



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 Lesson/Unit	Topic	No.of Periods Required	Timeline for teaching		Any specific information
			From	To	
Structure of Atom (Chapter-6)	Spectrum	1	xx/xx/xxxx	xx/xx/xxxx	
	Electromagnetic Spectrum	1	xx/xx/xxxx	xx/xx/xxxx	
	Bohr's model of hydrogen atom and its limitations	2	xx/xx/xxxx	xx/xx/xxxx	
	Bohr-Sommerfeld model of an atom	1	xx/xx/xxxx	xx/xx/xxxx	
	Quantum mechanical model of atom – Quantum numbers	4	xx/xx/xxxx	xx/xx/xxxx	
	Electronic Configuration – The Pauli Exclusion Principle	3	xx/xx/xxxx	xx/xx/xxxx	
	Aufbu Principle –Hund's Rule	3	xx/xx/xxxx	xx/xx/xxxx	

Prior Concept/Skills:

1. What are the three sub-atomic particles?
2. Why is atom stable?
3. Give the main postulates of Bohr's model of an atom.

Learning Outcomes:

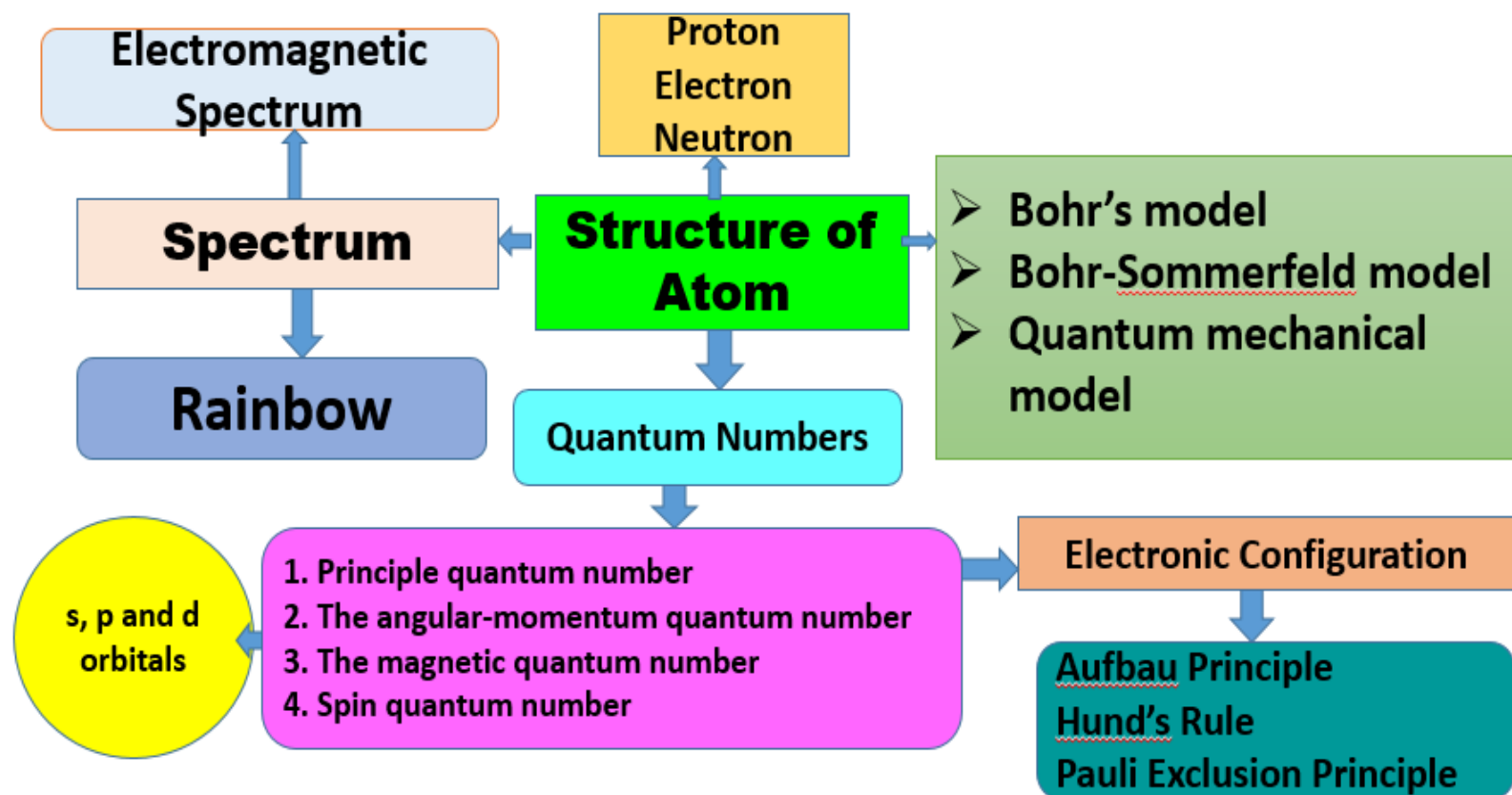
1. Calculates using the data of wavelength of light.
2. Takes initiative to know about scientific discoveries and inventions of atomic models.
3. Analyses and interprets data of quantum numbers of given electron.
4. Draw labelled diagrams of s,p,d-orbitals
5. Exhibits creativity in designing models using eco-friendly resources of working model of orbitals.
6. Draw labelled diagram of moeller chart.
7. Draw flow charts of electronic configurations of elements.
8. Analyses and interprets data of electronic configuration of elements,
9. Draws conclusion of filling order of atomic orbitals.
10. To seek answers to queries on their own of electronic configuration of copper and chromium.
11. Applies learning to hypothetical situations “ What will happen if electronic configuration of elements unknown?”
12. Explains processes of Aufbau principle with suitable examples
13. Explains processes of Hund's Principles with suitable examples
14. Explains processes of principles with suitable examples

No. of Periods

- 1
- 1
- 1
- 1
- 1
- 1
- 1
- 2
- 1
- 1
- 1
- 1
- 1
- 1

TEACHING LEARNING PROCESS

Induction/Introduction:



Experience and Reflection:

1. Students will understand why only certain colours are used in traffic signals based on the wavelengths of colours in the visible spectrum.
2. Students will learn which rules to use to write the electronic configurations of elements.
3. Students will learn the importance of quantum numbers used to describe shells, sub-shells and spin of the electrons in an atom.

Explicit Teaching/Teacher Modelling (I Do)	Group Work (We Do)	Independent Work (You Do)	Notes for:
1. Discussion and exhibit of atomic Model. 2. Discussion and Explain Spectrum and wave nature of light.	1. Students collect the information on different atomic models. 2. Why we were using red, green, yellow colours in the traffic signals? – Group discuss.	1. Do all atoms have the same sub-atomic particles? – Give reason 2. Collect the information of regarding wavelength and corresponding frequencies	1. What is the charge of an electron? 2. What is the longest wavelength in the visible spectrum?

<p>3. Explain Electromagnetic spectrum, Max Planck theory and its equation.</p> <p>4. Explain and Showing the video about line spectra.</p> <p>5. Explain Bohr's model of hydrogen atom its limitations.</p> <p>6. Discussion and Explain Bohr – Sommerfeld model of an atom.</p> <p>7. Explain Quantum mechanical model of an atom.</p> <p>8. Discussion and Explain the significance of quantum numbers (Principal quantum number, The angular – momentum quantum number).</p> <p>9. Discussion and Explain the significance of quantum numbers (The magnetic quantum number, Spin quantum number)</p> <p>10. Discussion and Explain the nl^x Method.</p> <p>11. Explain the Pauli Exclusion Principle with examples.</p> <p>12. Explain Aufbau Principle with examples and Moeller Chart.</p> <p>13. Explain Hund's Rule with examples.</p>	<p>3. Students draw the electromagnetic wave</p> <p>4. Students collect the uses of line spectra.</p> <p>5. Students explain the limitations of Bohr's model of hydrogen atom.</p> <p>6. Students observe the shapes of orbits</p> <p>7. Discussion on the importance of electrons in an atom.</p> <p>8. Students draw the different shells around the nucleus and identify the shells and sub-shells.</p> <p>9. Students collect the information on quantum numbers.</p> <p>10. Group discussion on nl^x method.</p> <p>11. Can 2 electrons have the same quantum numbers? - Discuss</p> <p>12. Students express the Aufbau Principle in terms of quantum numbers.</p> <p>13. Students explain Hund's rule with example</p>	<p>of three primary colours</p> <p>3. Students write the definitions of emission and absorption of light spectrum.</p> <p>4. Students complete the homework.</p> <p>5. Reading the biography of Neil's Bohr.</p> <p>6. Students give reasons, Why Sommerfeld introduced elliptical orbits?</p> <p>7. Students write the definition of orbital.</p> <p>8. Students represent the data of s.p.d and f sub-shells in tabular form.</p> <p>9. Students draw the s,p and d orbitals</p> <p>10. Students complete the homework.</p> <p>11. Students give a reason, "how many electrons can occupy an orbital"?</p> <p>12. Students draw the Moeller chart.</p> <p>13. Students complete the homework.</p>	<p>3. Write the Planck equation and 'h' value?</p> <p>4. What are line spectra?</p> <p>5. Why does the Bohr model not work for helium?</p> <p>6. Define fine spectra?</p> <p>7. Who developed the quantum mechanical model of atom?</p> <p>8. How many values can 'l' have for $n=4$?</p> <p>9. What is the significance of spin quantum number?</p> <p>10. What is electronic configuration?</p> <p>11. How many electrons can occupy an orbital?</p> <p>12. Out of 3d and 4s, which has more $(n+l)$ value ? Explain</p> <p>13. Why Hund's rule not applicable for which</p>
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14. Discussion and explain 'How to wrote the electronic configuration of elements?	14. Why Copper and chromium electronic configurations are different from other? Discuss	14. Students are write the electronic configurations of first 30 elements	subshell? 14. What are the 3 rules of electron configuration?
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Check For Understanding Questions	TLM's (Digital+Print)
<p>1. Factual:</p> <ol style="list-style-type: none"> 1. Is Bohr model applicable to all atoms? 2. What is the order of electron configuration? 3. Why 1p orbital is not possible? <p>2. Open Ended/Critical Thinking:</p> <ol style="list-style-type: none"> 1. What is the importance of electronic configuration? 2. What would happen if the Pauli Exclusion Principle was violated? 3. Why the spin of electron is half? <p>3. Student Practice Questions & Activities:</p> <ol style="list-style-type: none"> 1. Rainbow is an example for continuous spectrum – explain. 2. Explain the significance of three Quantum numbers in predicting the positions of an electron in an atom. 3. What is $n l^x$ method? How it is useful? 4. Draw a diagram to show that the filling order of atomic orbitals and their ascending order of energies? 	<ol style="list-style-type: none"> 1. Used prepared Quiz paper. 2. Utilized digital classroom. 3. Provide video links QR codes, DIKSHA App 4. YouTube video links
<p>Assessment:</p> <ol style="list-style-type: none"> 1. Atomic number of element is 17. Answer the following questions <ol style="list-style-type: none"> i) Write the name of the element ii) Write the electronic configuration iii) How many electrons are present in M-shell iv) Write the nearest noble gas element 2. State and explain with one example of Aufbau principle? 3. Write postulates and limitations of Bohr's model of hydrogen atom. 4. Write the first 20 elements electronic configuration. 	

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS