

## CELLS- INTEGRATED LESSON PLAN- CLASS 9<sup>th</sup> SCIENCE NCERT

<b>NAME OF THE SCHOOL-</b>		
<b>CLASS-</b> IX	<b>SUBJECT-</b> Physical Science	<b>PERIOD-</b>
<b>DATE-</b>	<b>TOPIC-</b> <u>'States of matter'</u>	<b>DURATION-</b> 30 min
<b>NAME OF THE SUPERVISOR-</b>		
<b>GENERAL AIMS</b>	<ol style="list-style-type: none"> <li>1. To develop interest of students in physical science.</li> <li>2. To develop an inquiry spirit in the students.</li> <li>3. To help students to see the physical science in relation to the rest of the culture.</li> <li>4. To develop interest in questioning.</li> <li>5. To develop critical thinking and scientific attitude.</li> <li>6. To develop supervisory ability in students.</li> <li>7. To develop problem solving skills in students.</li> <li>8. To make the students aware about inventions in the field of physical science and acquaint them with the knowledge of different streams of physical science.</li> </ol>	
<b>SPECIFIC OBJECTIVES</b>	<ol style="list-style-type: none"> <li>1. Students will be able to define matter.</li> <li>2. Students will be able to describe various states of matter.</li> <li>3. Students will be able to compare different states of matter.</li> </ol>	
<b>TEACHING AIDS</b>	Chart, Roller board, pointer and other useful classroom equipments.	
<b>PREVIOUS KNOWLEDGE</b>	Students are already aware about matter.	
<b>INTRODUCTION</b>	<b>PUPIL-TEACHER ACTIVITY</b>	<b>STUDENT'S RESPONSE</b>
	<ol style="list-style-type: none"> <li><b>Q1.</b> How can you define matter?</li> <li><b>Q2.</b> In how many states does it exists?</li> <li><b>Q3.</b> Name the fourth state of matter.</li> </ol>	-matter is something that has some mass & occupies some space. - three states -Plasma (problematic)
<b>STATEMENT OF AIM</b>	So, today we are going to study the topic 'states of matter'.	
<b>PRESENTATION</b>		
<b>TEACHING POINTS</b>	<b>PUPIL-TEACHER ACTIVITY</b>	<b>STUDENT'S RESPONSE</b>

<p><b>1. THE SOLID STATE</b></p>	<ul style="list-style-type: none"> <li>• Matters existing in solid state have definite shape, distinct boundaries and fixed volumes.</li> <li>• They have negligible compressibility.</li> <li>• Solids have tendency to maintain their shape when an external force is applied.</li> </ul> <p><b>Exception-</b></p> <ul style="list-style-type: none"> <li>• <b>Rubber band-</b> A rubber band changes its shape under force and regains the same shape when the force is removed. If excessive force is applied it breaks.</li> <li>• <b>Sponge-</b> It is a solid yet we are able to compress it because sponge has minute holes, in which air is trapped, when we press it air is expelled out and we are able to compress it.</li> </ul>	<p>Student will be listening carefully.</p>
<p><b>2. THE LIQUID STATE</b></p>	<p>Matters existing in liquid state have no fixed shape but have fixed volume.</p> <ul style="list-style-type: none"> <li>• They take up the shape of container in which they are kept.</li> <li>• Liquid flow and change shape, so they are not rigid but fluid.</li> <li>• Solid, liquid and gas can diffuse into liquids. The rate of diffusion of liquids is higher than that of solids, because particles in liquid state move freely and have greater space between each other as compared to particles in the solid state.</li> </ul>	<p>Student will be listening carefully.</p>
<p><b>3. THE GASEOUS STATE</b></p>	<ul style="list-style-type: none"> <li>• Gases are highly compressible and have large spaces between them as compared to solids and liquids.</li> <li>• The liquefied petroleum gas (LPG) cylinder in our home or oxygen cylinders in hospitals is compressed gas.</li> <li>• Compressed natural gas (CNG) is used as fuel these days.</li> <li>• Due to high compressibility of gases, large volumes of gas can be compressed into a small cylinder and transported easily.</li> </ul>	<p>Student will be listening carefully.</p>

	<ul style="list-style-type: none"> <li>• In gaseous state, particles move randomly at high speed.</li> <li>• Matters exist in two more forms: <b>plasma</b> and <b>Bose-Einstein condensate</b>.</li> <li>• <b>Plasma state</b>-This state consists of super energetic and super excited particles. These particles are in the form of ionized gases. <b>E.g.</b> Fluorescent tube, neon sign bulbs.</li> <li>• <b>Bose-Einstein condensate</b>- This state is formed by cooling a gas of extremely low density.</li> </ul>	
<b>BLACKBOARD SUMMARY</b>	<ul style="list-style-type: none"> <li>• Matter exists in 5 states.</li> <li>• Solids have definite shape, distinct boundaries and fixed volumes.</li> <li>• Rubber band and sponge are exceptional cases of solids.</li> <li>• Liquids have no fixed shape but have fixed volume.</li> <li>• Gases are highly compressible and have large spaces between them.</li> </ul>	
<b>CLASSROOM SUPERVISION</b>	Pupil-teacher will supervise the problem of the students and solve it.	
<b>EVALUATION QUESTIONS</b>	<p><b>Q1.</b> Rubber is an example of _____.</p> <p><b>Q2.</b> Rate of diffusion is higher in _____.</p> <p><b>Q3.</b> Sponge is an example of liquids. <b>(True/False)</b></p> <p><b>Q4.</b> Gases are highly compressible. <b>(True/False)</b></p> <p><b>Q5.</b> Which of the following have definite shape and fixed volume:</p> <ol style="list-style-type: none"> <li>Solids</li> <li>Liquids</li> <li>Gases</li> </ol>	
<b>HOME-WORK</b>	<b>Q1.</b> Distinguish between solid, liquid and gaseous states of matter.	