

# Srini Science Mind



Abdul Kalam Physical Science Group

**NEW** 

## 10th class

## PHYSICAL SCIENCE

### **MODEL LESSON PLAN**



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## **MODEL LESSON PLAN**

CLASS: 10 SUBJECT: PS Name of the Teacher: M.SRINIVASA RAO Name of the School: A.G.K.M.H.School, Gudivada

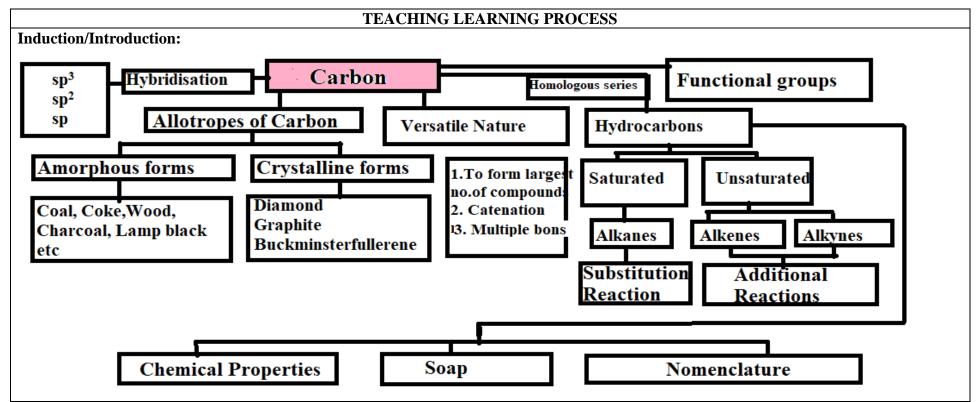
Name of the	Topic	No.of Periods	Timeline for teaching		Any specific
Lesson/Unit		Required	From	То	information
Carbon	Introduction	1	xx/xx/xxxx	xx/xx/xxxx	
	Promotion of an electron - Hybridisation	1	xx/xx/xxxx	xx/xx/xxxx	
	Allotropes of Carbon	1	xx/xx/xxxx	xx/xx/xxxx	
	Versatile nature of carbon	1	xx/xx/xxxx	xx/xx/xxxx	
	Hydrocarbons	1	xx/xx/xxxx	xx/xx/xxxx	
and its	Homologous series - Isomerism	1	xx/xx/xxxx	xx/xx/xxxx	
Compounds	Functional groups in carbon compounds	1	xx/xx/xxxx	xx/xx/xxxx	
(Chapter –12)	Nomenclature of Aliphatic Hydrocarbons	2	xx/xx/xxxx	xx/xx/xxxx	
	Chemical properties of carbon compounds	1	xx/xx/xxxx	xx/xx/xxxx	
	Some important carbon compounds	1	xx/xx/xxxx	xx/xx/xxxx	
	Esterification Reactions	1	xx/xx/xxxx	xx/xx/xxxx	
	Soaps – Saponification and Micelles- Cleaning action of soap	1	xx/xx/xxxx	xx/xx/xxxx	

#### **Prior Concept/Skills:**

- 1. What is the atomic number of Carbon? What is its valency?
- 2. Is Carbon metal or Non-metal?
- 3. Write the electronic configuration of Carbon in ground state.

Learning Outcomes:	
1. Explains processes of sp, sp <sup>2</sup> and sp <sup>3</sup> hybridisations, homologous series.	
2. Draws labelled diagrams of CH <sub>4</sub> , C <sub>2</sub> H <sub>4</sub> and C <sub>2</sub> H <sub>2</sub>	
3. Exhibits creativity in designing models using eco-friendly resources of Formation of micelles, formation of diamond, graphite	
And Buckminsterfullerene.	
4. Takes initiative to know about scientific discoveries and inventions of Buckminsterfullerene.	
5. Analysis and interprets data and figures of homologous series	
6. Differentiate hydrocarbons based on chemical properties.	
7. Relates processes and phenomena with causes and effects of artificial ripening of fruits by ethylene.	
8. Explains processes of chemical properties of hydrocarbons.	1

9. Communicates the findings and conclusions effectively of nomenclature of aliphatic hydrocarbons.	
10. Explains processes of cleaning action of soap	1
11. To seek answers to queries on their own "Compares the foaming capacity of different types of soap samples"	1
12. Applies learning to hypothetical situations "What is the action of soap particles on the greasy cloth?	



#### **Experience and Reflection:**

- 1. Students will learn about Allotropes of Carbon and how they are used in everyday life.
- 2. Students will learn the uses of esters and incorporate them into foods.
- 3. Students use IUPAC rules in naming carbon compounds.

Explicit Teaching/Teacher Modelling	Group Work (We Do)	Independent Work (You Do)	Notes for:	
(I Do)				
1. Discussion and explain carbon nature,	1. Discuss about importance of	1. Students write the electronic	1. Can carbon get Helium	
Ground electronic configuration,	Carbon elements and specialization	configuration of carbon in	configuration by losing 4	
Excited estate configuration and	of Carbon	ground and excited states.	electrons from the outer	
valency.			shell?	

2.Explain promotion of an electron in the 2. Discussion on Hybridisation 2. What are hybrid orbitals? 2. Students explain the carbon atom and Hybridisation. and conditions. covalent bonds in the methane molecule. 3. Students explain sp<sup>3</sup> hybridisation 3. Discussion and explain of sp<sup>3</sup>, sp<sup>2</sup> and 3. Students draw structures of 3. What are bond angles in sp hybridisation.  $CH_4$ ,  $C_2H_4$ ,  $C_2H_2$ CH<sub>4</sub>, C<sub>2</sub>H<sub>4</sub> and C<sub>2</sub>H<sub>2</sub> in CH<sub>4</sub> molecules molecules 4. What are Backyballs? 4. Discussion and explain Allotropes of 4. Students collect information on 4. Students draw the diamond Carbon.(Amorphous forms, allotropes of carbon structure. Crystalline forms) 5. Discussion and explain Allotropes of 5. Why graphite is a good 5. Students learn about the scientists 5. Students write the uses of Carbon.(Crystalline forms) conductor of electricity? who discovered Nanotubes. buckminsterfullerene. 6. Discussion on versatile nature of 6. What is catenation? 6. Explain versatile nature of carbon. 6. Students complete the carbon. homework. 7. Students identify closed and 7. Discussion and explain hydrocarbons, 7. Students collect information on 7. What are the uses of Types of hydrocarbons. types of hydrocarbons. open chain hydrocarbons. hydrocarbons in our daily life? 8. Discussion on characteristics of 8. Students write the names of 8. Why does carbon show 8. Discussion and explain of homologous Series, Isomerism. homologous series. given homologous series. isomerism? 9. Students collect information on 9. Explain functional groups in carbon 9. Students identify the 9. Give the names of -CHO functional group in given compounds. functional groups in carbon and -C=O functional compounds. carbon compounds. groups. 10. Students write the nomenclature of 10. Discussion and explain Nomenclature 10. Students complete the 10. Expand IUPAC of aliphatic hydrocarbons. Aliphatic hydrocarbons of given homework. structures 11. Explain the chemical properties of 11. Group discussion on Substitution 11. Students give the reasons, 11. Why do sometimes "Why does Alkenes undergo cooking vessels get carbon compounds. reactions of carbon compounds. additional reactions"? blackened on a gas or 12. Students collect information on 12. Students write the chemical 12. Discussion and explain some kerosene stove? important carbon compounds. uses of Ethanol in day-to-day life. equation of ethanol preparation. 13. Explain and conduct activity on 13. Students conduct an activity on 13. Students complete the 13. Which alcohol gives esterification reaction. fastest esterification esterification reaction. homework. reaction? 14. Discussion and explain 14. Students explain the formation of 14. Students draw a neat 14.. What causes the Saponification reaction, micelle and cleaning action of soap? diagram of soap molecules. micelle?

Cleaning action of soap.

#### **Check For Understanding Questions**

#### 1. Factual:

- 1. Why do carbon compounds have low melting and boiling point?
- 2. What conditions are needed for esterification?
- 3. What is responsible for the cleaning action of soap?

#### 2. Open Ended/Critical Thinking:

- 1. Why coal is not an allotrope of carbon?
- 2. Why are the chemical properties of homologous series always same?
- 3. Why is ethanol the most important alcohol?

#### 3. Student Practice Questions & Activities:

- 1. Explain the cleansing action of soap.
- 2. Distinguish between esterification and saponification reactions of organic compounds.
- 3. Alkanes are considered as Paraffins. So, they undergo substitution reactions. But not addition reactions. Explain with suitable examples.
- 4. Write the applications of esterification reaction.

#### TLM's (Digital + Print)

- 1. Used prepared Quiz paper.
- 2. Utilized digital classroom.
- 3. Provide video links QR codes, DIKSHA App
- 4. YouTube video links

#### **Assessment:**

- 1. What are the differences between Alkanes, Alkenes and Alkynes
- 2. Collect information about artificial ripening of fruits by ethylene.
- 3. Draw the electronic dot structure of ethane molecule.
- 4. Observe the structure and answer the questions.

$$CH_2 = C = CH - CH - CH_2 - CH_2 - CH - CH_2$$

$$Cl OH OH$$

- a) What is the word root in the compound?
- b) What is the functional group in the compound?
- c) What is the name of the compound?
- d) Which number is assigned for -OH group in the compound?
- e) In which direction the numbering should be given?
- f) Is it an unsaturated compound. If Yes, why?

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER