

DELHI PUBLIC SCHOOL GHAZIABAD
CLASS – X
LESSON PLAN
Chapter3: Metals and Nonmetals

Unit	Chapter3: Metals and Nonmetals
Class Transaction	Total: 11periods (approx. 40 min each)
Pre-requisite for the course	This lesson requires previous knowledge of- • What are metals? • What are nonmetals? • Physical properties of metals and nonmetals
Assessment of qualifying knowledge	1. Written test 2. Lab activity 3. Group Discussion 4. HW notebook
Objective	Given the content (chapter) the learners will be able to • compare the physical properties of metals and nonmetals using a compare – contrast matrix with 100 % accuracy. • Answer questions based on the chemical properties of metals with 90% accuracy. • Describe the steps involved in metallurgy of metals based on their reactivity and answer the questions on the same with 95% accuracy.
Learning Outcomes	<u>KNOWLEDGE</u>- <i>Students will able to describe</i> 1. Electronic configuration of Metals and Nonmetals 2. Physical and chemical properties of metals and non-metals 3. Define: Metallurgy, Ores, Minerals, Reactivity series, Malleability, Ductility, <u>SKILLS AND COMPETENCIES</u> - <i>Students would be able to</i> 1. Critically analyse and Compare the physical properties of metals and nonmetals using compare -contrast matrix. 2. Interact with peers and compare chemical properties metals and non metals and write equations for chemical reactions and develop critical thinking and collaboration in the process 3. interpret and explain the varying degree of reactivity that metals display towards air water and acids through description and equations 4. Students will be able to describe formation of ionic compounds, give explanation for the properties shown by ionic compounds 5. Design flow chart to show all steps of metallurgy 6. Students will be able to compare the metallurgical processes used in case of sulphide, carbonates ores and halides.compare roasting and calcination 7. Built character and citizenship amongst themselves by discussing /communicating the ways to prevent corrosion of iron hence strengthening nation's economy.

	8. Compare the metallurgical processes using in case of sulphide, carbonates and halides.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	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. Active learning- Wipro Technique (KWL- What you Know, What you will Learn, What you have learned).. (Critical thinking) Students will be asked how much they know about elements Students' responses will be listed on the blackboard by using the KWL chart and handouts throughout the lesson. Group learning-. (Communication, Collaboration) Think, pair and share, Group work Differentiation- Differentiation- The students in a group of 10 will prepare a skit on ways to prevent corrosion of iron hence strengthening nation's economy. . Questioning- e, pause, pounce and bounce, <i>Multiple level question</i>-Teacher will prepare a list of questions on different topics and will ask these questions during discussions. (Critical thinking, Communication) Guided practice followed by Independent Practice- NCERT questions to be discussed in the classroom. Techniques to be used: Quiz Daily Practice Problem MCQ Peer Assessment Student -teacher interaction, Wipro- G.O.s(web chart, flow chart and differentiation table,compare-contrast matrix),
Resources	Text Book: NCERT text book for science Reference Book CBSE Exemplar 1. Sample papers / last years paper 2. PPT/ Video
Self Study, Home Work,	Independent Practice: Students would do the questions in their H.W notebooks as mentioned in the monthly planner by which we can assess

Assignments	their critical thinking and creativity 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(creativity).....1 mark Content(critical thinking and creativity).....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	3 UNIT TESTS (20, 30, 30).....80 Marks MID TERM EXAMINATION.....80 Marks HALF YEARLY EXAMINATION.....80 Marks PRE BOARD-I EXAMINATION80 Marks PRE BOARD-II EXAMINATION.....80 Marks ANNUAL BOARD EXAMINATION.....80 Marks PERIODIC TEST By administering pen paper test we assess creativity and critical thinking. 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 ASSESSMENT20 Marks Periodical Test 10 Marks By administering pen paper test we assess creativity and critical thinking. Subject Enrichment 05 Marks With the help of subject enrichment activities we assess communication ,collaboration, character building and citizenship Note Book Submission 05 Marks By writing the answers of three levels of question we can assess their knowledge (Level 1 questions) critical thinking(Level 2 questions), creativity(Level 3 questions) Note Book Submission 05 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

	• 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.
	Following questions will be asked to check understanding of students 1. A student was provided with samples of manganese, zinc, sodium, iron and copper metal. Which one of these- (a) Will not displace hydrogen from HCl..... (b) Will react only with steam to evolve hydrogen gas..... (c) Will evolve hydrogen gas with with dilute HNO_3..... (d) Will be displaced from its salt solution by all other metals 2. What are amphoteric oxides? Give two examples of amphoteric oxides. 3. Give reasons: a) Platinum, gold and silver are used to make jewellery. b) Aluminium is a reactive metal still it does not corrode. c) Ionic compounds have high melting points. 4. Answer the following questions a) How do we find whether a given element is a non metal, if we know its electronic configuration ? b) With the help of a reaction show that zinc is more reactive than iron. 5. Give the steps involved in the extraction of metals of low and medium reactivity from their respective sulphide ores.

Topic	DAY 1-Physical Properties of Metals and Nonmetals
Class Transaction	40 min each)
Pre-requisite for the course	This topic requires basic knowledge of metals and non metals which students had already learnt in classes VIII & IX
Assessment of qualifying knowledge	Knowledge testing by asking questions based on previous knowledge by teacher in class
Objective	<i>Students will be able to</i> identify the metals and nonmetals from their surroundings, list down their attributes.
Learning Outcomes	<u>KNOWLEDGE</u>- <i>Students will be able to</i> • Define malleability and ductility • Identify exceptions of metals and non metals <u>SKILLS AND COMPETENCIES</u>- Students in groups of four critically analyse and the physical properties of metals and nonmetals and compare them with the help of a compare contrast matrix. Pay attention to the class task and exhibit self- control While working in the group Fulfills his role in the group
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Anticipatory Set: <u>10 min</u> Nonmetal Hunt- Facilitator asks each student to find and list any 2 items made of metals and two of nonmetals from the classroom. After the list is made the teacher asks a few students to share about the items they had listed and asks the following probing questions from the students. How do you identify metals from nonmetals? Students will share the properties of metals and nonmetals that they know. Students' responses will be listed on the blackboard by using the KWL chart Strategies- Wipro Technique (KWL- <i>What you Know, What you will Learn, What you have learned</i>), Student -teacher interaction, Think- Pair and Share, group work - collaborative, tabulation, Wipro- G.O.s(web chart, flow chart and compare- contrast matrix) DOL 1, 2, 3, 4 Discussion of topic through Collaborative Learning: <u>15 min</u> (Critical Thinking and Problem Solving, collaboration) Group of 6 the students will discuss physical properties of metals and nonmetals. Teacher will draw the format of compare contrast matrix on the

	board and with the help of students response fill the table.																																				
	<table><tr><th>S.No.</th><th>Attribute</th><th>Metals</th><th>Nonmetals</th></tr><tr><td>1</td><td>Physical State and Lustre</td><td></td><td></td></tr><tr><td>2</td><td>Hardness</td><td></td><td></td></tr><tr><td>3</td><td>Malleability</td><td></td><td></td></tr><tr><td>4</td><td>Ductility</td><td></td><td></td></tr><tr><td>5</td><td>Melting and boiling point</td><td></td><td></td></tr><tr><td>6</td><td>Electrical Conductivity</td><td></td><td></td></tr><tr><td>7</td><td>Thermal Conductivity</td><td></td><td></td></tr><tr><td>8</td><td>Sonority</td><td></td><td></td></tr></table>	S.No.	Attribute	Metals	Nonmetals	1	Physical State and Lustre			2	Hardness			3	Malleability			4	Ductility			5	Melting and boiling point			6	Electrical Conductivity			7	Thermal Conductivity			8	Sonority		
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Guided practice: 10 min																																					
Discuss and list exceptions of metals and non metals																																					
Which nonmetal is liquid at room temperature?																																					
ii- Which metal can be cut with a knife?																																					
Independent Practice: NCERT questions																																					
Closure: 5 min																																					
Involving students in summarizing the topic																																					
Resources	Text Book: NCERT text book for Science. Reference Book- CBSE Exemplar																																				
Closure	Involving students in summarizing by asking them to prepare questions based on the topic.																																				
Self Study, Home Work, Assignments	NCERT questions																																				
Assessments	Response during activity																																				
Topic	DAY 2- Chemical Properties of metals and nonmetals- Reaction with air																																				
Class Transaction	40 min each																																				
Pre-requisite for the course	This topic requires basic knowledge of reaction shown by metals and non metals																																				
Assessment of qualifying knowledge	Knowledge testing by asking questions based on previous knowledge by teacher in class																																				
Objective	Students will be able to describe Reaction of metals and non metals with air																																				
Learning Outcomes	<u>KNOWLEDGE</u> - Students will able to write equations for reaction of metals and non metals with air <u>SKILLS AND COMPETENCIES</u> - Students will critically analyse and																																				

	compare chemical nature of metallic and non metallic oxides and list down the observation Effectively interprets information and draws conclusions based on the best analysis- critical thinking
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Anticipatory Set: 5 min *Teacher asks questions based on previous day learning Strategies- Student -teacher interaction, Think- Pair and Share, group work - collaborative, tabulation, DOL 1, 2, 3 Discussion of topic through Collaborative Learning: 20 min (Critical Thinking and collaboration) Demonstration of burning of magnesium ribbon and sulphur powder followed by dissolution of product in each case in water. Discussion over the products formed and observation sheet filled in each case. Teacher students interaction / questioning to check their understanding Guided practice: 10 min. NCERT Questions Independent Practice: NCERT Questions Closure: 5 min Involving students in summarizing by asking them to prepare questions based on the topic.
Resources	Text Book: NCERT text book for Science. Reference Book -CBSE Exemplar
Closure	Involving students in summarizing by asking them to prepare questions based on the topic.
Self Study, Home Work, Assignments	NCERT Questions
Assessments	Observations and responses from activities
Topic	Day 3 – Chemical Properties of metals and nonmetals- Reaction with water and acids
Class Transaction	40 min each)
Pre-requisite for the course	This topic requires basic knowledge of reaction shown by metals and non metals
Assessment of qualifying knowledge	Knowledge testing by asking questions based on previous knowledge by teacher in class
Objective	Students will be able to explain Chemical Properties of metals and nonmetals

Learning Outcomes	<u>KNOWLEDGE</u>- Students will be able to Write equation for reactions of metals with water and acids <u>SKILLS AND COMPETENCIES</u>- Students will be able to critically analyse and compare reactivity of metals with water and acids Skills developed-Listing, compare & contrast, & interpretation , reasoning skills
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Anticipatory Set: Recapitulation through talking circles Strategies- Wipro Technique (Student -teacher interaction, Think- Pair and Share, group work – DOL 1, 2, 3 Discussion of topic through Collaborative Learning: 20 min (Critical Thinking, collaboration and communication) Class will be divided into groups of 6 students each. - Students in group will discuss reactions of metals with water and acids and write equations - Group presentation on the topic - Teacher students interaction / questioning to check their understanding supported by PPT/ Video Guided practice: 10 min NCERT Questions Closure: 5 min Summarization by students Independent Practice- NCERT Questions
Resources	Text Book: NCERT text book for Science. Reference Book-CBSE Exemplar
Closure	Involving students in summarizing the topic
Self Study, Home Work, Assignments	NCERT Questions
Assessments	Observations and responses from activities
Topic	DAY 4 –Reaction of metals with salt solutions of other metals (Displacement reactions)
Class Transaction	40 min each
Pre-requisite for the course	This topic requires basic knowledge of reaction shown by metals and non metals
Assessment of qualifying knowledge	Knowledge testing by asking questions based on previous knowledge by teacher in class
Objective	Students will be able to explain Chemical Properties of metals and

	nonmetals
Learning Outcomes	<u>KNOWLEDGE</u>- Students will be able to explain Reaction of metals with salt solutions of other metals <u>SKILLS AND COMPETENCIES</u>- Students will be able to compare reactivity of different metals through displacement reactions Write equations for various displacement reactions and justify the reactivity series based on the observations of experiment. Effectively interprets information and draws conclusions based on the best analysis
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Anticipatory Set: 5 min Recapitulation by asking questions based on previous day's learning Strategies- Wipro Technique (Student -teacher interaction, Think- Pair and Share, group work - collaborative, tabulation, Wipro- G.O.s(web chart, flow chart and compare- contrast matrix) DOL 1, 2, 3 Discussion of topic through Collaborative Learning: 20 min (Critical Thinking, collaboration and communication) Class will be divided into groups of 6 students each. - Students in group will discuss reactions of Reaction of metals with salt solutions of other metals and write equations - Group presentation on the reactivity series - Teacher students interaction / questioning to check their understanding Guided practice: 10 min NCERT Questions and exemplar questions Closure: 5 min Summarization by students Independent Practice-Students will complete related questions of Spiral level 2.
Resources	Text Book: NCERT text book for Science. Reference Book - CBSE Exemplar
Closure	Involving students in summarizing by asking them to prepare questions based on the topic.
Self Study, Home Work, Assignments	NCERT Questions
Assessments	Questioning

Topic	DAY 5-Practical
Class Transaction	40 min each)
Pre-requisite for the course	This topic requires basic knowledge of reactivity series of metals
Assessment of qualifying knowledge	Knowledge testing by asking questions based on previous knowledge by teacher in class
Objective	Students would be able to Observe the action of Zn, Fe, Cu and Al metals on the following salt solutions : a) ZnSO_4 (aq) b) FeSO_4 (aq) c) CuSO_4 (aq) d) $\text{Al}_2(\text{SO}_4)_3$ (aq) Arranging Zn, Fe, Cu and Al (metals) in the decreasing order of reactivity based on above result
Learning Outcomes	SKILLS AND COMPETENCIES- Students would be able to have hands on experiment and enhance their ability to make correct observations. Skills developed-Listing, compare & contrast, & interpretation , reasoning skills
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Anticipatory Set: 5min Recapitulation by asking questions based on previous day's learning Strategies- DEAL, tabulation, DOL 1, 2, 3 Discussion of topic through Collaborative Learning: 25 min (Critical Thinking and Problem Solving , collaboration and Character building: Comes prepared to learn and bringing of material on the day of lab visit and working as a team Teaching strategy – Hands on experiment, Discussion and tabulation Instructional Input : Teacher will explain the practical, Collaborative work; Students will work in group of three students each Guided practice: 10 min Students will observe and record their observation in tabular form. Closure: 5 min Summarization by students Independent Practice-Students will complete practical and answer related questions.
Resources	Text Book: NCERT text book for Science. Reference Book CBSE Exemplar

Closure	Involving students in summarizing by asking them to prepare questions based on the topic.
Self Study, Home Work, Assignments	NCERT Questions
Assessments	Observations and responses from activities
Topic	DAY 6-Ionic bond
Class Transaction	40 min each
Pre-requisite for the course	This topic requires basic knowledge of electronic configuration of metals and non metals
Assessment of qualifying knowledge	Knowledge testing by asking questions based on previous knowledge by teacher in class
Objective	Students will be able to understand and thereafter explain the formation of an ionic bond between a metal and nonmetal by transference of electrons through formation of ions.
Learning Outcomes	<u>KNOWLEDGE</u>- <i>Students will be able to write</i> • Electron dot structure of metals and non metals • Suggest formation of ionic bond <u>SKILLS AND COMPETENCIES</u>- Skills developed- interpretation , reasoning skills 21st century competencies: Critical thinking and problem solving , Collaboration and communication skills
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Anticipatory Set: 5 min Recapitulation by asking questions based on previous day's learning Strategies- Pose, pause, pounce and bounce DOL 1, 2, 3 Discussion of topic through Collaborative Learning: 20 min (Critical Thinking, collaboration, communication and character) • Students in group will discuss formation of ionic bond and draw electron dot structure of metals and non metals and show transfer of electrons • Teacher students interaction / questioning to check their understanding • Teacher's role as a facilitator Guided practice: 10 min Students will draw the electron dot structures of sodium, magnesium, fluorine and and chlorine and show the formation of their respective ions by gain and loss of electrons.

	Closure: 5 min Summarization by students Independent Practice- NCERT Questions
Resources	Text Book: NCERT text book for Science. Reference Book -CBSE Exemplar
Closure	Summarization by students with the muddiest point discussed by the teacher.
Self Study, Home Work, Assignments	Independent Practice: Spiral level 2 Questions
Assessments	Oral Test
Topic	DAY 7- Properties of ionic compounds
Class Transaction	40 min each)
Pre-requisite for the course	This topic requires basic knowledge of writing chemical equations
Assessment of qualifying knowledge	Knowledge testing by asking questions based on previous knowledge by teacher in class
Objective	Students will be able to describe properties of ionic compounds
Learning Outcomes	KNOWLEDGE -Students will be able to List properties of ionic compounds and give reasons for the same <u>SKILLS AND COMPETENCIES-</u> Skills developed- interpretation , reasoning skills 21st century competencies: Critical thinking and problem solving , Collaboration and communication skills
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Anticipatory Set: 5 min Recapitulation by asking questions based on previous day's learning Strategies- Wipro Technique Student -teacher interaction, Think- Pair and Share, group work - collaborative DOL 1, 2, 3 Discussion of topic through Collaborative Learning: 20 min (Critical Thinking and Problem Solving, collaboration) - Students in group will discuss Properties of ionic compounds and find reasons for the same - Teacher students interaction / questioning to check their

	understanding Teacher's role as a facilitator Guided practice: 10 min NCERT Questions Independent Practice: NCERT Questions and exemplar questions Closure: 5 min Involving students in summarizing the topic
Resources	Text Book: NCERT text book for Science. Reference Book -CBSE Exemplar
Closure	Involving students in summarizing by asking them to prepare questions based on the topic.
Self Study, Home Work, Assignments	NCERT Questions
Assessments	Response during activity
Topic	DAY 8-Steps in metallurgy
Class Transaction	40 min each
Pre-requisite for the course	This topic requires basic knowledge of occurrence of metals
Assessment of qualifying knowledge	Knowledge testing by asking questions based on previous knowledge by teacher in class
Objective	Students will be able to describe different Steps in metallurgy
Learning Outcomes	KNOWLEDGE -Students will be able to List and Steps in metallurgy SKILLS AND COMPETENCIES - Critically analyze the reactivity of different metals and suggest the steps for their extraction
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Anticipatory Set: 5 min *recapitulation through one minute paper Strategies- Student -teacher interaction, Think- Pair and Share, Wipro- G.O.s(flow chart) DOL 1, 2, 3 Discussion of topic through Collaborative Learning: 20 min (Critical Thinking and collaboration) Strategy : Pose, pause, pounce and bounce Students in group will discuss Steps in metallurgy - Teacher students interaction / questioning to check their understanding - Teacher's role as a facilitator

	Guided practice: 10 min. NCERT questions Independent Practice: NCERT questions Closure: 5 min Involving students in summarizing by asking them to prepare questions based on the topic.
Resources	Text Book: NCERT text book for Science. Reference Book - CBSE Exemplar
Closure	Involving students in summarizing by asking them to prepare questions based on the topic.
Self Study, Home Work, Assignments	NCERT questions
Assessments	Observations and responses from activities
Topic	Day 9 Extraction of metals
Class Transaction	40 min each)
Pre-requisite for the course	This topic requires basic knowledge of reactivity series of metals
Assessment of qualifying knowledge	Knowledge testing by asking questions based on previous knowledge by teacher in class
Objective	Extraction of metals
Learning Outcomes	KNOWLEDGE -Students will able to suggest various Steps for extraction of metals of low reactivity, moderate reactivity and high reactivity SKILLS AND COMPETENCIES - Compare roasting and calcinations: electrolytic reduction and electrolytic refining Skills developed-Listing, compare & contrast, & interpretation , reasoning skills 21st century competencies: Critical thinking and problem solving , Collaboration, communication skills
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Anticipatory Set: 5 min Recapitulation by asking questions based on previous day's learning Strategies --teacher interaction, Think- Pair and Share, group work - collaborative, tabulation, Wipro- G.O.s(web chart, flow chart DOL 1, 2, 3 Discussion of topic through Collaborative Learning: 20 min (Critical Thinking and Problem Solving , collaboration and Character building) Students in group will discuss extraction of metals of low reactivity, moderate reactivity and high reactivity from their ores

	- Teacher students interaction / questioning to check their understanding - Teacher's role as a facilitator Independent Practice: NCERT questions and exemplar questions Guided practice NCERT questions and exemplar questions Closure: 5 min Involving students in summarizing by asking them to prepare questions based on the topic.
Resources	Text Book: NCERT text book for Science. Reference Book CBSE Exemplar
Closure	Involving students in summarizing the topic
Self Study, Home Work, Assignments	NCERT questions and exemplar questions
Assessments	Peer assessment
Topic	DAY 10– Refining of metals
Class Transaction	40 min each
Pre-requisite for the course	This topic requires basic knowledge electrolysis
Assessment of qualifying knowledge	Knowledge testing by asking questions based on previous knowledge by teacher in class
Objective	Students will be able to Explain refining of metals
Learning Outcomes	KNOWLEDGE-Students will be able to suggest methods for refining of metals and draw diagrams SKILLS AND COMPETENCIES- Skills developed- interpretation , reasoning skills diagram skills 21st century competencies: Critical thinking and problem solving , Collaboration, communication skills
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Anticipatory Set: 5 min Recapitulation by asking questions based on previous day's learning Strategies- Pose, pause, pounce and bounce. Student -teacher interaction, Think- Pair and Share, group work – collaborative diagram drawing DOL 1, 2, 3 Discussion of topic through Collaborative Learning: 20 min

	(Critical Thinking, collaboration and communication) Students in group will discuss suggest methods for refining of metals • Group presentation on the topic, drawing of diagram on board • Teacher students interaction / questioning to check their understanding supported by PPT/ Video • Teacher's role as a facilitator Guided practice: 10 min NCERT Questions Closure: 5 min Summarization by students Independent Practice-NCERT Questions
Resources	Text Book: NCERT text book for Science. Reference Book -CBSE Exemplar
Closure	Involving students in summarizing by asking them to prepare questions based on the topic.
Self Study, Home Work, Assignments	NCERT Questions
Assessments	Observations and responses from activities
Topic	Day 11 Corrosion and its prevention
Class Transaction	40 min each)
Pre-requisite for the course	This topic requires basic knowledge of rusting of iron
Assessment of qualifying knowledge	Knowledge testing by asking questions based on previous knowledge by teacher in class
Objective	: To describe corrosion of metals , conditions and its prevention
Learning Outcomes	SKILLS AND COMPETENCIES-Students will build character and citizenship amongst themselves by pondering on damage caused by corrosion of iron by discussing /communicating the ways to prevent corrosion of iron hence strengthening nation's economy.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can	Transaction would proceed in the following manner- Anticipatory Set: 5 min Recapitulation by asking questions based on previous day's learning . Strategies- Presentation collaborative, tabulation DOL 1, 2, 3, 4

use any other too.)	Discussion of topic through Collaborative Learning: 20 min (Critical Thinking and Problem Solving , collaboration and Character building and citizenship) The students in a group of 10 will prepare a presentation on ways to prevent corrosion of iron hence strengthening nation's economy Guided practice: 10 min NCERT Questions Closure: 5 min Summarization by students Independent Practice-NCERT Questions
Resources	Text Book: NCERT text book for Science. Reference Book -CBSE Exemplar
Closure	Involving students in summarizing the topic
Self Study, Home Work, Assignments	NCERT Questions
Assessments	Class test
Day 12	Closure o f chapter by mind mapping and open discussion