



Srini Science Mind
Abdul Kalam Physical Science Group



NEW

10th class

PHYSICAL SCIENCE

MODEL LESSON PLAN



M.SRINIVASA RAO, SA(PS) AGKMHS GUDIVADA PH: 9848143855

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 Lesson/Unit	Topic	No.of Periods Required	Timeline for teaching		Any specific information
			From	To	
Chemical Bonding (Chapter – 8)	Introduction and Lewis symbols/Lewis dot structure	1	xx/xx/xxxx	xx/xx/xxxx	
	Electronic theory of valence by Lewis and Kossel	1	xx/xx/xxxx	xx/xx/xxxx	
	Ionic bonds with Lewis dot formulae	1	xx/xx/xxxx	xx/xx/xxxx	
	The arrangement of ions in ionic compounds	1	xx/xx/xxxx	xx/xx/xxxx	
	Covalent bonds with Lewis dot formulae	1	xx/xx/xxxx	xx/xx/xxxx	
	Valence Shell Electron Pair Repulsion Theory(VSEPR)	1	xx/xx/xxxx	xx/xx/xxxx	
	Valence bond theory	1	xx/xx/xxxx	xx/xx/xxxx	
	Valence bond theory - Hybridisation	2	xx/xx/xxxx	xx/xx/xxxx	

Prior Concept/Skills:

1. What is the maximum number of valence electrons?
2. Where is the position of metals and non-metals in the modern periodic table?
3. Which of the atoms and molecules exhibits stability?

Learning Outcomes:

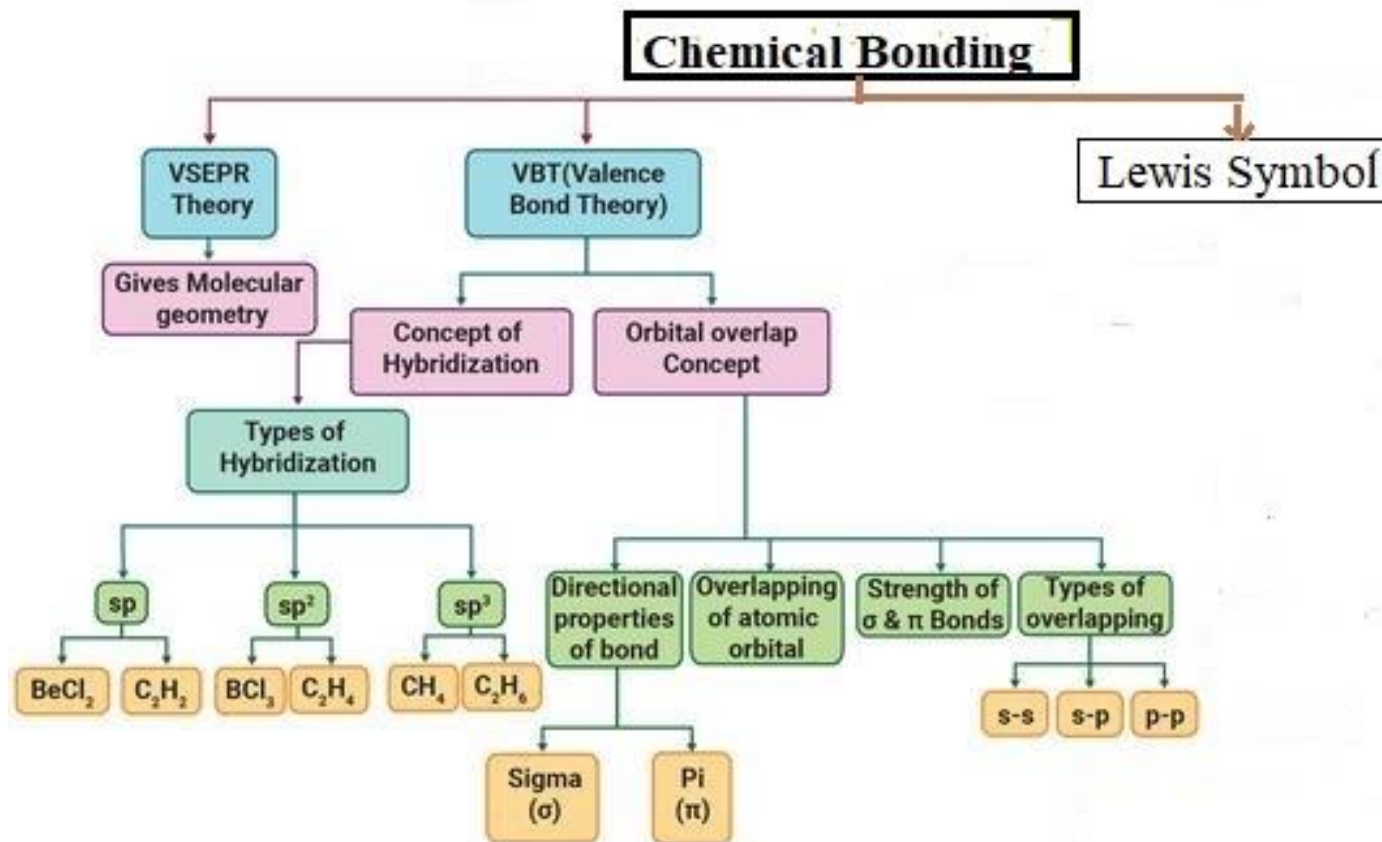
1. Draw labelled diagrams of electron dot structure of atoms and molecules.
2. Explains processes of formation of ionic bonds
3. Explains processes of formation of covalent bonds.
4. Relates processes with causes and effects of valence bond theory with valence shell electron pair repulsion theory.
5. Explain the formation of BeCl_2 , BF_3 , NH_3 and H_2O molecule using hybridisation.
6. Applies learning to hypothetical situations “Does hybridization always occur?”
7. Draws labelled diagrams of BeCl_2 , BF_3 , H_2O , CH_4
8. Applies learning to hypothetical situations of bond angles differ with hybridization.
- 9, Draws flow charts of hybridisation of different molecules.
10. Analyses and interprets figures of molecules.
11. Exhibits creativity in designing models using eco-friendly resources of BeCl_2 , BF_3 , H_2O and CH_4
12. Analysis and interprets data,graphs of melting and boiling points of substances to differentiate between covalent and ionic compounds.
13. Differentiates compounds as ionic and covalent compounds based on properties.

No. of Periods

1
1
1
1
1
1
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1

TEACHING LEARNING PROCESS

Induction/Introduction:



Experience and Reflection:

1. Students will be able to express what chemical bonds form between which groups in the periodic table.
2. Students will be able to know the properties of ionic and covalent substances and predict when they are soluble.
3. Students will be able to predict the shapes and bond angles of molecules when they hybridisation.

Explicit Teaching/Teacher Modelling (I Do)	Group Work (We Do)	Independent Work (You Do)	Notes for:
1. Discussion and explain valency, valence shell, valence electrons and formation of bonds between atoms.	1. Group discussion on differences between valence electrons and covalency of an element	1. Students write definitions of the valency of an element, valence shell and valence electrons	1. How does valency affect chemical bonding?

<p>2. Explain Lewis symbols/ Lewis dot structure.</p> <p>3. Discussion and explain Electronic theory of valence by Lewis and Kossel and Octet rule.</p> <p>4. Discussion and explain ionic bonds with Lewis dot formulae. (Formation of NaCl, MgCl_2 etc)</p> <p>5. Explain the arrangement of ions in ionic compounds and factors affecting the formation of cation and anion.</p> <p>6. Discussion and explain covalent bonds with Lewis dot formulae. (Formation of F_2, O_2, N_2, CH_4, NH_3 and H_2O molecules)</p> <p>7. Explain Valence shell electron pair repulsion theory with Examples of BeCl_2, CH_4, NH_3 and H_2O molecules.</p> <p>8. Discussion and explain Valence bond Theory with examples of H_2, Cl_2, N_2 and O_2 molecules.</p> <p>9. Discussion and explain hybridisation and Formation of BeCl_2. BF_3 molecules.</p> <p>10. Explain the formation of NH_3 and H_2O molecules using hybridisation.</p> <p>11. Explain the properties of ionic and covalent compounds.</p>	<p>2. Students represent atoms, molecules using Lewis notation.</p> <p>3. Students write Group IA, IIA, IIIA, IVA, VA, VIA, VIIA and VIIIA electronic configurations.</p> <p>4. Students collect information on the formation of an ionic bond between atoms.</p> <p>5. Students explain the tendency of losing electrons to form cations depends on factors.</p> <p>6. Students explain the formation of O_2 and N_2 molecules</p> <p>7. Discuss about Main features of Valence Shell Electron Pair Repulsion Theory</p> <p>8. Group discussion on “Why is the sigma bond stronger than pi bond?”</p> <p>9. Collect the information of molecules, hybridization, bond angle, lone pair of electrons, shape of the molecules</p> <p>10. Students explain the formation of NH_3 molecule using hybridisation.</p> <p>11. Collect information of properties of ionic and covalent compounds.</p>	<p>2. Students collect information on Lewis dot structure.</p> <p>3. Students appreciate the role of octet rule in the chemical properties of elements.</p> <p>4. Students complete the homework.</p> <p>5. Students write the coordination number of ion and give examples.</p> <p>6. Students draw O_2 and N_2 molecules in Lewis notation.</p> <p>7. Students give reasons, Why bond angle of NH_3 is greater than H_2O?</p> <p>8. Students complete the homework.</p> <p>9. Students draw the shapes of BeCl_2. BF_3 molecules.</p> <p>10. Students draw the shapes of NH_3 and H_2O molecules.</p> <p>11. Write any four points about difference between ionic and covalent compounds</p>	<p>2. What is the importance of Lewis dot structure?</p> <p>3. What is octet rule?</p> <p>4. Explain the formation of</p> <p>5. What is structure of NaCl and coordination number of Na^+ and Cl^- ions?</p> <p>6. What is a covalent bond? How it is formed?</p> <p>7. Write drawbacks of electronic theory of valence.</p> <p>8. Who proposed valence bond theory explain the formation of N_2 molecule by using this theory?</p> <p>9. Define hybridisation?</p> <p>10. What are the important conditions for hybridisation?</p> <p>11. What kind of force is present in ionic bond?</p>
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Check For Understanding Questions

1. Factual:

1. How many molecular shapes are there?
2. What causes ionic and covalent properties to have different properties?
3. Which hybridization has the highest bond angle?

2. Open Ended/Critical Thinking:

1. Why do covalent compounds have no charge?
2. What are the applications of VSEPR theory?
3. What are the factors affecting ionic bond?

3. Student Practice Questions & Activities:

1. Represent each of the following molecules using Lewis notation:
(a) Bromine gas (Br_2) (b) Calcium chloride (CaCl_2) (c) Carbon dioxide (CO_2)
2. Explain the formation of BeCl_2 molecule using hybridization
3. Explain the formation of BF_3 molecule using hybridization.
4. What is octet rule? How do you appreciate role of the 'octet rule' in explaining the chemical properties of elements?

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 is ionic bond? How does an ionic bond form? Explain with one example.
2. Observe the figure and answer the questions.



- a) How many valence electrons are present in Y
- b) How many valence electrons are present in X
- c) How many covalent bonds are formed by X ?
- d) How many covalent bonds are formed by Y ?
- e) What is the valency of X and Y
- f) Suggest the names for elements X and Y
- g) Which method used in the molecular representation?
- h) Suggest the shape of the molecule?

3. Collect the information about properties and uses of covalent compounds and prepare a report?
4. Explain the formation of N_2 and O_2 molecules.

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS