- Inductive deductive reasoning, think pair share. Dimensions of learning- D1,D2 Transaction would proceed in the following manner- Recapitulation: <u>5 min</u> One-minute test would be taken. Discussion of topic through Collaborative Learning: <u>15 min</u> (Creativity) Student will be introduced through examples how equations can be reduced to the simpler form .Mind mapping would be used

	Digital content would be used. Guided Practice: 15 <u>min</u> The facilitator would explain through different examples. Collaborative approach would be taken up. Independent Practice: Students will go through Ex 2.6 of NCERT text book. Closure: 5 <u>min</u> 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 do the given questions in their H.W. notebooks.
Assessments	Oral test (5 minutes)