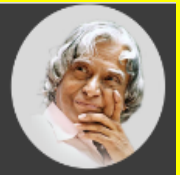
Srini Science Mind

Abdul Kalam Physical Science Group



NEW

9th class

PHYSICAL SCIENCE

MODEL LESSON PLAN

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MODEL LESSON PLAN

CLASS: 09 **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	
Atoms and Molecules (Chapter-4)	Law of conservation of mass	1	xx/xx/xxxx	xx/xx/xxxx	
	Law of constant proportions	1	xx/xx/xxxx	xx/xx/xxxx	
	Dalton's atomic theory	1	xx/xx/xxxx	xx/xx/xxxx	
	Atoms and Molecules, Why do we name elements?	1	xx/xx/xxxx	xx/xx/xxxx	
	Symbols of elements	2	xx/xx/xxxx	xx/xx/xxxx	
	Atomicity-Valency	1	xx/xx/xxxx	xx/xx/xxxx	
	What is an ion?	1	xx/xx/xxxx	xx/xx/xxxx	
	Molecules of compounds - Atomic mass	1	xx/xx/xxxx	xx/xx/xxxx	
	Molecular mass, Mole concept, Molar mass	1	xx/xx/xxxx	xx/xx/xxxx	

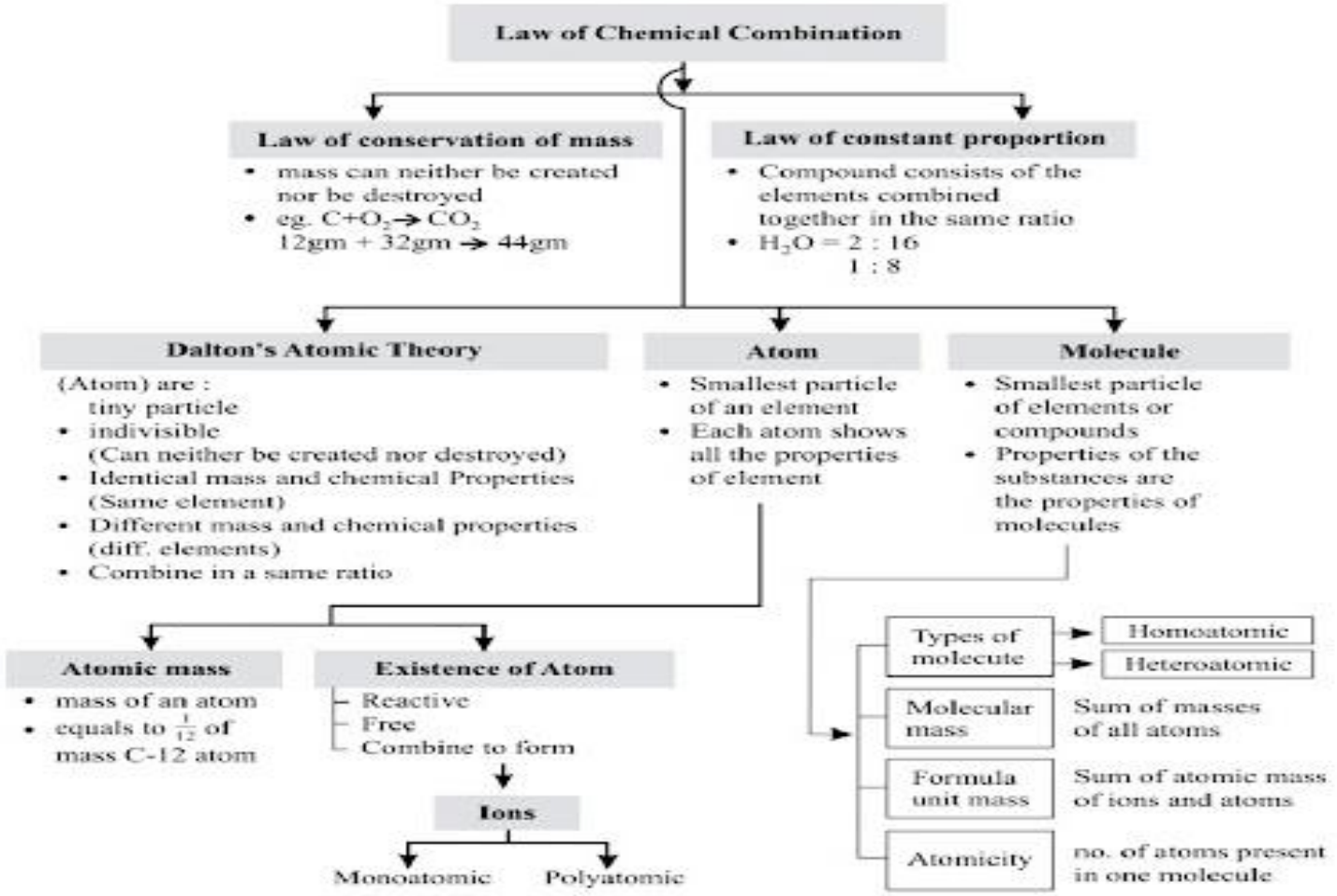
Prior Concept/Skills:

1. What is the formula for water molecule?
2. Does the weight of iron rod increase or decrease, on rusting?
3. What does happen to Sulphur on burning it in air?

Learning Outcomes:	**No. of Periods**
1, Explains processes of law of conservation of mass.	1
2. Plans and conducts experiments to arrive at and verify the law of conservation of mass.	
3. Explains processes of law of constant proportions	1
4. Draws conclusion of elements combine chemically in a fixed ratio to form compounds.	
5. Differentiates of elements based on their properties.	1
6. Uses scientific conventions, symbols of elements, formulae of simple compounds.	1
7. Describes scientific discoveries and inventions of elements	1
8. Applies learning to hypothetical situations of Atomicity	1
9. Applies scientific concepts in daily life of mole concept.	1
10. Measures of molar mass, mass of atoms and mass of molecules.	1
11. Calculate using the data given of molecular mass of the substances.	1
12. Calculate using the data given Molar mass, Number of particles.	1

TEACHING LEARNING PROCESS

Induction/Introduction:



Experience and Reflection:

1. Students will refer to some elements that they use in their daily life with symbols.
2. Students explore the principles involved in writing molecular formulae in an easy way.
3. Students will solve problems based on the concept of the mole.

Explicit Teaching/Teacher Modelling (I Do)	Group Work (We Do)	Independent Work (You Do)	Notes for:
1. Discussion and explain reactions of metals and non-metals.	1. "What does happen to magnesium on burning it in air" – Group discussion	1. Students give examples of metals and non-metals	1. Who is the father of modern chemistry?

2. Explain and Conduct an activity on to find out the change in the mass before and after a chemical reaction (Law of conservation of mass)	2. Students arrange the required materials for the experiment.	2. Students measure the weight of flask and contents before mixing and after mixing.	2. State the law of conservation of mass.
3. Discussion and explain the Law of constant proportion.	3. Students read the Joseph L. Proust history.	3. Students write the definition of law of constant proportions.	3. Why the law of definite proportions is not applicable to nitrogen oxide?
4. Discussion and explain the postulates of Dalton's Atomic theory.	4. Which postulate of Dalton's theory can explain the law of constant proportions? - Group discussion.	4. Students write the postulates of Dalton's atomic theory.	
5. Discussion on Atoms and Molecules.	5. Students are told the names of some known elements.	5. Students complete the homework.	4. What is the difference between atom and molecule?
6. Discussion and explain the symbols of elements.	6. Students collect information on some unusual symbols of elements.	6. Students write a table that contains element name and symbol	
7. Explain Atomicity.	7. Why do elements have different atomicities? – Group discussion	7. Students write the definition of Atomicity.	5. What is the atomicity of inert gases?
8. Discussion and explain the valencies of elements, and ions	8. Students collect information on valencies of elements.	8. Students give a reason, Why elements show variable valency?	6. What is an ion? How many types?
9. Discussion and explain molecules of Compounds.	9. Students count the number of atoms present in given molecules.	9. Students complete the homework	7. Can atoms exist independently?
10. Discussion and explain the write chemical formulae of molecules in criss-cross method by using valency.	10. Students write chemical formulae of molecules in criss-cross method.	10. How can you write the formula of a compound by Criss-Cross method?	8. What is the formula of ammonium carbonate using Criss Cross method?
11. Explain the concepts of atomic mass, Molecular mass and formula unit mass.	11. Students calculate the molecular mass of given substances.	11. Students solved problems on molecular mass.	9. What is responsible for mass of atom?
12. Discussion and explain the concepts of mole concept, molar mass and its problems	12. Students collect information on Mole concept and molar mass.	12. Students solved problems on Mole concept and molar mass.	10. What is the S.I unit molar mass?

Check For Understanding Questions	TLM's (Digital + Print)
1. Factual: 1. How did the element Helium get its name? 2. What is the use of symbols for elements? 3. Why is it not possible to see an atom with naked eye? **2. Open Ended/Critical Thinking:** 1. Why is the atom electrically neutral? 2. What is the difference between formula mass and molecular? 3. How do symbols affect our society? **3. Student Practice Questions & Activities:** 1. Explain the process and precautions in verifying law of conservation of mass. 2. Calculate the number of particles in each of the following a) 46g of Na b) 8g of O2 c) 0.1 mole of hydrogen 3. Mohith said "H_2 differs from 2H". Justify. 4. Find out the chemical names and formulae for the following common household substances. a) common salt b) baking soda c) washing soda d) vinegar	1. Used prepared Quiz paper. 2. Utilized digital classroom. 3. Provide video links QR codes, DIKSHA App 4. YouTube video links

Assessment:

1. Draw the diagram to show the experimental setup for the law of conservation of mass.
2. Imagine what would happen if we do not have standard symbols for elements?
3. What are the main postulates of Dalton's atomic theory?
4. Complete the following table.

Anions → ↓Cations	Chloride	Hydroxide	Nitrate	Sulphate	Carbonate	Phosphate
Sodium						
Magnesium						
Calcium						
Aluminium						
Ammonium						

SIGNATURE OF THE TEACHER SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS