

9th CLASS

PHYSICAL SCIENCE

LESSON PLANS

[2023 - 2024]

As per the guidelines of
Department of School Education, AP

**Special
Edition**

I hope this
book will be one of
the ways to your
Success..

M.Srinivasa Rao, SA(PS)

SPSMHS, GUDIVADA.

Ph : 9848143855

Visit : srini science mind





Srini Science Mind

Abdul Kalam Physical Science Group



NEW

9th class

PHYSICAL SCIENCE

LESSON PLAN with BYJU's Content

Visit: [srini-science-mind](http://srini-science-mind.com)



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

LESSON PLAN

CLASS: 09

SUBJECT: PS

Name of the Teacher: M.Srinivasa Rao

Name of the School: SPSMH School, Gudivada

Name of the Lesson/Unit	Topic	No.of Periods Required	Timeline for teaching		Any specific information
			From	To	
Matter In Our Surroundings (Chapter – I)	Physical Nature of Matter	2			
	Characteristics of Particles of Matter	3			
	BYJU’s Content Review	1			
	States of Matter	3			
	Can Matter Change its State?	3			
	Evaporation	3			
	BYJU’s Content Review	1			

Prior Concept/Skills:

1. Give examples of matter in our surroundings?
2. What is the “Panch Tatva”?
3. In how many states does matter exist?
4. What is the hidden phenomena in drying wet clothes in outside?

Learning Outcomes:

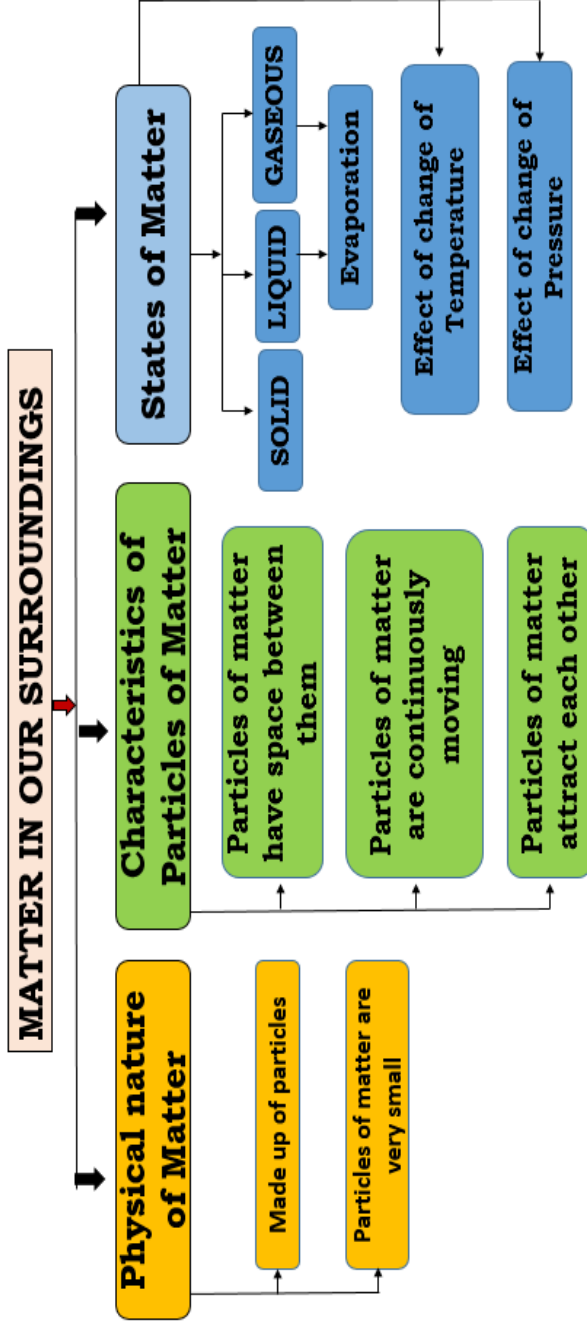
1. Classification of matter based on their states (solid/ liquid/gas).
2. Communicates the findings and conclusions effectively of “Can matter change its state?”
3. Analyses and interprets figures of the properties of three state of matter.
4. Conduct a simple investigation to seek answers to queries about “What is the effect of temperature on state of substances”?
5. Conduct a simple investigation to seek answers to queries about “What is the effect of compression on different states of substances”?
6. Draws the conclusion of matter is made up of particles.
7. Draws a flow chart of the interconversion of the three states of matter.
8. Draws labeled diagrams of process sublimation.
9. Calculates using the data given such as conversion of Celsius scale to Kelvin scale and vice versa.
10. Relates processes and phenomena with causes/effects such as process of evaporation with cooling effect.
11. Applies scientific concepts in daily life and solving problems of evaporation.
12. Relates processes and phenomena with causes and effects of evaporation is the cooling process.
13. Seek answers to queries on their own “Why should we wear cotton clothes in summer?”

No. of Periods

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

TEACHING LEARNING PROCESS

Induction/Introduction:



Experience and Reflection:

1. Students are able to understand the interconversion of the three states of matter and applies in various situations.
2. Students will identify where the effect of a change in temperature and the effect of a change in pressure of matter.
3. Students are able to understand the applications of evaporation in our daily life and utilized it.

Explicit Teaching/Teacher Modelling (I Do)	Group Work (We Do)	Independent Work (You Do)	Notes for:
<ol style="list-style-type: none"> 1. Discussion and conduct experiment on salt dissolve in water. 2. Explain and conduct activity on the particles of matter are very small (Potassium permanganate crystals, beakers, water) 3. Discussion and conduct an activity on particles of matter have space between them (Sugar/ Salt/ Dettol/ Potassium permanganate crystals, beakers, water, Spoon) 	<ol style="list-style-type: none"> 1. Students conduct this activity. 2. The same activity can be done using Sugar/ Dettol instead of Potassium permanganate crystals 3. Students conduct activities and making questions. 	<ol style="list-style-type: none"> 1. Viewing the content in Byju's Tab 2. Students observe the dissolve process and record the timely. 3. Students complete the homework. 	<ol style="list-style-type: none"> 1. Write the physical nature of matter? 2. What is the smallest part of matter called? 3. "There is enough space between particles of matter."

<p>4. Explain and conduct lab activity on Particles of matter are continuously moving.</p> <p>5. Discussion and conduct lab activity on particles of matter attract each other.</p> <p>6. Explain the states of matter.</p> <p>7. Discussion and conduct activity on “Properties of solids?”</p> <p>8. Discussion and conduct activity on “Properties of liquids?”</p> <p>9. Discussion and conduct activity on “Properties of gases?”</p> <p>10. Explain and show the magnified schematic pictures of the three states of matter.</p> <p>11. Explain and conduct activity on effect of change of temperature.</p> <p>12. Explain, melting point of solids. conversion of temperature (Kelvin scale to Celsius scale vice versa)</p> <p>13. Discussion and conduct an activity On effect of change of pressure.</p> <p>14. Discussion and explain evaporation</p> <p>15. Conduct activity on factors affecting evaporation</p>	<p>4. Students describe the process of Particles of matter are continuously moving.</p> <p>5. Group discussion on characteristics of particles of matter.</p> <p>6. Students collect information on the states of matter.</p> <p>7. Students give examples of solids</p> <p>8. “Does the shape of the liquid remain the same? – Group discussion</p> <p>9. Students conduct activity on the properties of gases</p> <p>10. Students arrange the experimental setup of given apparatus and conduct activity</p> <p>11. Students have done the problems on the conversion of temperature.</p> <p>12. Students collect information on the effect of change of pressure on matter.</p> <p>13. Students describe the evaporation process.</p>	<p>4. Viewing the content in Byju’s Tab</p> <p>5. Students involve in group activity</p> <p>6. Students draw the flow chart of the states of matter</p> <p>7. Viewing the content in Byju’s Tab</p> <p>8. Students complete the homework.</p> <p>9. Students conduct activities.</p> <p>10. Students draw the schematic pictures of the three states of matter.</p> <p>11. Viewing the content in Byju’s Tab</p> <p>12. Students draw the sublimation of ammonium chloride</p> <p>13. Students complete the homework.</p> <p>14. Students write the definition of evaporation.</p> <p>15. Viewing the content in Byju’s Tab</p>	<p>4. Define Diffusion?</p> <p>5. What are the characteristics of particles of matter.</p> <p>6. Which property of the gas is utilized when natural gas is supplied for vehicles?</p> <p>7. Differentiate between properties of three states of matter.</p> <p>8. List two properties that liquids have in common with gases?</p> <p>9. Define boiling point?</p> <p>10. What is the effect of pressure on a gas?</p> <p>11. Define evaporation?</p>
--	--	---	--

16. Discussion on applications of evaporation in day to day life situations.	14. Students collect information on the evaporation in daily life situations.	16. Students give examples of the rate of evaporation increases.	12. On what factors evaporation depends?
17. Review of Byju's tab content	15. Viewing the content in Byju's Tab	17. Viewing the content in Byju's Tab	

<p style="text-align: center;">Check For Understanding Questions</p> <p>1. Factual:</p> <ol style="list-style-type: none"> 1. Why are liquids and gases called fluids? 2. Is air a matter or not? 3. Why gas is called as lightest state of matter? <p>2. Open-End/Critical Thinking:</p> <ol style="list-style-type: none"> 1. Why are light and sound not considered as matter? 2. Which state of matter has the most energy? 3. Is evaporation a physical change? <p>3. Student Practice Questions & Activities:</p> <ol style="list-style-type: none"> 1. Arrange the following substances in increasing order of forces of attraction between the particles. <i>Water, Sugar, Oxygen.</i> 2. What produces more severe burns, boiling water or steam? 3. Define "Evaporation"? What are factors affecting evaporation? 4. Convert the following temperatures to the Celsius scale. (a) 293 K (b) 470 K 5. Give two reasons to justify— (a) Water at room temperature is a liquid. (b) An iron almirah is a solid at room temperature. 	<p style="text-align: center;">TLM's (Digital + Print)</p> <ol style="list-style-type: none"> 1. Used prepared Quiz paper. 2. Utilized digital classroom. 3. Provide video links 4. QR codes, DIKSHA App 4. YouTube video links 5. Byju's Tab 6. IFP
<p>Assessment:</p> <ol style="list-style-type: none"> 1. Convert the following temperatures to the kelvin scale. (a) 25⁰ C (b) 373⁰ C 2. Why is ice at 273 K more effective in cooling than water at the 3same temperature? 3. What are the characteristics of the particles of matter? 4. Collect the information of differences between in the characteristics of states of matter. 5. List out the some measurable quantities, their units and symbols. 	

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS

LESSON PLAN

CLASS: 09

SUBJECT: PS

Name of the Teacher: M.Srinivasa Rao

Name of the School: SPSMH School, Gudivada

Name of the Lesson/Unit	Topic	No.of Periods Required	Timeline for teaching		Any specific information
			From	To	
IS MATTER AROUND US PURE? (Chapter-2)	Introduction, What is a mixture? And Types of mixtures	1			
	What is a Solution?	1			
	BYJU's Content Review	1			
	Concentration of a solution	3			
	What is a Suspension? and What is a Colloidal Solution?	3			
	Physical and Chemical Changes	1			
	BYJU's Content Review	1			
	What are the Types of Pure Substances? and Elements	2			
	Compounds	1			
	Mixtures and Compounds	1			
	BYJU's Content Review	1			

Prior Concept/Skills:

1. Name the method by which you can separate butter from milk.
2. Which method of separation is used for husk from wheat flour?
3. What is air called, if it is a combination of some gases?

Learning Outcomes:

1. Classification of matter based on their states (solid/liquid/gas).
2. Draws conclusion of matter is made up of particles.
3. Seek answers to queries on their own "Is the mixture heterogeneous?"
4. Differentiates element, compound and mixture on their properties.
5. Calculates using the data given of concentration of solution in terms of mass by mass percentage of substances.
6. Communicates the findings and conclusions effectively of concentration of mixtures.
7. Relates processes and phenomena with causes of various processes of separation with the physical and chemical properties of the substances.
8. Draws labelled diagrams of process of filtration.
9. Analyses and interprets graphs and figures of properties of components of a mixture to identify the appropriate method of Separation.
10. Applies scientific concepts in daily life and solving problems of separation of mixtures.
11. Differentiates Solutions, Suspension and Colloid based on their properties.

No. of Periods

- 1
1
1
2
1
2

1
1

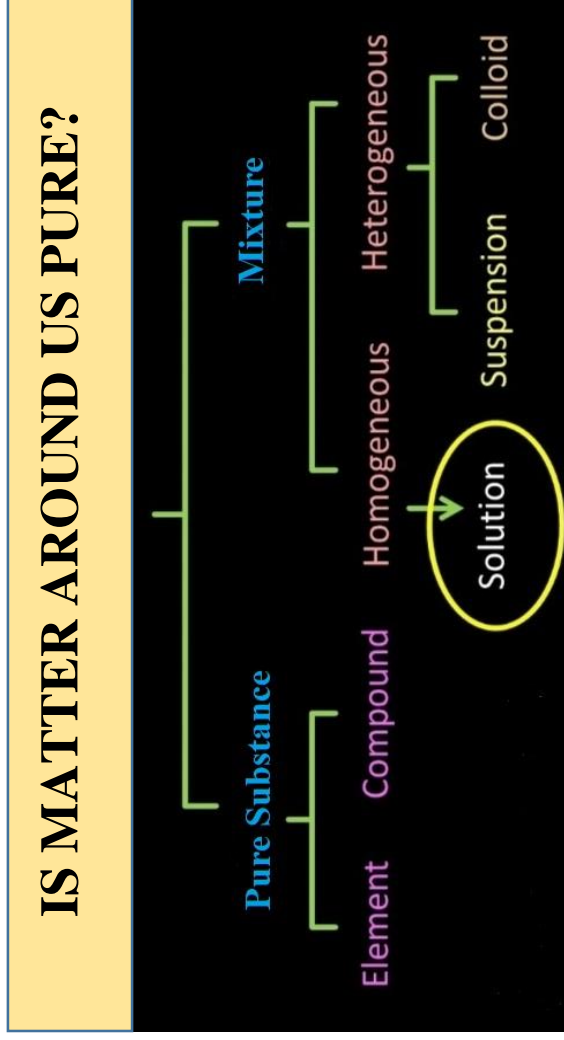
1
1
2

12. Draws flow chart of the matter
13. Classifies composition (element/compound/ mixture) based on their properties.

1
1

TEACHING LEARNING PROCESS

Induction/Introduction:



Experience and Reflection:

1. Students use the rules of solution concentration in cold drinks made during the summer.
2. Students will utilize the methods in separation of mixtures in their daily life situations.
3. Students will identify where Tyndall effect is affected.

Explicit Teaching/Teacher Modelling (I Do)

1. Discussion and Explain "A Pure Substance" with some consumable items in our daily life
2. Discussion and explain the concept of mixture.
3. Explain types of mixtures with

Group Work (We Do)

1. Give examples of consumable items
2. Group discussion on the properties of the mixture and pure substance
3. Students collect the information of

Independent Work (You Do)

1. What is a pure substance?
2. What is a mixture?
3. Students give examples of

Notes for:

1. Give examples of pure substances?
2. Is the mixture heterogeneous? Give reason.
3. What constituents are

<p>Examples and conduct activities.</p> <p>4. Review of Byju's tab content</p> <p>5. Discussion and explain the concept of solutions and their properties.</p> <p>6. Conduct an activity on the concentration of a solution.</p> <p>7. Solving the problems on concentration of a solution.</p> <p>8. Explain Suspension and properties of a Suspension with examples.</p> <p>9. Explain Colloid and properties of a Colloid with examples.</p> <p>10. Discussion on Physical and Chemical changes</p> <p>11. Review of Byju's tab content</p> <p>12. Explain types of Pure Substance (Elements)</p> <p>13. Explain and conduct activity on Pure Substance (Compounds)</p> <p>14. Explain the difference between mixtures and compounds</p> <p>15. Explain the flow chart of matter</p> <p>16. Review of Byju's tab content</p>	<p>homogeneous and heterogeneous mixtures</p> <p>4. Viewing the content in Byju's Tab</p> <p>5. "All the solutions are mixtures, but not all mixtures are solutions"- Discuss</p> <p>6. Students prepare the saturated and unsaturated solutions.</p> <p>7. Solved the problems on mass percentage of a solution.</p> <p>8. Collect information of suspension</p> <p>9. Students give examples of Tyndall effect in our daily life.</p> <p>10. Group discussion on Physical properties of matter</p> <p>11. Viewing the content in Byju's Tab</p> <p>12. Students give examples of metals and non-metals</p> <p>13. Students involved in group activity</p> <p>14. Collect information on elements and compounds</p> <p>15. Viewing the content in Byju's Tab</p>	<p>homogeneous and heterogeneous mixtures.</p> <p>4. Viewing the content in Byju's Tab</p> <p>5. Students complete the homework</p> <p>6. Identify the main difference between saturated and unsaturated solutions.</p> <p>7. Students express the properties of a solution</p> <p>8. What is Tyndall effect?</p> <p>9. Students give common examples of colloids</p> <p>10. Students complete the homework</p> <p>11. Viewing the content in Byju's Tab</p> <p>12. Students express the properties of metals and non-metal</p> <p>13. Students complete the homework.</p> <p>14. Draw the flow chart of matter</p> <p>15. Viewing the content in Byju's Tab</p>	<p>in milk?</p> <p>4. Define solution, solvent and solute.</p> <p>5. When do you say that a solution is dilute solution?</p> <p>6. A solution contains 40 g of common salt in 320 g of water. Calculate the concentration in terms of mass by mass percentage of the solution?</p> <p>7. Does starch show Tyndall effect?</p> <p>8. What is the main principle of sublimation?</p> <p>9. Why is water considered as compound?</p> <p>10. Why blood is a mixture?</p> <p>11. Give an account of elements known to us.</p>
---	---	--	--

Check For Understanding Questions	TLM's (Digital + Print)
<p>1. Factual:</p> <ol style="list-style-type: none"> 1. Is blood a heterogeneous mixture? 2. What does suspension and colloid have in common? 3. Why is it not possible to distinguish particles of a solute from the solvent in solution? <p>2. Open Ended/Critical Thinking:</p> <ol style="list-style-type: none"> 1. Colloids are heterogeneous mixtures. Why? 2. Is a substance always homogeneous? 3. Which is the more stable suspension or colloid? why <p>3. Student Practice Questions & Activities:</p> <ol style="list-style-type: none"> 1. Classify each of the following as a homogeneous or heterogeneous mixture. <i>Soda water, Wood, Air, Soil, Vinegar, Filtered tea</i> 2. Which separation techniques will you apply for the separation of the following? (a) Sodium chloride from its solution in water (b) Tea leaves from tea (c) Iron pins from sand 3. How would you confirm that a colourless liquid given to you is pure water? 4. Write the steps you would use for making tea. Use the words solution, solvent, solute, dissolve, soluble, insoluble, filtrate and residue. 	<ol style="list-style-type: none"> 1. Used prepared Quiz paper. 2. Utilized digital classroom. 3. Provide video links <p>QR codes, DIKSHA App</p> <ol style="list-style-type: none"> 4. YouTube video links 5. Byju's Tab 6. IFF
<p>Assessment:</p> <ol style="list-style-type: none"> 1. Give some daily life experiences where you can observe the "Tyndall effect". 2. Compare the properties of mixtures and compounds. 3. Explain the following giving examples (a) Saturated solution (b) Pure substance (c) Colloid (d) Suspension 4. Classify the following into elements, compounds and mixtures. (a) Sodium (b) Soil (c) Sugar solution (d) Silver (e) Calcium carbonate (f) Coal (g) Air (h) Soap (i) Methane (j) Blood 	

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS

LESSON PLAN

CLASS: 09

SUBJECT: PS

Name of the Teacher: M.Srinivasa Rao

Name of the School: SPSMH School, Gudivada

Name of the Lesson/Unit	Topic	No.of Periods Required	Timeline for teaching		Any specific information
			From	To	
Atoms and Molecules (Chapter-3)	Introduction – laws of Chemical Combination	1			
	Laws of Conservation of Mass	1			
	Laws of Constant Proportion	1			
	What is an Atom?	1			
	BYJU’s Content Review	1			
	What are the modern day symbols of atoms of different elements?	1			
	Atomic Mass and How do atoms exist?	1			
	What is a Molecule? And Molecules of Elements	1			
	Molecules of Compounds	1			
	BYJU’s Content Review	1			
	What is an Ion?	1			
	Writing Chemical Formulae	2			
	Formulae of Simple Compound	1			
	Molecular Mass	1			
Formula Unit Mass	1				
BYJU’s Content Review	1				

Prior Concept/Skills:

1. What is the formula for water molecule?
2. Does the weight of an iron rod increase or decrease, on rusting?
3. What is the symbol of Hydrogen?

Learning Outcomes:

- 1, Explains processes of law of conservation of mass.
2. Plans and conducts experiments to arrive at and verify the law of conservation of mass.
3. Explains processes of law of constant proportions
4. Draws conclusion of elements combine chemically in a fixed ratio to form compounds.
5. Differentiates of elements based on their properties.
6. Uses scientific conventions, symbols of elements, formulae of simple compounds.
7. Describes scientific discoveries and inventions of elements

No. of Periods

- 1
1
1
1
1
2
2

8. Applies learning to hypothetical situations of Atomicity	1
9. Applies scientific concepts in the daily life of molecular mass.	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 of formula unit mass.	1

TEACHING LEARNING PROCESS

Induction/Introduction:

Experience and Reflection:

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

Explicit Teaching/Teacher Modelling (I Do)	Group Work (We Do)	Independent Work (You Do)	Notes for:
1. Discussion on the establishment of atoms and Appreciations of Scientists.	1. "Inside the matter" – Group discussion	1. Students know the Antoine L. Lavoisier	1. Who is the father of modern chemistry?

<p>2. Explain and Conduct an activity on Law of conservation of mass</p> <p>3. Discussion and explain the Law of constant proportion.</p> <p>4. Discussion and explain the postulates of Dalton's Atomic theory.</p> <p>5. Discussion on Atoms and their sizes</p> <p>6. Review of Byju's tab content</p> <p>7. Discussion and explain the symbols of elements.</p> <p>8. Discussion and explain Atomic mass</p> <p>9. Explain the molecules of elements.</p> <p>10. Explain Atomicity.</p> <p>11. Review of Byju's tab content</p> <p>12. Discussion and explain the valencies of elements, and ions</p> <p>13. Discussion and explain molecules of Compounds.</p> <p>14. Discussion and explain the write chemical formulae of molecules in criss-cross method by using valency.</p> <p>15. Explain the concepts of Molecular mass and formula unit mass.</p>	<p>2. Students arrange the required materials for the experiment.</p> <p>3. Students read the Joseph L. Proust history.</p> <p>4. Which postulate of Dalton's theory can explain the law of constant proportions? - Group discussion.</p> <p>5. Students are told the names of some known elements.</p> <p>6. Viewing the content in Byju's Tab</p> <p>7. Students collect information on some unusual symbols of elements.</p> <p>8. Students collect the atomic mass of a few elements</p> <p>9. Why do elements have different atomicities? - Group discussion</p> <p>10. Viewing the content in Byju's Tab</p> <p>11. Students collect information on valencies of elements.</p> <p>12. Students count the number of atoms present in given molecules.</p> <p>13. Students write chemical formulae of molecules in criss-cross method.</p> <p>14. Students calculate the molecular mass of given substances.</p>	<p>2. Students measure the weight of flask and contents before mixing and after mixing.</p> <p>3. Students write the definition of law of constant proportions.</p> <p>4. Students write the postulates of Dalton's atomic theory.</p> <p>5. Students complete the homework.</p> <p>6. Viewing the content in Byju's Tab</p> <p>7. Students write a table that contains element name and symbol</p> <p>8. Students complete the homework.</p> <p>9. Students give examples of elements.</p> <p>10. Students write the definition of Atomicity.</p> <p>11. Viewing the content in Byju's Tab</p> <p>12. Students give a reason, Why elements show variable valency?</p> <p>13. Students complete the homework</p> <p>14. How can you write the formula of a compound by Criss-Cross method?</p> <p>15. Students solved problems on molecular mass.</p>	<p>2. State the law of conservation of mass.</p> <p>3. Why the law of definite proportions is not applicable to nitrogen oxide?</p> <p>4. What is the difference between atom and molecule?</p> <p>5. Write symbols of a few elements?</p> <p>6. Define the atomic mass unit.</p> <p>7. What is the atomicity of inert gases?</p> <p>8. What is an ion? How many types?</p> <p>9. Can atoms exist independently?</p> <p>10. What is the formula of ammonium carbonate using Criss Cross method?</p> <p>11. What is responsible for mass of atom?</p>
---	--	---	--

16. Review of Byju's tab content	15. Viewing the content in Byju's Tab	16. Viewing the content in Byju's Tab	
----------------------------------	---------------------------------------	---------------------------------------	--

<p style="text-align: center;">Check For Understanding Questions</p> <p>1. Factual:</p> <ol style="list-style-type: none"> How did the element Helium get its name? What is the use of symbols for elements? Why is it not possible to see an atom with naked eye? <p>2. Open Ended/Critical Thinking:</p> <ol style="list-style-type: none"> Why is the atom electrically neutral? What is the difference between formula mass and molecular? How do symbols affect our society? <p>3. Student Practice Questions & Activities:</p> <ol style="list-style-type: none"> What are polyatomic ions? Give examples. Give the names of the elements present in the following compounds. <ol style="list-style-type: none"> Quick lime Hydrogen bromide Baking powder Potassium sulphate A 0.24 g sample of compound of oxygen and boron was found by analysis to contain 0.096 g of boron and 0.144 g of oxygen. Calculate the percentage composition of the compound by weight. Calculate the molar mass of Ethyne (C_2H_2) <p>Assessment:</p> <ol style="list-style-type: none"> State the law of conservation of mass in a chemical reaction. Describe an activity that can be used to verify this law. Write the chemical formulae of the following. <ol style="list-style-type: none"> Magnesium chloride Calcium oxide Copper nitrate Aluminium chloride Calcium carbonate. List out at least 20 elements and their symbols. Calculate the molar mass of Hydrochloric acid (HCl) 	<p style="text-align: center;">TLM's (Digital + Print)</p> <ol style="list-style-type: none"> Used prepared Quiz paper. Utilized digital classroom. Provide video links QR codes, DIKSHA App YouTube video links Byju's Tab IFP
--	--

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS

LESSON PLAN

CLASS: 09

SUBJECT: PS

Name of the Teacher: M.Srinivasa Rao

Name of the School: SPSMH School, Gudivada

Name of the Lesson/Unit	Topic	No.of Periods Required	Timeline for teaching		Any specific information
			From	To	
Structure of The Atom (Chapter-4)	Introduction – Charged particles in matter	2			
	The Structure of an Atom- Thomson’s model of an atom	1			
	Rutherford’s model of an atom	2			
	BYJU’s Content Review	1			
	Bohr’s model of an atom	2			
	Neutrons and How are electrons distributed in different orbits (Shell)?	2			
	Valency	3			
	BYJU’s Content Review	1			
	Atomic Number and Mass Number	1			
	Isotopes	1			
Isobars	1				
BYJU’s Content Review	1				

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:

1. Draws flow charts of properties of sub-atomic particles.
2. Describes scientific discoveries and inventions of discovery of various atomic models.
3. Plans and conducts investigations of atomic models.
4. To seek answers to queries on their own as ‘Why Bohr could successfully explain the properties of a hydrogen atom’?
5. Explain the processes of distribution of electrons in different shells.
6. Draws labelled diagrams of the distribution of electrons in different orbits in an atom.
7. Calculates using the data given the number of neutrons in an atom from the atomic number and mass number.
8. Uses scientific symbols and equations to represent various quantities, atoms and isotopes.
9. Applies scientific concepts in the daily life of symbols of atoms and molecules.
10. Differentiates isobars and isotopes based on their properties.

No. of Periods

- 1
2
1
1
1
1
1
1
1
1

11. Applies the interdependency and interrelationship in the biotic and abiotic factors of the environment to promote co of usage of isotopes	1
12. Applies scientific concepts in the daily life of some isotopes used for solving chemical and medical mysteries.	1
13. Applies the interdependency and interrelationship in the biotic and abiotic factors of the environment to promote co of usage of isobars	1

TEACHING LEARNING PROCESS			
Induction/Introduction:			
<pre> graph TD AS[Atomic structure] --- AM[atomic mass] AS --- AN[atomic number] AS --- IS[isotopes] AS --- TN[the nucleus] AS --- ON[outside the nucleus] TN --- P[protons (+)] TN --- N[neutrons (+)] ON --- E[electrons (+)] </pre>			
Experience and Reflection:			
<ol style="list-style-type: none"> 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. 			
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> Thomson's Model of an Atom Rutherford's Model of an Atom Bohr's Model of an Atom </div>			
Explicit Teaching/Teacher Modelling (I Do)	Group Work (We Do)	Independent Work (You Do)	Notes for:
<ol style="list-style-type: none"> 1. Discussion and explain nature of Atoms. 2. Discussion and explain the sub-atomic particles in an atom. 	<ol style="list-style-type: none"> 1. Students observe the nature of an atom in a neutral state. 2. Students read the biographies of J.J. Thomson and James Chadwick 	<ol style="list-style-type: none"> 1. Students express the names of some elements. 2. Students express the charges of sub-atomic particles. 	<ol style="list-style-type: none"> 1. Why an atom is considered electrically neutral? 2. Which atom doesn't contain neutron in its nuclear?

<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. Review of Byju's tab content</p> <p>7. Discussion and explain Bohr's model of an atom.</p> <p>8. Discussion and demonstrate of distribution of electrons in different orbits or shells by Bohr and Bury rules.</p> <p>9. Explain valency of an atom and importance of valency.</p> <p>10. Review of Byju's tab content</p> <p>11. Discussion and explain the concepts of Atomic number and atomic mass number.</p> <p>12. Explain writing symbols of atoms and finding number of neutrons.</p> <p>13. Explain Isotopes, its examples and applications of isotopes.</p> <p>14. Explain Isobars and its examples</p> <p>15. Review of Byju's tab content</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. Viewing the content in Byju's Tab</p> <p>7. Group discussion on the main postulates of Bohr's model of an atom.</p> <p>8. Students draw the arrangement of electrons for the first 18 elements.</p> <p>9. Students collect information on the valencies of elements.</p> <p>10. Viewing the content in Byju's Tab</p> <p>11. Group discussion on the difference between atomic mass and atomic mass number?</p> <p>12. Students write the symbols of atoms</p> <p>13. Students give examples of isotopes.</p> <p>14. Viewing the content in Byju's Tab</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. Viewing the content in Byju's Tab</p> <p>7. Students draw a neat diagram of energy levels of an atom.</p> <p>8. Students identify the shells around the nucleus.</p> <p>9. Students complete the homework.</p> <p>10. Viewing the content in Byju's Tab</p> <p>11. Students find the number of neutrons in an atom</p> <p>12. Students complete the homework.</p> <p>13. Students write the applications of isotopes.</p> <p>14. Students identify the Isobars from given data</p> <p>15. Viewing the content in Byju's Tab</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. Find the neutrons in $^{16}_8\text{O}$?</p> <p>10. Why is it useful to have symbols for atoms?</p> <p>11. What are isotopes?</p> <p>12. What are isobars?</p>
---	--	--	---

Check For Understanding Questions	TLM's (Digital + Print)
<p>1. Factual:</p> <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? <p>2. Open Ended/Critical Thinking:</p> <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? <p>3. Student Practice Questions & Activities:</p> <ol style="list-style-type: none"> Compare the properties of electrons, protons, and neutrons. What are the limitations of Rutherford's model of the atom? Na⁺ has completely filled K and L shells. Explain. What are the applications of isotopes in our daily life? 	<ol style="list-style-type: none"> Used prepared Quiz paper. Utilized digital classroom. Provide video links QR codes, DIKSHA App YouTube video links Byju's Tab IFP

Assessment:			
1. Describe Bohr's model of the atom.	2. If Z = 3, what would be the valency of the element? Also, name the element.	3. Show that diagram of a few energy levels in an atom.	4. Complete the following table.
Atomic Number	Mass Number	Number of Neutrons	Number of Protons
9	-	10	-
16	32	-	-
-	24	-	12
-	2	-	1
-	1	1	0
Atomic Number	Mass Number	Number of Neutrons	Number of Electrons
			-
			Sulphur
			-
			-
			-

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS

LESSON PLAN

CLASS: 09

SUBJECT: PS

Name of the Teacher: M.Srinivasa Rao

Name of the School: SPSMH School, Gudivada

Name of the Lesson/Unit	Topic	No.of Periods Required	Timeline for teaching		Any specific information
			From	To	
MOTION (Chapter – 7)	Introduction – Describing Motion	1			
	Motion along a straight line	1			
	Uniform motion and Non Uniform motion	1			
	Speed with direction	1			
	BYJU’s Content Review	1			
	Rate of change of velocity	1			
	Graphical representation of motion (Distance – Time graph)	1			
	Velocity – Time graphs	2			
	Equations of motion and solved problems	2			
	Uniform circular motion	1			
BYJU’s Content Review	1				

Prior Concept/Skills:

1. How many types of motions are based on the path taken by the bodies in motion?
2. What is the rest of the object?
3. What is the S.I unit of speed?
4. How much distance from your home to school?

Learning Outcomes:

1. Describes scientific discoveries and inventions beliefs regarding motion.
2. Differentiates distance and displacement based on their physical properties.
3. Differentiates speed and velocity based on their physical properties.
4. Seek answers to queries on their own about how does speed of an object change?
5. Calculates using the data given of distance, velocity and speed,
6. Draws graphs of distance-time
7. Analyses and interprets graphs of distance-time
8. Draws graphs of speed-time graphs.
9. Analyses and interprets graphs of velocity-time graphs.
- 10 Communicates the findings and conclusions effectively of distance-time and velocity-time graphs.
11. Analyses and interprets graphs and figures of computing distance, speed, acceleration of objects in motion.
12. Derives formulae, equations of motion from velocity-time graphs

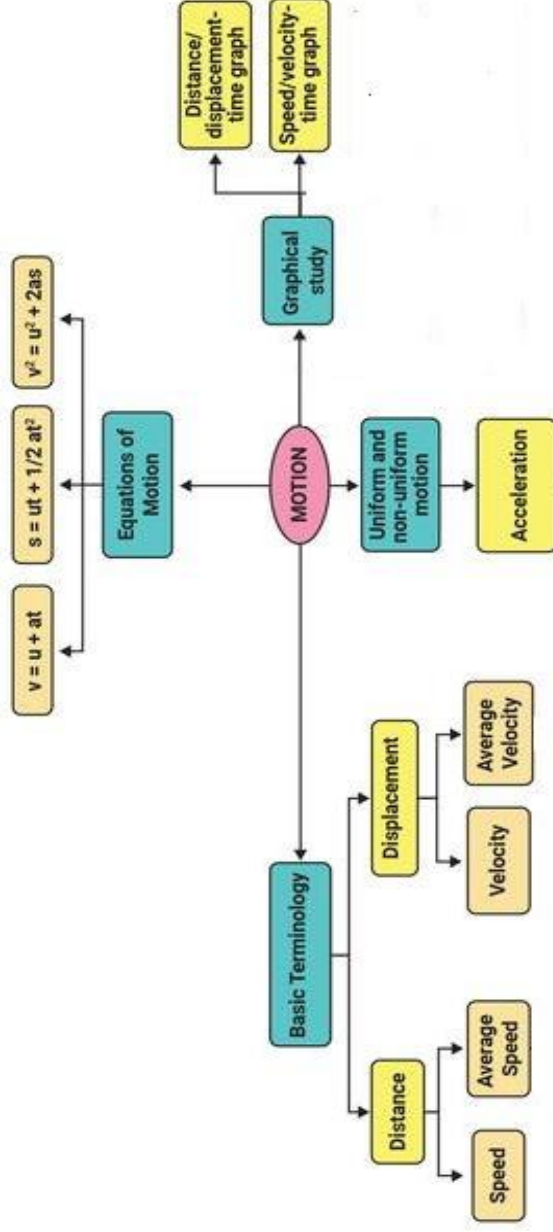
No. of Periods

- 1
1
1
1
1
1
1
1
1
1
1
1

13. Measures acceleration and velocity using appropriate apparatus, instruments, and devices.
14. Uses scientific convention, symbols and equations to represent initial velocity, final velocity, acceleration, displacement and time.

TEACHING LEARNING PROCESS

Induction/Introduction:



Experience and Reflection:

1. Students are collecting information on types of motions in our daily life.
2. Students observe the shapes of paths during their traveling time
3. Students are able to interpret graphical data.
4. Students are able to understand the instantaneous speed/velocity and find its values in daily life.

Explicit Teaching/Teacher Modelling (I Do)	Group Work (We Do)	Independent Work (You Do)	Notes for:
<ol style="list-style-type: none"> 1. Discussion about motion with activities 2. Explain and conduct activities on motion along a straight line 	<ol style="list-style-type: none"> 1. Collect the information on types of motion 2. Group discussion on when distance becomes equal to displacement. 	<ol style="list-style-type: none"> 1. Students give examples of origin. 2. Draw the paths of distance and displacement. 	<ol style="list-style-type: none"> 1. Define the terms rest and motion. 2. Define displacement?

<p>3. Discussion and conduct an activity on uniform motion and non-uniform motion.</p> <p>4. Explain the measuring the rate of Motion and solve the problems on average speed</p> <p>5. Explain the speed with direction and solve the problems on average velocity</p> <p>6. Review of Byju's tab content</p> <p>7. Discussion and explain the rate of change of velocity (acceleration) and solved their problems</p> <p>8. Discussion and draw the graphical representation Distance – Time graphs (Uniform speed)</p> <p>9. Discussion and draw the graphical representation Distance – Time graphs (Non-Uniform speed)</p> <p>10. Discussion and draw the graphical representation of Velocity-Time graphs (Uniform motion)</p> <p>11. Discussion and draw the graphical representation of Velocity-Time graphs (Uniform acceleration and Non-Uniform acceleration)</p> <p>12. Explain the equations of motion and solve the problems</p>	<p>3. Students give examples of uniform and non-uniform motions in our day-to-day life.</p> <p>4. Solved the problems on average speed.</p> <p>5. Solved the problems on average velocity.</p> <p>6. Viewing the content in Byju's Tab</p> <p>7. Students derive the formula for acceleration</p> <p>8. Students draw the graph from the given data of Distance and Time</p> <p>9. Discuss the steps to be taken to draw a graph</p> <p>10. Discussion on "What information gives us Velocity-Time graph?"</p> <p>11. Collect the information on types of acceleration</p> <p>12. Students solve the given problems</p>	<p>3. Students complete the homework.</p> <p>4. Students write the formula of average speed.</p> <p>5. Students express the difference between speed and velocity.</p> <p>6. Viewing the content in Byju's Tab</p> <p>7. Students complete the homework</p> <p>8. Students will be able to tell how information can be represented on a graph</p> <p>9. What is distance-time graph of a Body?</p> <p>10. Students draw the velocity-time graph of a body</p> <p>11. Students complete the homework</p> <p>12. Students write the equations of motion</p>	<p>3. Define Uniform motion?</p> <p>4. Write the unit of speed.</p> <p>5. Write the formula of average velocity?</p> <p>6. When will you say a body is in uniform acceleration?</p> <p>7. What is the shape of a drawn graph?</p> <p>8. What is the nature of the distance-time graph of a body moving with constant acceleration?</p> <p>9. Mention the uses of a velocity-time graph of a body.</p> <p>10. Write mathematical expression for average velocity?</p>
--	---	---	--

13. Explain and conduct activity on uniform circular motion.	13. Students give examples of accelerated motion.	11. Define uniform circular motion?
14. Review of Byju's tab content	14. Viewing the content in Byju's Tab	13. Viewing the content in Byju's Tab

<p>1. Factual:</p> <ol style="list-style-type: none"> How do we understand motion? When does the average velocity becomes zero? In uniform motion, Which physical quantity is constant? <p>2. Open Ended/Critical Thinking:</p> <ol style="list-style-type: none"> When do the distance and magnitude of displacement becomes equal? What happens to acceleration when an object moves in a uniform circular motion? An ant is moving on the surface of a ball. Does its velocity change or not? <p>3. Student Practice Questions & Activities:</p> <ol style="list-style-type: none"> Distinguish between speed and velocity. Draw velocity – time graph for a body moving with uniform velocity Define acceleration. Is it a scalar or a vector quantity? Which of the three is travelling the fastest? Increases uniformly at the rate of 10 m s^{-2}, with what velocity will it strike the ground? After what time will it strike the ground? 	<p>Check For Understanding Questions</p>	<p>TLM's (Digital+Print)</p> <ol style="list-style-type: none"> Used prepared Quiz paper. Utilized digital classroom. Provide video links QR codes, DIKSHA App YouTube video links Byju's Tab IFP
<p>Assessment:</p> <ol style="list-style-type: none"> An athlete completes one round of a circular track of diameter 200 m in 40 s. What will be the distance covered and the displacement at the end of 2 minutes 20 s? A motorboat starting from rest on a lake accelerates in a straight line at a constant rate of 3.0 m s^{-2} for 8.0 s. How far does the boat travel during this time? State which of the following situations are possible and give an example for each of these: <ol style="list-style-type: none"> an object with a constant acceleration but with zero velocity an object moving with an acceleration but with uniform speed. an object moving in a certain direction with an acceleration in the perpendicular direction. 		

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS

LESSON PLAN

CLASS: 09

SUBJECT: PS

Name of the Teacher: M.Srinivasa Rao

Name of the School: SPSMH School, Gudivada

Name of the Lesson/Unit	Topic	No.of Periods Required	Timeline for teaching		Any specific information
			From	To	
LAWS OF MOTION (Chapter-8)	Introduction	1			
	Balanced and Unbalanced Forces	2			
	First Law of Motion and activities	2			
	Inertia and Mass	1			
	BYJU's Content Review	1			
	Second law of motion	2			
	Mathematical formulation of Second law of motion and examples	4			
	Third law of motion and activity	2			
	BYJU's Content Review	1			

Prior Concept/Skills:

1. Define the force of friction.
2. Why tie the luggage with a rope on the roof of buses?
3. What is acceleration and write its formula?
4. Express your experience when you are standing on the moving bus, suddenly the bus driver applies breaks?

Learning Outcomes:

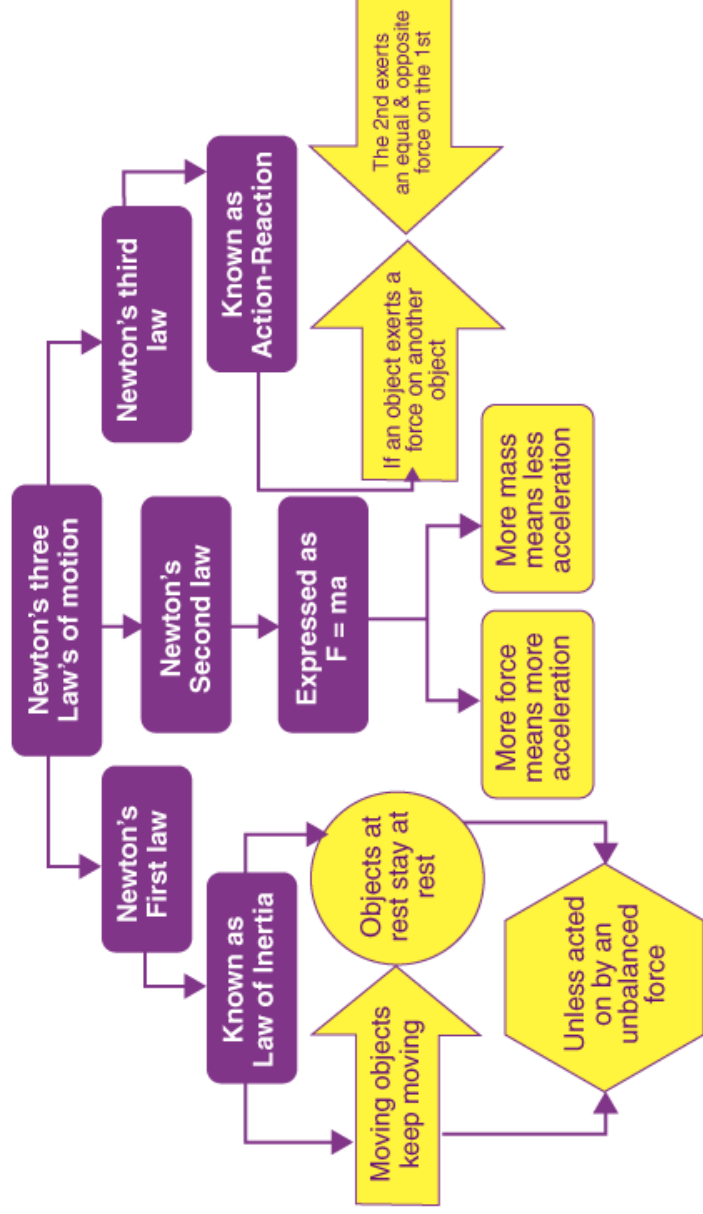
1. Describe scientific discoveries and inventions of Galileo Galilee and Newton
2. Explains processes of the effect of force on the state of motion of objects.
3. Plans and conducts investigation of "Do all the bodies have the same inertia"?
4. Relates processes with causes and effects of inertia of the objects.
5. Derives formulae, equations, and laws of mathematical expressions for Newton's second law of motion
6. Explains processes of action and reaction.
7. Draws conclusion of the effect of action and reaction on two different bodies.
8. Draws labelled diagrams of "To show the action and reaction forces acting on two different objects"
9. Applies scientific concepts in daily life and solving problems like uses safety belts in automobiles.
10. Calculates using the data given of Mass, Velocity, Linear momentum.
11. Uses scientific conventions, symbols and equations to represent various quantities and units of force, linear momentum.

No. of Periods

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

TEACHING LEARNING PROCESS

Induction/Introduction:



Experience and Reflection:

1. Students are able to utilize Newton's laws of motion day-to-day life.
2. Students will understand the relationship between the law of conservation of momentum and Newton's third law of motion and apply it in everyday life
3. Students will be able to identify where the law of conservation of momentum occurs in their daily routines.

Explicit Teaching/Teacher Modelling (I Do)

1. Discussion and explain the natural state of object
2. Discussion on effects of force on the objects
3. Explain and conduct activity on balanced and unbalanced forces.

Group Work (We Do)

1. Group discussion on natural state of the object.
2. Students collect the information on effects of force on the objects.
3. What happens when some children try to push a box on a rough floor?

Independent Work (You Do)

1. Students give examples of objects change their state of motion.
2. Students give the examples of The effect of force in own way.
3. Students will tell the difference between balanced and

Notes for:

1. Define the term force.
2. Which is the property of the object?
3. Give one example of an unbalanced force.

<p>4. Discussion and conduct activity of motion along inclined planes with different slopes and Motion from inclined surface to plane surface.</p> <p>5. Explain Newton's first law of Motion.</p> <p>6. Discussion and conduct activities on Newton's first law of motion.</p> <p>7. Explain the relation between Inertia and Mass of the object.</p> <p>8. Review of Byju's tab content</p> <p>9. Explain on the momentum of the object and Newton's second law of motion.</p> <p>10. Deduce the mathematical expression of Newton's second law of motion.</p> <p>11. Discussion on daily life examples of the second law of motion.</p> <p>12. Solved problems on the second law of motion.</p> <p>13. Explain and demonstration on Newton's third law of motion.</p> <p>14. Discussion and conduct an activity on third law of motion.</p> <p>15. Review of Byju's tab content</p>	<p>– Group discussion.</p> <p>4. Group discussion on the motion of the object on different surfaces.</p> <p>5. "Why is the first law of motion is also known as the law of inertia" – Group discussion</p> <p>6. Students arrange the apparatus in proper order</p> <p>7. Collect examples of inertia.</p> <p>8. Viewing the content in Byju's Tab</p> <p>9. Group discussion on relation between momentum and mass, velocity.</p> <p>10. Students use the physical quantities</p> <p>11. Collect the information on the utilization of the second law of motion in our daily life situations.</p> <p>12. Solved problems on the second law of motion.</p> <p>13. Students give examples of the third law of motion.</p> <p>14. Students conduct an experiment on show that third law of motion.</p> <p>15. Viewing the content in Byju's Tab</p>	<p>unbalanced forces.</p> <p>4. Students complete the homework.</p> <p>5. State first law of motion?</p> <p>6. Students will define Inertia.</p> <p>7. Students easily identify the less inertia object and high inertia object from given objects.</p> <p>8. Viewing the content in Byju's Tab.</p> <p>9. Students complete the homework.</p> <p>10. Students can write the mathematical expression of the second law of motion.</p> <p>11 Students give daily life examples of the second law of motion.</p> <p>12. Solved problems on the second law of motion.</p> <p>13. Students collect information on the third law of motion.</p> <p>14. Students identify the forces of action and reactions in a given situation.</p> <p>15. Viewing the content in Byju's Tab</p>	<p>4. State Galileo's law of inertia</p> <p>5. What is another name for Newton's first law of motion?</p> <p>6. Which law of motion defines the force?</p> <p>7. How many types of inertia? What are they?</p> <p>8. What is the S.I unit of linear momentum?</p> <p>9. State Newton's second law of motion.</p> <p>10. What would happen if a fielder stops the fast moving ball suddenly? Justify your answer.</p> <p>11. Name the principle on which a rocket works.</p> <p>12. State Newton's third law of motion and give examples</p>
--	---	---	---

<p style="text-align: center;">Check For Understanding Questions</p>	<p style="text-align: center;">TLM's (Digital + Print)</p>
<p>1. Factual:</p> <ol style="list-style-type: none"> 1. What did Galileo observe by placing two inclined planes facing each other and rolling down a marble ball from top end of one of them? 2. An athlete always runs some distance before taking a jump. Why? 3. What is the state of an object when no net force is acting on an object? <p>2. Open Ended/Critical Thinking:</p> <ol style="list-style-type: none"> 1. Why is it dangerous to jump out of a moving bus? 2. Air bags are used in the cars for safety. Why? 3. Are we able to make the spring balances to show different readings by pulling them simultaneously in opposite direction? Why not? 4. Why do we not experience any leaning when a train takes a turn? 5. Discuss a horse continues to apply a force in order to move a cart with a constant speed <p>3. Student Practice Questions & Activities:</p> <ol style="list-style-type: none"> 1. Why is it advised to tie any luggage kept on the roof of a bus with a rope? 2. When a bus makes a sharp turn at a high speed the passengers tend to get thrown to one side. Give reason. 3. State Newton's third law of motion. 4. A car and truck have same momentum. Whose velocity is more and why? <p>Assessment:</p> <ol style="list-style-type: none"> 1. When a carpet is beaten with a stick, dust comes out of it, Explain. 2. An automobile vehicle has a mass of 1500 kg. What must be the force between the vehicle and road if the vehicle is to be stopped with a negative acceleration of 1.7 m s^{-2}? 3. How much momentum will a dumb-bell of mass 10 kg transfer to the floor if it falls from a height of 80 cm? Take its downward acceleration to be 10 m s^{-2}. 4. According to the third law of motion when we push on an object, the object pushes back on us with an equal and opposite force. If the object is a massive truck parked along the roadside, it will probably not move. A student justifies this by answering that the two opposite and equal forces cancel each other. Comment on this logic and explain why the truck does not move. 	<ol style="list-style-type: none"> 1. Used prepared Quiz paper. 2. Utilized digital classroom. 3. Provide video links 4. QR codes, DIKSHA App 5. YouTube video links 6. Byju's Tab 6. IFP

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS

LESSON PLAN

CLASS: 09

SUBJECT: PS

Name of the Teacher: M.Srinivasa Rao

Name of the School: SPSMH School, Gudivada

Name of the Lesson/Unit	Topic	No. of Periods Required	Timeline for teaching		Any specific information
			From	To	
Gravitation (Chapter – 9)	Gravitation	1			
	Universal law of gravitation and importance	2			
	Free fall	1			
	Motion of object under the influence of gravitational force of the earth	2			
	BYJU's Content Review	1			
	Mass, Weight	2			
	Thrust and Pressure	2			
	Pressure in fluids, Buoyancy	2			
	Archimedes' Principle	2			
	BYJU's Content Review	1			

Prior Concept/Skills:

1. Define acceleration due to gravity?
2. Express the equations of uniform accelerated motion.
3. Does the velocity of the body change in uniform circular motion?

Learning Outcomes:

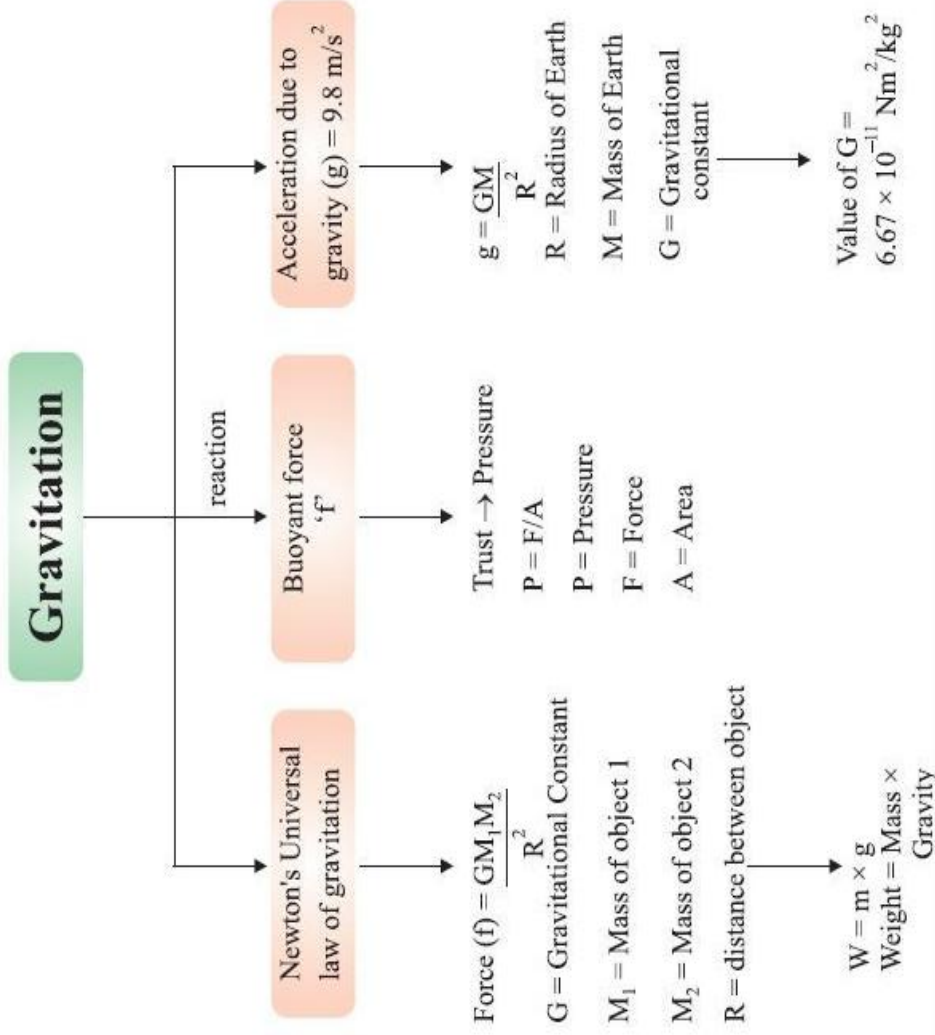
1. Relates processes and phenomena with effects of centripetal force in life situations.
2. Describes scientific discoveries and inventions of laws in gravitation.
3. Communicates the findings and conclusions effectively of universal gravitational law.
4. Derives formulae, equations, and laws of expression for force of gravity.
5. Uses scientific conventions and equations to represent various quantities of Universal gravitational law.
6. Differentiate phenomena of thrust and pressure based on their properties.
7. Measures weight of an object using spring balance.
8. Applies learning to hypothetical situations of weight of an object at moon.
9. Applies learning to hypothetical situations of weight of an object at equator and poles, possibility of life on other planets.
10. Seek answers to queries on their own of "How objects float or sink on the surface of the fluids"?
11. Calculates using the data given such as acceleration due to gravity on a body.
12. Calculate using the data given such as buoyancy force acting on a body and determine its impact.

No. of Periods

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

TEACHING LEARNING PROCESS

Induction/Introduction:



Experience and Reflection:

1. Students will learn how acceleration due to gravity affects the motion of objects in everyday life.
2. Students will learn about the forces acting between the planets, the sun and planets in the solar system.
3. Students assess the stability of objects by finding the center of gravity of objects used in everyday life.

Explicit Teaching/Teacher Modelling (I Do)	Group Work (We Do)	Independent Work (You Do)	Notes for:
1. Discussion and demonstrate activity on uniform circular motion.	1. Students observe the entire activity.	1. Students write the definition of uniform motion.	1. Which physical quantity is constant in uniform motion?

<p>2. Explain the concepts of centripetal acceleration and centripetal force.</p> <p>3. Explain and derivation of the universal law of gravitation and importance.</p> <p>4. Explain problems and solutions to Newton's gravitational law.</p> <p>5. Explain the concept of free fall and calculating g value</p> <p>6. Explain and conduct activity on motion of objects under the influence of gravitational force of the earth.</p> <p>7. Explain the problems and solved on motion of objects under the influence of gravitational force of the earth.</p> <p>8. Review of Byju's tab content</p> <p>9. Explain the concept of mass, weight and weight of an object on the moon.</p> <p>10. Explain the concepts of thrust and pressure, their relative problems.</p> <p>11. Conduct activity on pressure in fluids and buoyancy.</p> <p>12. Explain and conduct activity on "Why objects float or sink when placed on the surface of water?"</p> <p>13. Explain the concept of Archimedes'</p>	<p>2. Students draw tangent to a circle.</p> <p>3. Students collect information on the universal law of gravitation.</p> <p>4. Students solved the problems on Newton's gravitational law.</p> <p>5. Acceleration due to gravity changes due to change in distances of objects from the center of the earth" –Group discussion</p> <p>6. Students write the equations of motion for freely falling bodies.</p> <p>7. Students solved the problems on motion of objects under the influence of gravitational force of the earth.</p> <p>8. Viewing the content in Byju's Tab</p> <p>9. Students conduct this activity and record the observations.</p> <p>10. Why do buildings have wide foundation? – Group discussion.</p> <p>11. Students give the examples of fluids</p> <p>12. Students conduct activity and identified the float or sink objects.</p> <p>13. Students give the applications of</p>	<p>2. Students give a reason, why centripetal force acting</p> <p>3. Students write the Universal law of gravitation.</p> <p>4. Students complete the homework.</p> <p>5. Students write the values of G, R and g values.</p> <p>6. Students write the unit and value of 'g'</p> <p>7. Students complete the homework.</p> <p>8. Viewing the content in Byju's Tab</p> <p>9. Why does the weight of a body will be zero during free fall? Give reason</p> <p>10. Students solved the problems on thrust and pressure.</p> <p>11. Students define the Buoyancy.</p> <p>12. Students complete the homework</p> <p>13. Students measures the</p>	<p>2. Why uniform circular motion is called accelerated motion?</p> <p>3. What factors affect the centripetal force?</p> <p>4. What is the value of G?</p> <p>5. Why is G called a universal constant?</p> <p>6. $g = GM/R^2$, Explain terms in it.</p> <p>7. Give an example for the speed of the object is zero, but g is not zero.</p> <p>8. What is the S.I unit of g?</p> <p>9. Why do two bodies of different masses fall at the same rate?</p> <p>10. Define the term "Pressure"</p> <p>11. Why does a mug full of water feel lighter inside water?</p> <p>12. Why do objects float or sink when placed on the surface of a liquid?</p> <p>13. State Archimedes'</p>
---	---	---	--

Principle and conduct an activity.	Archimedes' s principle	weights of the objects.	Principles
14. Review of Byju' s tab content	14. Viewing the content in Byju' s Tab	14. Viewing the content in Byju' s Tab	

Check For Understanding Questions

1. Factual:

1. Is the mass of an object a constant quantity?
2. Why is the weight of an object on the moon $1/6^{\text{th}}$ its weight on the earth?
3. Is there any change in the velocity of a freely falling body?

2. Open Ended/Critical Thinking:

1. What would have happened if the Earth did not rotate?
2. Why does the weight of an object depend on its location?
3. Why is the acceleration due to gravity not constant?

3. Student Practice Questions & Activities:

1. What is the importance of universal law of gravitation?
2. Gravitational force acts on all objects in proportion to their masses. Why then, a heavy object does not fall faster than a light object?
3. Gravitational force on the surface of the moon is only $1/6$ as strong as gravitational force on the earth. What is the weight in newtons of a 10 kg object on the moon and on the earth?
4. Calculate the force of gravitation between the earth and the Sun, given that the mass of the earth = 6×10^{24} kg and of the Sun = 2×10^{30} kg. The average distance between the two is 1.5×10^{11} m.

Assessment:

1. What happens to the force between two objects, if
 - (i) the mass of one object is doubled?
 - (ii) the distance between the objects is doubled and tripled?
 - (iii) the masses of both objects are doubled?
2. A stone is released from the top of a tower of height 19.6 m. Calculate its final velocity just before touching the ground.
3. If the moon attracts the earth, why does the earth not move towards the moon?
4. Why does a block of plastic released under water come up to the surface of water?
5. The volume of 50 g of a substance is 20 cm^3 . If the density of water is 1 g cm^{-3} , will the substance float or sink?

TLM's (Digital + Print)
<ol style="list-style-type: none"> 1. Used prepared Quiz paper. 2. Utilized digital classroom. 3. Provide video links 4. QR codes, DIKSHA App 4. YouTube video links 5. Byju' s Tab 6. IFP

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS

LESSON PLAN

CLASS: 09

SUBJECT: PS

Name of the Teacher: M.Srinivasa Rao

Name of the School: SPSMH School, Gudivada

Name of the Lesson/Unit	Topic	No.of Periods Required	Timeline for teaching		Any specific information
			From	To	
Work and Energy (Chapter-10)	Introduction - Work	1			
	Scientific concept of work – Work done by Constant force	2			
	Energy – Forms of energy	1			
	Kinetic energy	3			
	BYJU’s Content Review	1			
	Potential energy	3			
	Potential Energy of an object at a height	1			
	Law of Conservation of Energy	2			
	Rate of doing work	2			
	BYJU’s Content Review	1			

Prior Concept/Skills:

1. What are S.I units of Force and Displacement?
2. How many forms of energy are there?
3. How do green plants produce food?

Learning Outcomes:

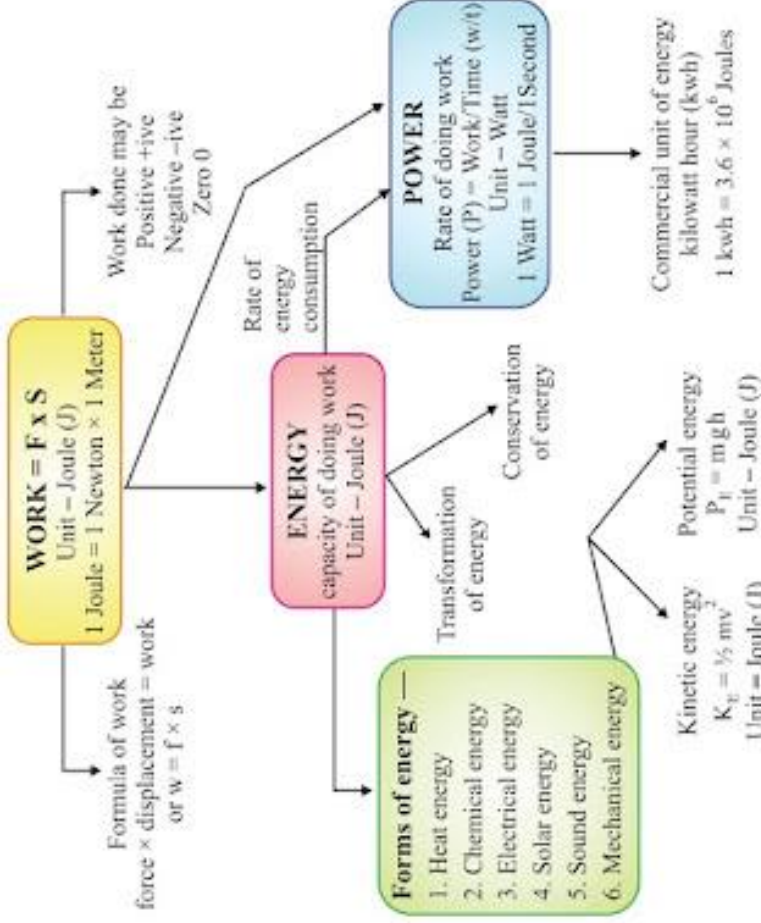
1. Uses scientific symbols to represent various physical quantities and SI units.
2. Derives formulae and equations of work, kinetic energy, potential energy and power.
3. Calculates using the data given of work done of an object.
4. Calculates using the data given of kinetic and potential energies of an object.
5. Draws flow charts of transfer of energy.
6. Conducts investigations on the transfer of energy from kinetic energy to potential energy and vice versa.
7. Explains processes of transfer of energy.
8. Draw a diagram to show the conservation of mechanical energy in case of a free falling body.
9. Applies scientific concepts in daily life and solving problems of law of conservation of energy.
10. Explains processes of conservation laws.
11. Uses scientific conventions and equations to represent various quantities of energies.
12. Communicates the findings and conclusions effectively of Conservation of energy
13. Calculates using the data given of conservation of energy.
14. Draws conclusion of power delivered by the machines.

No. of Periods

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

TEACHING LEARNING PROCESS

Induction/Introduction:



Experience and Reflection:

1. Students will identify situations where work is done in everyday life.
2. Students imagine situations in which energy transformations occur in day-to-day life.
3. Students give examples of energy transformations that occur in everyday life.

Explicit Teaching/Teacher Modelling (I Do)	Group Work (We Do)	Independent Work (You Do)	Notes for:
<ol style="list-style-type: none"> 1. Discussion and explain the difference between the way we use the term work in our day-to-day life and the way we use in Science. 2. Explain the scientific meaning of the work with examples. 	<ol style="list-style-type: none"> 1. Discussion of some situations. (Where work is done) 2. Students give examples of work. 	<ol style="list-style-type: none"> 1. Students identify where is work done or not 2. Students express what conditions are necessary to do work. 	<ol style="list-style-type: none"> 1. Can work be done without force? 2. What would be the work done when the force on the object is zero?

<p>3. Discussion and explain the definition of work in science and formula</p> <p>4. Explain the problems and solutions on work.</p> <p>5. Discussion and explain the concept of Energy.</p> <p>6. Discussion and explain the sources of energy, forms of energy.</p> <p>7. Explain and conduct an activities on kinetic energy with help of a table, metal ball and a wooden block.</p> <p>8. Explain the numerical expression for kinetic energy and solved the problems.</p> <p>9. Review of Byju's tab content</p> <p>10. Explain and conduct an activities on potential energy with help of suitable materials .</p> <p>11. Observing the potential energy in an object at different heights.</p> <p>12. Explain the numerical expression for potential energy and solved the problems.</p> <p>13. Discussion and explain of the conservation of mechanical energy.</p> <p>14. Explain and demonstrate of calculating the total energy of the</p>	<p>3. Group discussion on work activity.</p> <p>4. Students will solve the problems.</p> <p>5. 'How can we decide that an object possess energy or not?' – Group discussion.</p> <p>6. Students collect information on forms of energy</p> <p>7. Students describe the activity in their own way.</p> <p>8. Students will solve the problems.</p> <p>9. Viewing the content in Byju's Tab</p> <p>10. Students collect information on potential energy</p> <p>11. Does the international space station have gravitational potential energy? – Group discussion.</p> <p>12. Students derive the formula of potential energy.</p> <p>13. Students explain the process of conservation of mechanical energy.</p> <p>14. Students calculated potential and kinetic energies.</p>	<p>3. Students complete the homework.</p> <p>4. Students give the value of 'g' and their units.</p> <p>5. Students write the definition of energy?</p> <p>6. Students give examples of sources of energy.</p> <p>7. Students give a reason why kinetic energy of the objects depend on velocity.</p> <p>8. Students derive the formula of kinetic energy.</p> <p>9. Viewing the content in Byju's Tab</p> <p>10. Students complete the homework.</p> <p>11. Students write the definition of potential energy.</p> <p>12. Students solve problems.</p> <p>13. Students draw a diagram of the conservation of mechanical energy.</p> <p>14. Students complete the homework.</p>	<p>3. Is work scalar or vector?</p> <p>4. What is the formula for work done on an object?</p> <p>5. What is the SI unit for Energy?</p> <p>6. What two factors affect the amount of energy of an object?</p> <p>7. What was the primary source of energy?</p> <p>8. Why does kinetic energy depend on mass?</p> <p>9. What is the formula for kinetic energy?</p> <p>10. Define Potential energy?</p> <p>11. What type of potential energy is due to gravity?</p> <p>12. What is the S.I unit of potential energy?</p> <p>13. What is total mechanical energy equal to?</p> <p>14. Is the mechanical energy conserved in the</p>
--	---	--	--

freely falling object at different heights.	15. Students collect information on power of machines 16. Viewing the content in Byju's Tab	15. Students solve problems. 16. Viewing the content in Byju's Tab	system? 15. What is the unit for power?
15. Explain the concept of Power and its problems.	15. Students collect information on power of machines 16. Viewing the content in Byju's Tab	15. Students solve problems. 16. Viewing the content in Byju's Tab	15. What is the unit for power?
16. Review of Byju's tab content	15. Students collect information on power of machines 16. Viewing the content in Byju's Tab	15. Students solve problems. 16. Viewing the content in Byju's Tab	15. What is the unit for power?

<p>Check For Understanding Questions</p> <p>1. Factual:</p> <ol style="list-style-type: none"> 1. When the work is said to be done? 2. What energy conversion occurs when riding a bicycle? 3. How do you know which object has the most kinetic energy? <p>2. Open Ended/Critical Thinking:</p> <ol style="list-style-type: none"> 1. What happens to the speed of a ball while it moves up with an initial velocity? 2. Is the energy spent by the force doing work the same every time? 3. What would happen if nature does not allow the transfer of energy? <p>3. Student Practice Questions & Activities:</p> <ol style="list-style-type: none"> 1. A battery lights a bulb. Describe the energy changes involved in the process. 2. Certain force acting on a 20 kg mass changes its velocity from 5 m s^{-1} to 2 m s^{-1}. Calculate the work done by the force. 3. State the principle of conservation of energy. 4. What are the various energy transformations that occur when you are riding a bicycle? 5. An electric heater is rated 1500 W. How much energy does it use in 10 hours? <p>Assessment:</p> <ol style="list-style-type: none"> 1. The potential energy of a freely falling object decreases progressively. Does this violate the law of conservation of energy? Why? 2. Soni says that the acceleration in an object could be zero even when several forces are acting on it. Do you agree with her? Why? 3. The potential energy of a freely falling object decreases progressively. Does this violate the law of conservation of energy? Why? 4. What is the work done by the force of gravity on a satellite moving round the earth? Justify your answer. 5. Find the energy in joules consumed in 10 hours by four devices of power 500 W each. 		<p>TLM's (Digital + Print)</p> <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 5. Byju's Tab 6. IFF
--	--	---

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS

LESSON PLAN

CLASS: 09

SUBJECT: PS

Name of the Teacher: M.Srinivasa Rao

Name of the School: SPSMH School, Gudivada

Name of the Lesson/Unit	Topic	No.of Periods Required	Timeline for teaching		Any specific information
			From	To	
Sound (Chapter-11)	Production of Sound	1			
	Propagation of Sound	1			
	Sound waves are longitudinal waves	2			
	Characteristics of a sound waves	3			
	Speed of sound in different media	1			
	BYJU's Content Review	1			
	Reflection of sound	2			
	Echo and Reverberation	1			
	Uses of multiple reflection of sound	3			
	Range of Hearing	1			
	Application of Ultrasound	2			
	BYJU's Content Review	1			

Prior Concept/Skills:

1. How do objects produce sound?
2. Does the sound travel if there is no medium?
3. What is the unit to measure the sound intensity?

Learning Outcomes:

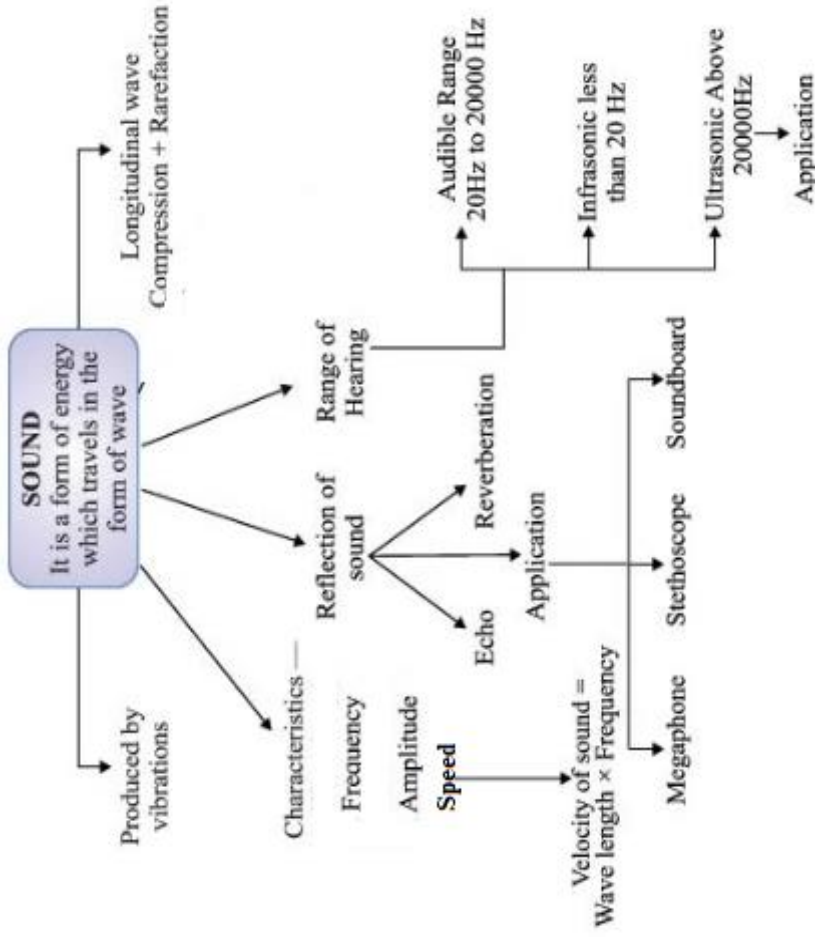
1. Explain processes and phenomena of propagation of sound.
2. Conducts investigations on production of sound
3. Relates processes and phenomena of production of sound with vibrations of source.
4. Differentiate waves based on properties and characteristics.
5. Draws labelled diagrams of frequency, amplitude.
6. Analyses and interprets figures of Characteristics of sound.
7. Draws labelled diagrams of low pitch, high pitch, louder sound and soft sound.
8. Relates processes and phenomena with the cause of sound waves following the laws of reflection.
9. Applies scientific concepts in daily life and solving problems of multiple reflection of sound.
10. Conducts investigations on eco situations.
11. Applies scientific concepts in daily life and solving problems of covers walls of large rooms with sound absorbent material.
12. Designs models using eco-friendly resources of stethoscope.
13. Explains processes and phenomena of How bats use ultrasonic waves to catch prey

No. of Periods

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

TEACHING LEARNING PROCESS

Induction/Introduction:



Experience and Reflection:

1. Students know the energy of sound and protect the human ear from its effects.
2. Students will learn the contexts in which echo occurs in everyday life.
3. Students will know in which situations ultrasounds are used in everyday life.

Explicit Teaching/Teacher Modelling (I Do)	Group Work (We Do)	Independent Work (You Do)	Notes for:
<ol style="list-style-type: none"> 1. Explain and conduct activities on production of sound with help of tuning fork and rubber hammer. 2. Explain how does sound travel and propagation of sound. 	<ol style="list-style-type: none"> 1. Students will arrange the apparatus properly and conduct an activity. 2. Students observe how to propagation of sound. 	<ol style="list-style-type: none"> 1. Students describe the activity in their own way 2. Students give a reason, why the vibrating body produces 	<ol style="list-style-type: none"> 1. Can we that a sound is a form of mechanical energy? 2. Which part of our body vibrates when we speak?

<p>3. Explain and demonstrate types of wave propagation.</p> <p>4. Explain and demonstration of sound waves are longitudinal waves.</p> <p>5. Discussion and explain the characteristics of a sound wave. (Frequency)</p> <p>6. Discussion and explain the characteristics of the sound wave. (Amplitude)</p> <p>7. Discussion and explain the characteristics of the sound wave. (Speed)</p> <p>8. Discussion and explain of speed of sound in different media.</p> <p>9. Review of Byju's tab content</p> <p>10. Explain and conduct an activity on reflection of sound.</p> <p>11. Explain Echo, Reverberation and its problems.</p> <p>12. Discussion and explain the uses of multiple reflection of sound.</p> <p>13. Explain the range of hearing</p> <p>14. Explain the applications of ultrasound</p>	<p>3. Do compressions and rarefactions in sound wave travel in the same directions or in opposite directions? - Group discussion</p> <p>4. Students collect information on types of sound waves.</p> <p>5. Students draw diagrams of the density and pressure variations of sound propagation</p> <p>6. Students draw diagrams of lower pitch, higher pitch, louder sound and soft sound.</p> <p>7. Students solved problems on speed of sound waves</p> <p>8. Group discussion on Speed of sound in different media</p> <p>9. Viewing the content in Byju's Tab</p> <p>10. Students collect information on the reflection of sound.</p> <p>11. Group discussion on why is an echo weaker than the original sound.</p> <p>12. Students collect information on uses of multiple reflection of sound.</p> <p>13. Students classify the range of hearing.</p> <p>14. Group discussion on Applications of ultrasound.</p>	<p>3. Students complete the sound. homework.</p> <p>4. Students draw rough diagrams of types of sound waves.</p> <p>5. Students write the definitions of frequency of sound waves.</p> <p>6. Students express the S.I units of amplitude, Frequency and Speed of sound wave.</p> <p>7. Students complete the homework</p> <p>8. Students explain on what factors influence the speed of sound?</p> <p>9. Viewing the content in Byju's Tab</p> <p>10. Students express the laws of reflection of sound.</p> <p>11. Students solved the problems on Echo</p> <p>12. Students complete the homework</p> <p>13. Students define the audible range of sound.</p> <p>14. Students express the applications of ultrasound in our daily life</p>	<p>3. How does the sound travels?</p> <p>4. What are longitudinal waves?</p> <p>5. Why does wavelength not affect the speed of sound?</p> <p>6. What are the characteristics of a sound wave?</p> <p>7. Does pitch depend on frequency?</p> <p>8. What is the speed of sound in air at 0°C?</p> <p>9. What are the two laws of reflection of sound?</p> <p>10. What is the formula for echo?</p> <p>11. Write the uses of multiple reflection of sound.</p> <p>12. What is audible range of the average human ear?</p> <p>13. What are Ultrasonics?</p>
---	---	---	---

15. Review of Byju's tab content	15. Viewing the content in Byju's Tab	15. Viewing the content in Byju's Tab
----------------------------------	---------------------------------------	---------------------------------------

<p style="text-align: center;">Check For Understanding Questions</p> <p>1. Factual:</p> <ol style="list-style-type: none"> 1. Do all vibrating bodies necessarily produce sound? 2. Why echo is produced? 3. How the concert halls and cinema halls are designed to use multiple reflections of sound? <p>2. Open Ended/Critical Thinking:</p> <ol style="list-style-type: none"> 1. Does sound travel faster in high or low pressure? 2. Does the frequency of sound waves depend on the medium on the medium in which it travels? How? 3. Why is there no sound in space? <p>3. Student Practice Questions & Activities:</p> <ol style="list-style-type: none"> 1. Describe with the help of a diagram, how compressions and rarefactions are produced in air near a source of sound. 2. Why is sound wave called a longitudinal wave? 3. The frequency of a source of sound is 100 Hz. How many times does it vibrate in a minute? 4. Give two practical applications of reflection of sound waves. 5. What is reverberation? How can it be reduced? <p>Assessment:</p> <ol style="list-style-type: none"> 1. What is sound and how is it produced? 2. Does sound follow the same laws of reflection as light does? Explain. 3. What is loudness of sound? What factors does it depend on? 4. Explain how defects in a metal block can be detected using ultrasound. 5. Collect the information on applications of ultrasound. 	<p style="text-align: center;">TLM's (Digital + Print)</p> <ol style="list-style-type: none"> 1. Used prepared Quiz paper. 2. Utilized digital classroom. 3. Provide video links 4. QR codes, DIKSHA App 4. YouTube video links 5. Byju's Tab 6. IIP
--	--

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS

9th CLASS

PHYSICAL SCIENCE

LESSON PLANS

[2023 - 2024]

As per the guidelines of
Department of School Education, AP

**Special
Edition**

I hope this
book will be one of
the ways to your
Success..

M.Srinivasa Rao, SA(PS)

SPSMHS, GUDIVADA.

Ph : 9848143855

Visit : srini science mind

