



**Srini Science Mind**  
Abdul Kalam Physical Science Group



**NEW**

**10<sup>th</sup> class**

**PHYSICAL SCIENCE**

**MODEL LESSON PLAN**

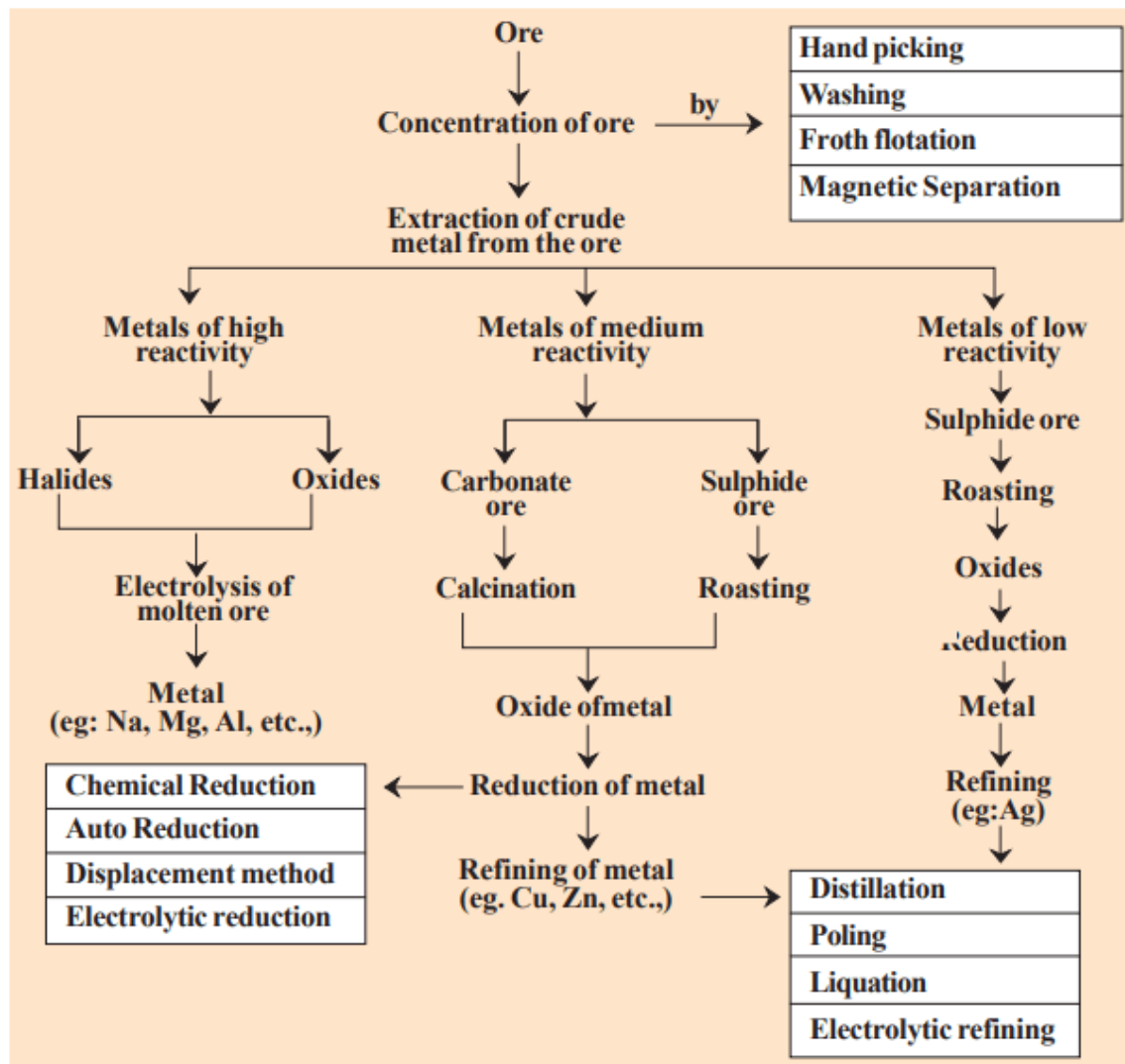


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## TEACHING LEARNING PROCESS

### Induction/Introduction:



### Experience and Reflection:

1. Students learn how to purify naturally occurring elements.
2. Students will learn what precautions should be taken to prevent corrosion of oxides of highly reactive elements.
3. Students observe environmental regulations while extracting metals from ores.

| <b>Explicit Teaching/Teacher Modelling (I Do)</b>  | <b>Group Work (We Do)</b>   | <b>Independent Work (You Do)</b>  | <b>Notes for:</b>  |
|--|---|---|--|
| 1. Discussion and explain the concept of metallurgy.   | 1. Group discussion on Metallurgy.  | 1. Students will tell the uses of metals in everyday life.  | 1. What do metallurgists do?                                 |
| 2. Discussion and explain "Occurrence of the metals in nature".  | 2. Students collect information on How the metals are present in nature.                          | 2. Students write the definitions of minerals and ores.   | 2. List three metals that are found in nature as oxide ores. |
| 3. Explain high, moderate and low activity series.   | 3. Students draw flow chart of reactivity of metals.  | 3. students give a reasons, Why K, Na, Ca, Mg and Al are never found in nature in free state?     | 3. Write the names of any two ores of iron.                  |
| 4. Discussion and explain extraction of metals from the ores.<br>(Concentration or Dressing of the ore)    | 4. Students explain Froth floatation method   | 4. Students draw the neat diagram of Froth floatation process for concentration of sulphide ores. | 4. How are metals extracted from mineral ores?               |
| 5. Discussion and explain extraction of metals from the ores.<br>(Extraction of crude metal from the ore)  | 5. Students explain extraction of metals at the top of the activity series.                       | 5. Students complete the Homework.  | 5. Give an example for reduction of metal oxide with carbon. |
| 6. Discussion and explain extraction of metals from the ores.<br>( Extraction of crude metal from the ore) | 6. Group discussion on extraction of metals at the bottom of the activity series.                 | 6. Students collect information on thermite process.  | 6. Why Fe, Pb, Cu are reduced by Hydrogen?                   |
| 7. Discussion and explain extraction of metals from the ores.<br>(Purification of the crude metal)         | 7. Students collect information on purification of the crude metal.                               | 7. Students explain Distillation method.  | 7. Mention some important methods of refining.               |
| 8. Discussion and conduct an experiment on corrosion and explain prevention of corrosion.                  | 8. The presence of air and water are essential for corrosion in lab activity done by the students | 8. Students express the prevention of corrosion methods.  | 8. Give two examples of corrosion.                           |
| 9. Discussion and explain Smelting and Blast furnace.  | 9. Students will observe the parts in the blast furnace.  | 9. Students complete the Homework.  | 9. Define Smelting.  |
| 10. Discussion and explain Roasting and Reverberatory furnace.   | 10. Students draw a neat diagram of Reverberatory furnace.  | 10. Students write definitions of Roasting  | 10. What is the use of Hearth in the furnace?                |

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|---|--|---|------------------------|
| 11. Explain Calcination, Flux and Furnace | 11. Group discussion on “The role of furnace in metallurgy.” | 11. Students write the difference between roasting and calcination. | 11. What is a furnace? |
|---|--|---|------------------------|

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| <b>Check For Understanding Questions</b>  | <b>TLM’s (Digital+Print)</b>  |
| <p><b>1. Factual:</b></p> <ol style="list-style-type: none"> <li>1. Why are some metals not found in free state in nature?</li> <li>2. Is roasting exothermic?</li> <li>3. What is the role of the furnace in metallurgy?</li> </ol> <p><b>2. Open Ended/Critical Thinking:</b></p> <ol style="list-style-type: none"> <li>1. Why is froth flotation used for sulphide ores?</li> <li>2. Which process is used to oxidize impurities in crude metal?</li> <li>3. Why should the impurities be removed before the reduction process?</li> </ol> <p><b>3. Student Practice Questions &amp; Activities:</b></p> <ol style="list-style-type: none"> <li>1. What is the difference between roasting and calcinations? Give one example for each?</li> <li>2. What is activity series? How it helps in extraction of metals?</li> <li>3. Suggest an experiment to prove that the presence of air and water are essential for corrosion. Explain the procedure.</li> <li>4. Draw a neat diagram of Reverboratory furnace and label it neatly?</li> </ol> | <ol style="list-style-type: none"> <li>1. Used prepared Quiz paper.</li> <li>2. Utilized digital classroom.</li> <li>3. Provide video links QR codes, DIKSHA App</li> <li>4. YouTube video links</li> </ol> |
| <p><b>Assessment:</b></p> <ol style="list-style-type: none"> <li>1. What is thermite process? Mention its applications in daily life?</li> <li>2. How do you appreciate the role of furnace in metallurgy?</li> <li>3. Collect information about extraction of metals of low reactivity silver, platinum and gold and prepare a report.</li> <li>4. Draw the diagram showing i) Froth floatation ii) Magnetic separation.</li> </ol>  |   |

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS