

Class: VIII	Subject: Science	Day:1	Time duration:40 min
Name of the lesson/ unit	L- 4 Metals and Non-Metals		
Topic/lesson	Physical properties of metals and non-metals		
Learning Objective	To understand the physical properties of metals and non-metals		
Expected learning outcomes:	Students will be able to: • Understand elements- metals, non-metals and metalloids • List out the physical properties of metals and define them. • Differentiate between physical properties of metals and non-metals • Identify the exceptions in certain properties		
Common misconception (if any):	Matter and element are same terms Metals and non- metals exist only in solid state		
Prerequisite knowledge:	Matter is made of atoms		
Assessment of qualifying knowledge:	Oral questioning, quiz.		
Transaction methodology			
Starter/ warm up: Observation and inference (10 Min)	Students will perform activity 4.2 NCERT		
(Explanation by teacher with the help of flipped content) (15 min)	Teacher will: • Ask students to recall matter • Will explain what is an element and its classification as metals, non- metals and metalloids		

	Matter <pre>graph TD; Matter --> Physical; Matter --> Chemical; Physical --> Solid; Physical --> Liquid; Physical --> Gas; Chemical --> PureSubstance[Pure Substance]; Chemical --> ImpureMixture["(Impure) Mixture"]; PureSubstance --> Element; PureSubstance --> Compound; Element --> Metal; Element --> Non-metal; Element --> Metalloid; ImpureMixture --> Homogeneous; ImpureMixture --> Heterogeneous;</pre> Will explain physical properties of metals –malleability, ductility, sonority, tensile strength, M.P and B.P, hardness, conductivity, lustre. <table><thead><tr><th>Property</th><th>Metals</th><th>Non-Metals</th></tr></thead><tbody><tr><td>Lustre (metallic shine)</td><td>All metals have lustre</td><td>Have no lustre (except Iodine and Graphite)</td></tr><tr><td>Hardness</td><td>Very hard (except sodium and potassium)</td><td>Not hard (except Diamond- hardest substance)</td></tr><tr><td>Malleability (property due to which a substance can be beaten into sheets)</td><td>Highly malleable (except Zinc, Antimony and Arsenic)</td><td>Non malleable</td></tr><tr><td>Ductility (property by which a substance can be drawn into wire)</td><td>Ductile (except Zinc, Arsenic and Antimony)</td><td>Non ductile (except Carbon fiber)</td></tr><tr><td>Conductivity</td><td>Good conductor of heat and electricity (except Bismuth and Tungsten)</td><td>Bad conductor of heat and electricity (except Graphite and gas carbon)</td></tr><tr><td>State</td><td>Solid (except Mercury and Gallium)</td><td>Solid, liquid or gas (Only Bromine is liquid.)</td></tr><tr><td>Density</td><td>High density (except sodium and potassium)</td><td>Low density (except diamond)</td></tr><tr><td>Tensile Strength</td><td>High</td><td>Low</td></tr></tbody></table>	Property	Metals	Non-Metals	Lustre (metallic shine)	All metals have lustre	Have no lustre (except Iodine and Graphite)	Hardness	Very hard (except sodium and potassium)	Not hard (except Diamond- hardest substance)	Malleability (property due to which a substance can be beaten into sheets)	Highly malleable (except Zinc, Antimony and Arsenic)	Non malleable	Ductility (property by which a substance can be drawn into wire)	Ductile (except Zinc, Arsenic and Antimony)	Non ductile (except Carbon fiber)	Conductivity	Good conductor of heat and electricity (except Bismuth and Tungsten)	Bad conductor of heat and electricity (except Graphite and gas carbon)	State	Solid (except Mercury and Gallium)	Solid, liquid or gas (Only Bromine is liquid.)	Density	High density (except sodium and potassium)	Low density (except diamond)	Tensile Strength	High	Low
Property	Metals	Non-Metals																										
Lustre (metallic shine)	All metals have lustre	Have no lustre (except Iodine and Graphite)																										
Hardness	Very hard (except sodium and potassium)	Not hard (except Diamond- hardest substance)																										
Malleability (property due to which a substance can be beaten into sheets)	Highly malleable (except Zinc, Antimony and Arsenic)	Non malleable																										
Ductility (property by which a substance can be drawn into wire)	Ductile (except Zinc, Arsenic and Antimony)	Non ductile (except Carbon fiber)																										
Conductivity	Good conductor of heat and electricity (except Bismuth and Tungsten)	Bad conductor of heat and electricity (except Graphite and gas carbon)																										
State	Solid (except Mercury and Gallium)	Solid, liquid or gas (Only Bromine is liquid.)																										
Density	High density (except sodium and potassium)	Low density (except diamond)																										
Tensile Strength	High	Low																										
Closure/ Plenary(Think Pair and Share) N.B: (5 Min)	Teacher will ask students to book exercise. Teacher will collect the responses and discuss the correct answers.																											
Home Learning	Assignment will be given from NCERT exemplar.																											
Resources	NCERT Book for Class VIII Flipped video, NCERT exemplar. Materials for activity 4.2																											

Class: VIII	Subject: Science	Day: 2	Time duration:40 min									
Name of the lesson/unit	L- 4 Metals and Non-Metals											
Topic/lesson	Chemical properties of metals and non-metals											
Learning Objective	To understand the chemical properties of metals and non-metals											
Expected learning outcomes:	Students will be able to: Understand the reaction of metals and non-metals with- oxygen, water.											
Common misconception (if any):	Non-metals do not react with oxygen											
Prerequisite knowledge:	Chemical changes are chemical reactions											
Assessment of qualifying knowledge:	Oral quiz											
Transaction methodology												
Starter/ warm up: Observation and Inference (15 min)	Students will perform activity 4.3 NCERT											
(Explanation by teacher with the help of flipped content) (15 min)	Teacher will: Will explain chemical properties- reaction with oxygen and water <table><tr><td><u>REACTION with</u></td><td><u>METAL</u></td><td><u>NON-METAL</u></td></tr><tr><td><u>Oxygen</u></td><td><u>Metallic oxide- solution is basic</u> <u>Ex-magnesium oxide, iron oxide</u></td><td><u>Non-metallic oxide- solution is acidic</u> <u>Ex-sulphur dioxide gas</u></td></tr><tr><td><u>Water</u></td><td><u>React with water</u></td><td><u>Do not react</u></td></tr></table>			<u>REACTION with</u>	<u>METAL</u>	<u>NON-METAL</u>	<u>Oxygen</u>	<u>Metallic oxide- solution is basic</u> <u>Ex-magnesium oxide, iron oxide</u>	<u>Non-metallic oxide- solution is acidic</u> <u>Ex-sulphur dioxide gas</u>	<u>Water</u>	<u>React with water</u>	<u>Do not react</u>
<u>REACTION with</u>	<u>METAL</u>	<u>NON-METAL</u>										
<u>Oxygen</u>	<u>Metallic oxide- solution is basic</u> <u>Ex-magnesium oxide, iron oxide</u>	<u>Non-metallic oxide- solution is acidic</u> <u>Ex-sulphur dioxide gas</u>										
<u>Water</u>	<u>React with water</u>	<u>Do not react</u>										

Closure/ Plenary(Think Pair and Share) N.B: (5 Min)	Teacher will ask students to attempt questions from book exercise. Teacher will collect the responses and discuss the correct answers.
Home Learning	Assignment will be given from NCERT exemplar.
Resources	NCERT Book for Class VIII Flipped video, NCERT exemplar. Materials for activity



Khaitan Public School, Sahibabad

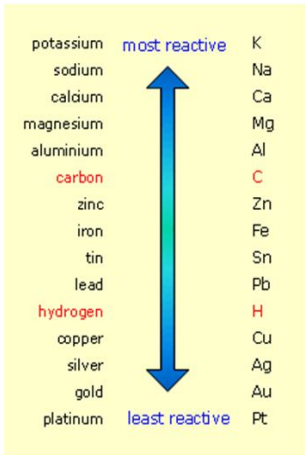
Class: VIII	Subject: Science	Day: 3	Time duration:40 min
Name of the lesson/unit	L- 4 Metals and Non-Metals		
Topic/lesson	Chemical properties of metals and non-metals		
Learning Objective	To understand the chemical properties of metals and non-metals		
Expected learning outcomes:	Students will be able to: Understand the reaction of metals and non-metals with- acids, bases.		
Common misconception (if any):	Metals and non-metals both react same way with acids and bases		
Prerequisite knowledge:	Acids are corrosive in nature		
Assessment of qualifying knowledge:	Oral quiz and assessment		
Transaction methodology			
Starter/ warm up: Observation and Inference(15 Min)	Students will perform activity and complete 4.5 NCERT		
(Explanation by teacher with the help of flipped content) (15 min)	<u>REACTION with</u>	<u>METAL</u>	<u>NON-METAL</u>
	<u>Acid</u>	<u>React with acids- produce H2 gas</u>	<u>Do not react</u>
	<u>Base</u>	<u>React with acids- produce H2 gas</u>	<u>Complex reactions</u>

Closure/ Plenary(Think Pair and Share) N.B: (5 Min)	Teacher will ask students to attempt questions from book exercise. Teacher will collect the responses and discuss the correct answers.
Home Learning	Assignment will be given from NCERT exemplar.
Resources	NCERT Book for Class VIII Flipped video, NCERT exemplar. Materials for activity



Khaitan Public School, Sahibabad

Class: VIII	Subject: Science	Day: 4	Time duration:40 min
Name of the lesson/unit	L- 4 Metals and Non-Metals		
Topic/lesson	Reactivity series		
Learning Objective	To understand reactivity series		
Expected learning outcomes:	Students will be able to: • Explain reactivity series		
Common misconception (if any):	Copper is the most reactive metal		
Prerequisite knowledge:	Colour change accompanies a chemical change		
Assessment of qualifying knowledge:	Oral quiz and assessment		
Transaction methodology			
Starter/ warm up: Observation and Inference (20 min)	Students will perform Activity 4.8 NCERT		
Explanation using flipped videos (10 min)	<u>Reactivity series- A series in which metals are arranged acc. to their reactivity from highest to lowest.</u>		

	Reactivity Series 
Closure/ Plenary(Think Pair and Share) N.B: (5 Min)	Teacher will ask students to attempt questions from book exercise. Teacher will collect the responses and discuss the correct answers.
Home Learning	Assignment will be given from NCERT exemplar.
Resources	NCERT Book for Class VIII Flipped video, NCERT exemplar. Materials for activity



Khaitan Public School, Sahibabad

Class: VIII	Subject: Science	Day: 5	Time duration:40 min
Name of the lesson/ unit	L- 4 Metals and Non-Metals		
Topic/lesson	Displacement reaction and uses of metals and non metals		
Learning Objective	To understand the displacement reaction		

Expected learning outcomes:	Students will be able to: • Understand and discuss displacement reaction • Discuss the uses of metals and non metals
Common misconception (if any):	Composition of compounds.
Prerequisite knowledge:	New products are formed during a chemical change
Assessment of qualifying knowledge:	Oral quiz and assessment
Transaction methodology	
Starter/ warm up: Observation and Inference (10 min)	Class Activity Students will be divided into groups and provided with copper sulphate and iron fillings. They will mix them and note the observations down
Explanation using flipped videos(15 min)	<u>Displacement reaction- reactions in which a more reactive metal displaces a less reactive metal from its solution.</u> <u>Ex- CuSO_4 (blue) + Fe $\rightarrow$ FeSO_4 (greenish blue) + Cu (red powdery mass at bottom)</u>
Think pair and share (10)	Students will discuss the uses of metals and non-metals with their elbow partners
Closure/ Plenary(Think Pair and Share) N.B: (5 Min)	Teacher will ask students to attempt questions from book exercise. Teacher will collect the responses and discuss the correct answers.
Home Learning	Assignment will be given from NCERT exemplar.
Resources	NCERT Book for Class VIII Flipped video, NCERT exemplar. Materials for activity