



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	
What is inside the atom? (Chapter-5)	Sub-atomic Particles	1	xx/xx/xxxx	xx/xx/xxxx	
	Atomic models – Thomson's Model of the Atom	1	xx/xx/xxxx	xx/xx/xxxx	
	Atomic models – Rutherford's or Nuclear model of the atom.	2	xx/xx/xxxx	xx/xx/xxxx	
	Atomic models – Bohr's Model of the Atom	2	xx/xx/xxxx	xx/xx/xxxx	
	Distribution of electrons in different orbits (Shells)	2	xx/xx/xxxx	xx/xx/xxxx	
	Valency – Importance of Valency	2	xx/xx/xxxx	xx/xx/xxxx	
	Atomic number – Atomic mass number – Writing symbols of atoms	2	xx/xx/xxxx	xx/xx/xxxx	
	Isotopes – Applications of isotopes	1	xx/xx/xxxx	xx/xx/xxxx	

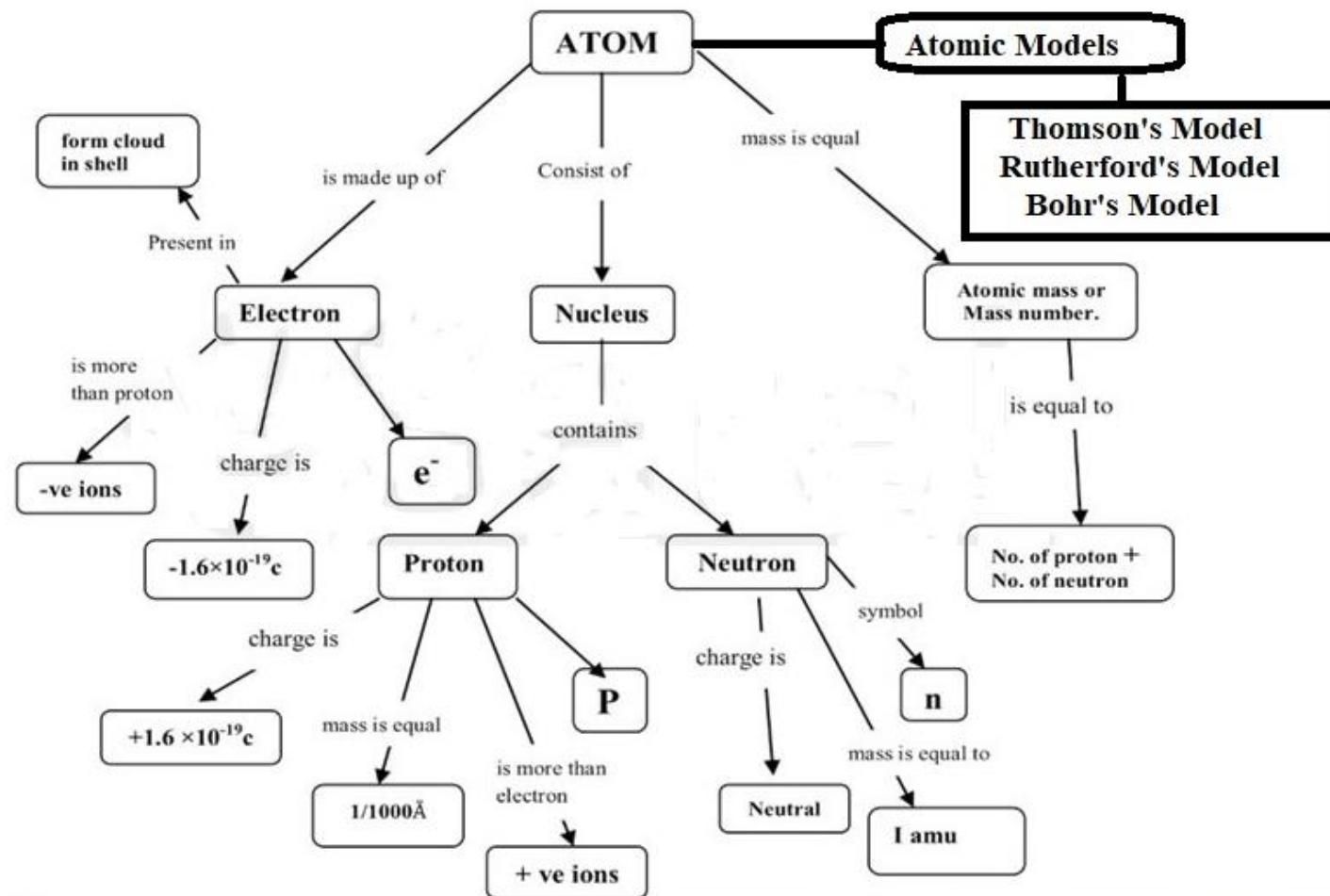
Prior Concept/Skills:

1. What are atom made of?
2. What is shape of the atom?
3. What is the mass of an atom?

Learning Outcomes:	No. of Periods
1. Draws flow charts of properties of sub-atomic particles.	2
2. Describes scientific discoveries and inventions of discovery of various atomic models.	1
3. Plans and conducts investigations of atomic models.	1
4. To seek answers to queries on their own as 'Why Bohr could successfully explain the properties of a hydrogen atom'?	1
5. Explain processes of distribution of electrons in different shells.	1
6. Draws labelled diagrams of distribution of electrons in different orbits in an atom.	1
7. Calculates using the data given number of neutrons in an atom from atomic number and mass number.	1
8. Uses scientific symbols and equations to represent various quantities, atoms and isotopes.	1
9. Applies scientific concepts in daily life of symbols of atoms and molecules.	1
10. Differentiates isobars and isotopes based on their properties.	1
11. Applies the interdependency and interrelationship in the biotic and abiotic factors of environment to promote co of usage of isotopes.	1
12. Applies scientific concepts in daily life of some isotopes are used for solving chemical and medical mysteries.	1

TEACHING LEARNING PROCESS

Induction/Introduction:



Experience and Reflection:

1. Students appreciate the hard work done by the scientists who made the atomic models.
2. Students can easily understand which atoms form which bonds based on valency.
3. Students will learn about situations where isotopes are used in everyday life.

Explicit Teaching/Teacher Modelling (I Do)	Group Work (We Do)	Independent Work (You Do)	Notes for:
1. Discussion and explain nature of Atoms.	1. Students observe the nature of an atom in a neutral state.	1. Students express the names of some elements.	1. Why an atom is considered electrically neutral?

<p>2. Discussion and explain the sub-atomic particles in an atom.</p> <p>3. Explain the properties of sub-atomic particles.</p> <p>4. Discussion and demonstrate Thomson's model of the atom.</p> <p>5. Explain and demonstrate Rutherford's alpha particles scattering experiment, its limitations.</p> <p>6. Discussion and explain Bohr's model of an atom.</p> <p>7. Discussion and demonstrate of distribution of electrons in different orbits or shells by Bohr and Bury rules.</p> <p>8. Explain valency of an atom and importance of valency.</p> <p>9. Discussion and explain the concepts of Atomic number and atomic mass number.</p> <p>10. Explain writing symbols of atoms and finding number of neutrons.</p> <p>11. Explain Isotopes, its examples and applications of isotopes.</p>	<p>2. Students read the biographies of J.J. Thomson and James Chadwick</p> <p>3. Students draw flow charts of the properties of sub-atomic particles.</p> <p>4. Students collect information on J.J.Thomson's model of the atom.</p> <p>5. Students describe Rutherford's model of the atom.</p> <p>6. Group discussion on the main postulates of Bohr's model of an atom.</p> <p>7. Students draw the arrangement of electrons for the first 18 elements.</p> <p>8. Students collect information on the valencies of elements.</p> <p>9. Group discussion on the difference between atomic mass and atomic mass number?</p> <p>10. Students write the symbols of atoms</p> <p>11. Students give examples of isotopes.</p>	<p>2. Students express the charges of sub-atomic particles.</p> <p>3. Students complete the homework</p> <p>4. Students give a reasons, Why Thomson's model of the atom called as Plum pudding model.</p> <p>5. Students draw diagrams of Rutherford's atomic model.</p> <p>6. Students draw a neat diagram of energy levels of an atom.</p> <p>7. Students identify the shells around the nucleus.</p> <p>8. Students complete the homework.</p> <p>9. Students find the number of neutrons in an atom</p> <p>10. Students complete the homework.</p> <p>11. Students write the applications of isotopes.</p>	<p>2. Which atom doesn't contain neutron in its nuclear?</p> <p>3. What is the most stable subatomic particle?</p> <p>4. Why JJ Thomson model of atom was failed?</p> <p>5. What are the limitations of Rutherford's atomic model?</p> <p>6. Why Bohr's orbits are known as stationary orbits?</p> <p>7. What is maximum number of electrons present in M-shell?</p> <p>8. What is valency?</p> <p>9. $A = Z + N$, Explain the terms in it?</p> <p>10. Why is it useful to have symbols for atoms?</p> <p>11. What are isotopes?</p>
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Check For Understanding Questions	TLM's (Digital + Print)
1. Factual: <ol style="list-style-type: none"> How can an atom achieve octet? Why valency is always a whole number? How can you distinguish between the atoms of one element from the atoms of another element? 	<ol style="list-style-type: none"> Used prepared Quiz paper. Utilized digital classroom. Provide video links QR codes, DIKSHA App YouTube video links
2. Open Ended/Critical Thinking: <ol style="list-style-type: none"> Why some elements show multiple Valency? If alpha particle scattering experiment carried out using a foil of metal other than gold? What causes isotopes to form? 	
3. Student Practice Questions & Activities: <ol style="list-style-type: none"> What were the three major observations Rutherford made in the gold foil experiment? Give the main postulates of Bohr's model of an atom. Compare the sub-atomic particles electron, proton and neutron What are the applications of isotopes in our daily life? 	

Assessment:

- Collect information about various experiments conducted and theories proposed by scientists starting from John Dalton to Niels Bohr Prepare a story with a title "History of atom"
- What are the limitations of J.J. Thomson's model of the atom?
- Sketch Rutherford's atomic model. Why Rutherford's model of the atom is called the planetary model?
- Fill in the missing information in the following table.

Name	Symbol	Atomic Number Z	Mass Number A	Number of Neutrons	Number of Electrons
Oxygen	$^{16}_8\text{O}$	8	16	8	8
		7	7		
	$^{34}_{16}\text{S}$				
Beryllium			9		
		12	24		
		12	25		

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS