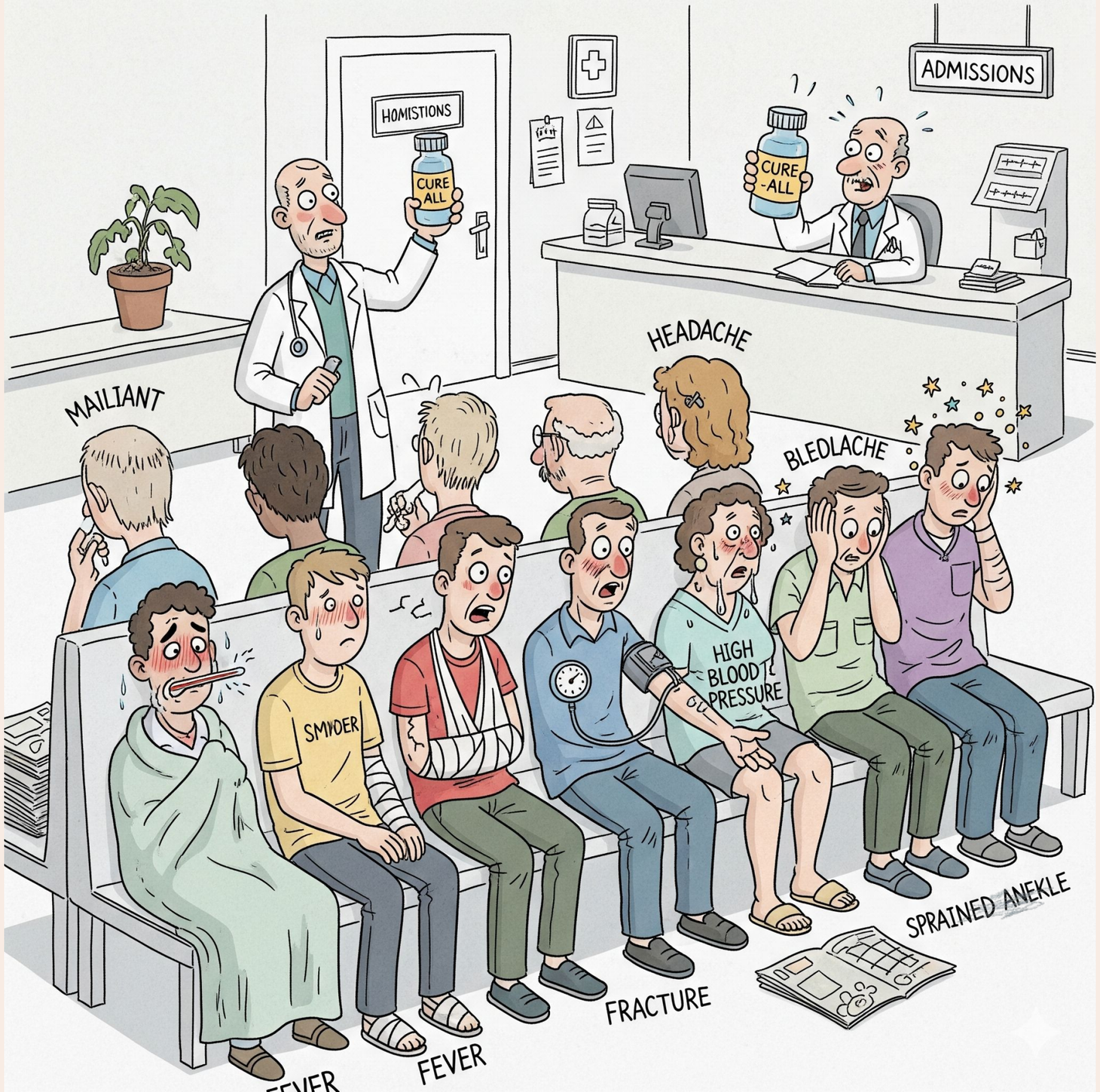
Personalized Adaptive Learning (PAL)

Simple, smart learning tailored for every student


HOMISTIONS
CURE ALL
ADMISSIONS
CURE -ALL
HEADACHE
MAILIANT
BLEDLACHE
HIGH BLOOD PRESSURE
SMOOER
FRACTURE
FEVER
SPRAINED ANEKLE

DO YOU THINK THE SAME DOSE OF MEDICINE WORKS THE SAME FOR ALL PATIENTS, EVEN IF THEY HAVE DIFFERENT HEALTH PROBLEMS?

The Challenge: One Size Does Not Fit All

The Dropout Crisis: An Unfinished Journey

Unaddressed Gaps

Initial struggles in core subjects go unresolved.

Loss of Confidence

Students feel overwhelmed and fall further behind.

School Disengagement

Lack of relevance and mounting frustration leads to absenteeism.

Premature Dropouts

Students leave formal education prematurely.

A Nation's Concern: Unskilled Workforce

The consequence is a vast pool of unskilled labor, unable to fully contribute to India's burgeoning economy.

Limited Opportunities

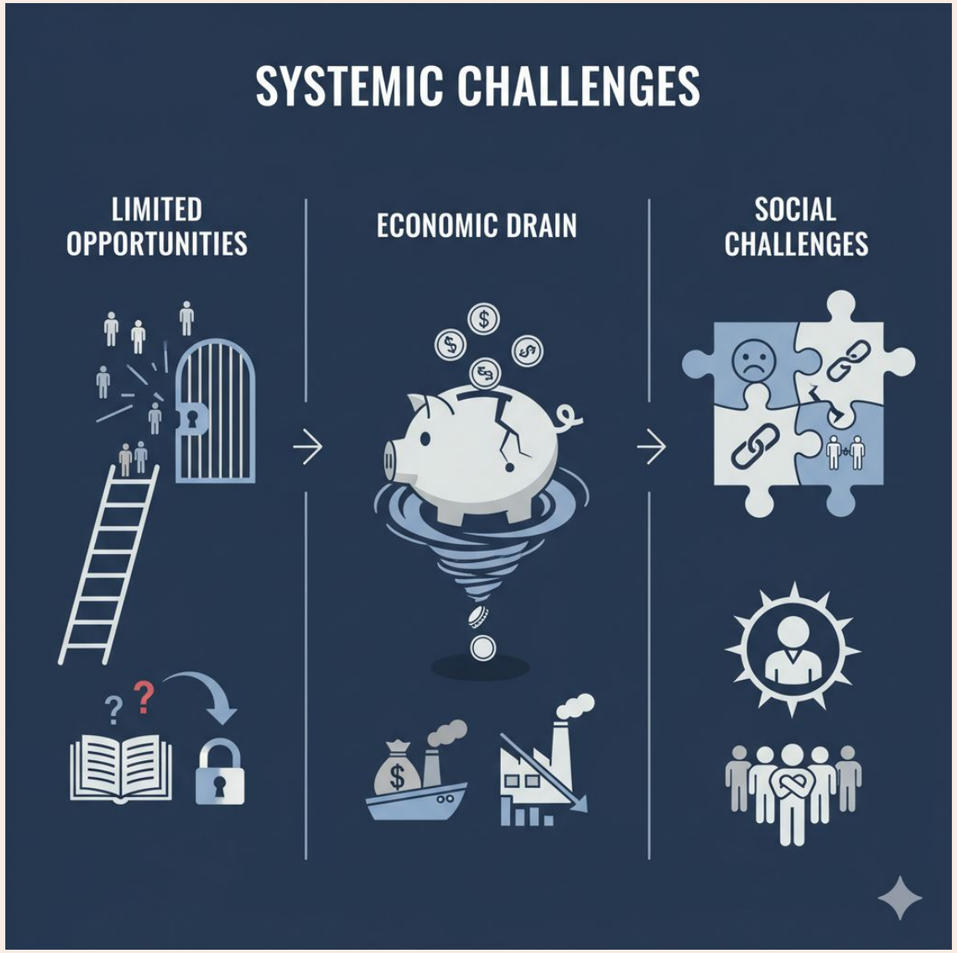
Lack of foundational skills impacts future job prospects

Economic Strain

Fewer skilled individuals hinder national economic growth

Social Challenges

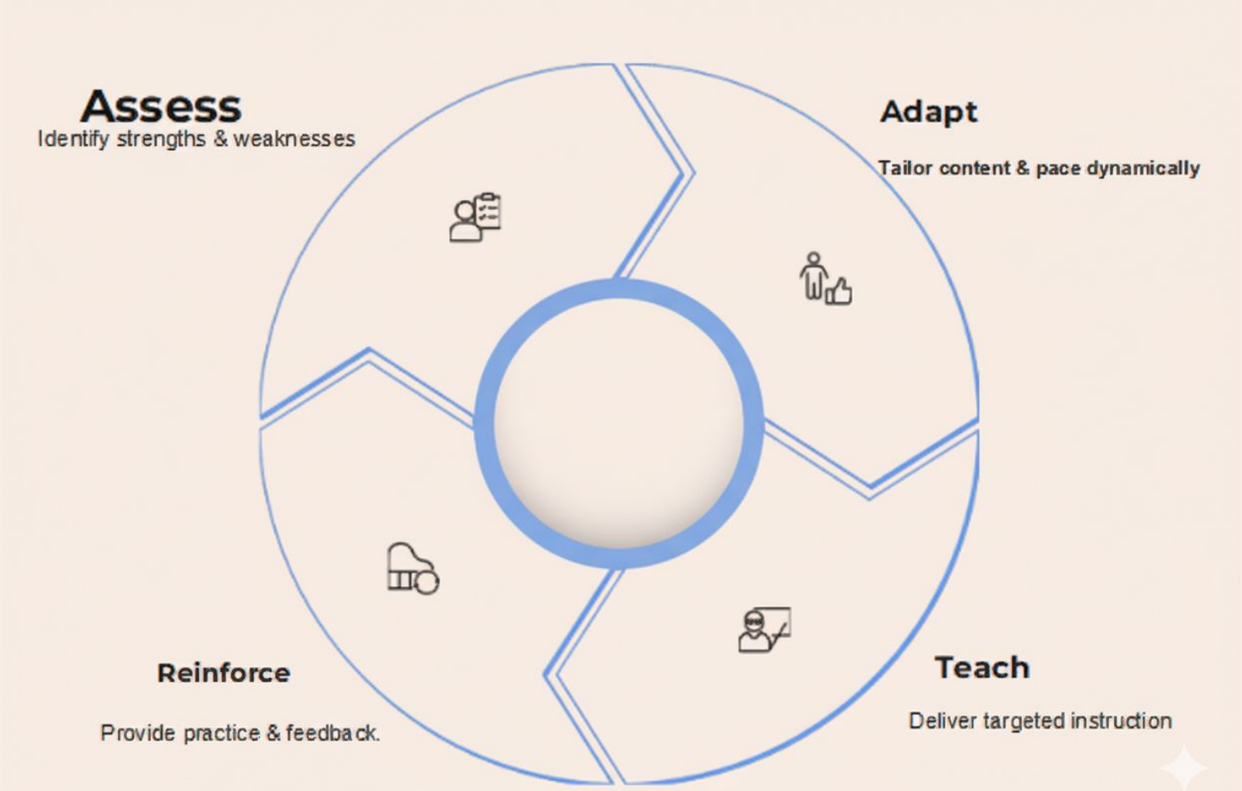
Perpetuates cycles of disadvantage




THIS WAY!
LEARNING GOAL
WHOOPEE!
ADVENTURE!

Personalized Adaptive Learning: The Solution

PAL offers a powerful, data-driven approach to address learning gaps directly. It tailors educational content and pace to each student's unique needs, ensuring mastery before progression.



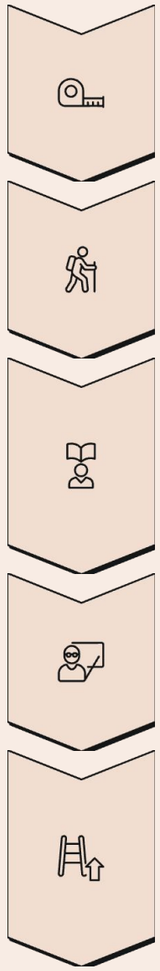
Individual Pace
Students learn at their optimal speed.

Tailored Content
Curriculum adapts to strengths/weaknesses.

AI-Driven Insights
Identifies specific learning challenges.

Mastery Focus
Ensures comprehension before moving on.

How Does PAL Work in Practice?



Initial Assessment

Customized Path Creation

Adaptive Delivery

Teacher Intervention

Continuous Loop

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Benefits of PAL for Students

Stress-Free Learning

Students learn without pressure or fear of judgment, creating a calm and supportive environment where mistakes are seen as learning opportunities.

Engaging Content

They understand lessons better with fun, interactive activities, games, and multimedia content that makes even complex topics exciting.

Instant Support

Get immediate help when stuck, preventing frustration and ensuring they grasp concepts before moving on. No more waiting for the teacher to get to them!

Boosted Confidence

Building confidence and a deep love for learning as they succeed at their own level, tackling challenges that are just right for them.

Meet Riya, Arjun, and Sameer: Realizing PAL's Impact

PAL creates a truly unique and empowering learning path for each of them, transforming challenges into opportunities for growth

Riya: The Visual Learner

Arjun: The Diligent Practitioner

Sameer: The Curious Explorer

MATHEMATICS

Scenario 1

40.0 x 4 = 44

Inference

Child does not understand Multiplication

Scenario 2

40.0 x 4 = 1600

Inference

Child does not understand the concept of place value and decimals

Benefits of PAL for Teachers

PAL doesn't replace teachers; it empowers them. By providing valuable insights and automating routine tasks, PAL allows educators to focus on what they do best: inspiring and guiding their students.

Time Saver

Saves valuable teaching time by automatically identifying which students need help and with what specific topics, allowing for targeted intervention.

Clear Insights

Provides clear, detailed data on student progress, strengths, and weaknesses, giving teachers a comprehensive overview of their class.

Better Planning

Helps teachers plan more effective and personalized lessons for all students, knowing exactly where each one stands.

Joyful Teaching

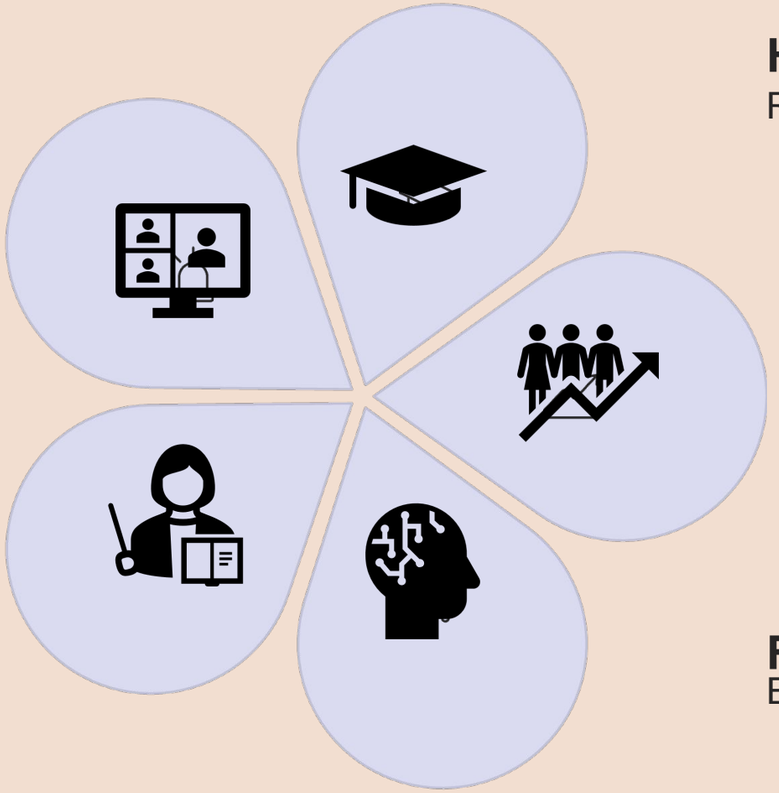
Makes teaching more effective and joyful, as teachers see their students engaged, progressing, and excited about learning.

Empowering Learners, Strengthening Education

Adopting PAL will not only address learning gaps but also boost student engagement, improve retention rates, and prepare a more skilled, confident generation for India's future.

Boosted Engagement
Interactive and relevant learning.

Teacher Empowerment
Tools for targeted support.



Higher Retention
Reduces dropout rates significantly.

Accelerated Progress
Faster, more effective learning outcomes.

Future-Ready Skills
Equips students for diverse careers.

PAL System: A Cornerstone of DIKSHA 2.0

A pioneering initiative by CIET-NCERT to cater to every student's unique learning journey

The PAL system is integral to DIKSHA 2.0, aiming to cater to the diverse needs of learners across India. It empowers educators with tools for effective instruction and student monitoring.

Current PAL Courses

Currently, PAL courses are available for **Class 9 and 10 Science and Mathematics**, focusing on foundational knowledge and advanced concepts.

Course Title : Class 9: Science

Course Title : Class 9: Mathematics

Course Title : Class 10: Science

Course Title : Class 10: Mathematics

Process Overview

Content Creation for PAL

Listing Chapter and Concepts of STEM subjects – class 9 and 10

Concept Mapping with previous classes upto grade 6.

LO listing

Mapping LOs with competencies as per NCF-SE 2023

Coding of LOs

Identified and mapped the content with LOs

Identified and mapped additional learning material with LOs

Time-stamping of content for video-editing

Initiate Video Editing

Question bank creation – pre and post-test.

Categorization in easy, medium and hard

Map Questions with LOs

Subject: Science

B	C	D	E	F	G
Class 6	Class 7	Class 8	Class 9	Class 10	
Food: Where Does It Come From?	Nutrition in Plants	Crop Production and Management	Matter in Our Surroundings	Chemical Reactions and Equations	
Components of Food	Nutrition in Animals	Microorganisms: Friend and Foe	Is Matter Around Us Pure?	Acids, Bases, and Salts	
Fibre to Fabric	Fibre to Fabric	Synthetic Fibres and Plastics	Atoms and Molecules	Metals and Non-Metals	
Sorting Materials into Groups	Heat	Materials: Metals and Non-Metals	Structure of the Atom	Carbon and Its Compounds	
Separation of Substances	Acids, Bases and Salts	Coal and Petroleum	The Fundamental Unit of Life	Periodic Classification of Elements	
Changes Around Us	Physical and Chemical Changes	Combustion and Flame	Tissues	Life Processes	
Getting to Know Plants	Weather, Climate and Adaptations of Animals t	Conservation of Plants and Animals	Motion	Control and Coordination	
Body Movements	Winds, Storms and Cyclones	Cell – Structure and Functions	Force and Laws of Motion	How Do Organisms Reproduce?	
The Living Organisms and Their Surrounding	Soil	Reproduction in Animals	Gravitation	Heredity and Evolution	
Motion and Measurement of Distances	Respiration in Organisms	Reaching the Age of Adolescence	Work and Energy	Light – Reflection and Refraction	
Light, Shadows and Reflections	Transportation in Animals and Plants	Force and Pressure	Sound	The Human Eye and the Colourful World	
Electricity and Circuits	Reproduction in Plants	Friction	Improvement in Food Resou	Electricity	
Fun with Magnets	Motion and Time	Sound		Magnetic Effects of Electric Current	
Water	Electric Current and Its Effects	Chemical Effects of Electric Current		Sources of Energy	
Air Around Us	Light	Some Natural Phenomena		Our Environment	
Garbage In, Garbage Out	Water: A Precious Resource	Light		Management of Natural Resources	
	Forests: Our Lifeline	Stars and the Solar System			
	Wastewater Story	Pollution of Air and Water			

	A	B	C	D	E	F	G	H	I	J	K
1	Class	Subject	Chapter No	Chapter Name	Topic/Concept	Class 10 Chapter No, Chapter name, Concept name	Class 9 Chapter No, Chapter name, Concept name	Class 8 Chapter No, Chapter name, Concept name	Class 7 Chapter No, Chapter name, Concept name	Class 6 Chapter No, Chapter name, Concept name	
2	10	Mathematics	01	Real Numbers	Fundamental theorem of Arithmetic	-----	Chapter - 1. Number systems ,Operations on Real Numbers	Chapter 1 Rational Numbers, Properties of Rational Numbers	Chapter 1 Integers, Chapter 8 Rational Numbers, Operations on Rational Numbers	Chapter 3 Number Play, Mental Math and Playing with Number Patterns	
3	10	Mathematics	01	Real Numbers	Revisiting Irrational Numbers		Chapter - 1. Number System, Irrational Numbers	----	----	----	
4	10	Mathematics	02	Polynomials	Geometrical Meaning of the Zeroes of a Polynomial		Chapter 1 POLYNOMIALS, Polynomials in One Variable and Zeroes of a Polynomial				
5	10	Mathematics	02	Polynomials	Relationship between Zeroes and Coefficients of a Polynomial				Chapter 10 Algebraic Expressions, Coefficients		
6	10	Mathematics	03	Pair of Linear Equations in Two Variables	Graphical Method of Solution of a Pair of Linear Equations		Chapter 4 LINEAR EQUATIONS IN TWO VARIABLES, Linear Equation				
7	10	Mathematics	03	Pair of Linear Equations in Two Variables	Algebraic Methods of Solving a Pair of Linear Equations 1. Substitution Method 2. Elimination Method		Chapter 4 LINEAR EQUATIONS IN TWO VARIABLES, Solution of a Linear Equation				
							Chapter 2 POLYNOMIALS				

Learning Outcomes Listing

A	B	C	D	E	F	G	H	I	J	K
Class	**Subject**	**Chapter No**	**Chapter Name**	**Topic**	**Sub-Learning Outcome (SLO1)**	**Sub-Learning Outcome (SLO2)**	**Sub-Learning Outcome (SLO3)**	**Sub-Learning Outcome (SLO4)**	**Sub-Learning Outcome (SLO5)**	**Sub-Learning Outcome (SLO6)**
9	Science	4	Structure of the atoms	Charged particles in matter	Describe the three primary sub-atomic particles: protons, neutrons, and electrons, including their charges, masses	Explain the ararngement of sub-atomic particles within the atom				
				Valency; atomic mass; mass number; isotopes; isobars	Explains the valency of elements based on the atomic structure	Constructs simple chemical formulae of compounds using valency information	Identifies the atomic structure from atomic mass and atomic number	Describes isotopes and isobars and states their uses	Uses the number of neutrons, protons and electrons to write symbol of an element.	
				Structure of an atom - Thomson model, Rutherford model, Bohr model	Explain that atoms and molecules are the fundamental building blocks of all matter.	Analyze Dalton's theory of the indivisibility of atoms and compare it with modern discoveries of sub-atomic particles.	Understand the various historical models of the atom (e.g., Thomson's Plum Pudding Model, Rutherford's Nuclear Model, Bohr's Model) and their significance in understanding atomic structure	Draws labelled diagrams of the distribution of electrons in different orbits of an atom		
10th	Mathematics	8	Introduction to Trigonometry(New Concept)	Trigonometric Ratios	Discuss in groups different situations, such as, constructing maps, etc., in which the concepts of	Relates the concept withthe right triangle Property(Pythagoras)respect to the acute angle for finding the ratios of	Define trigonometry ratios involving the sides of a right triangle	Identify the values of the trigonometric ratios of an angle when the angle remains the		

Mapping of LOs with competencies

Subject	SCIENCE								
Class	Subject	Chapter No	Chapter Name	Topic	LO Number	LO Code	LO	Competency	CG Code
09	Biology	05	The Fundamental Unit of Life	What are Living Organisms Made Up of?	LO01	G09C05SCLO01	Explain the basic concepts of the cell theory and its historical development.	Explains the role of cellular components (nucleus, mitochondria, endoplasmic reticulum, vacuoles, chloroplast, cell wall), including the semi permeability of cell membrane in making cell the structural basis of living organisms and functional basis of life processes	SSC_C-3.1
09	Biology	05	The Fundamental Unit of Life	What are Living Organisms Made Up of?	LO02	G09C05SCLO02	Recognize the contributions of scientists like Robert Hooke, Schleiden, Schwann and Virchow to cell biology.	Select from drop down	none
09	Biology	05	The Fundamental Unit of Life	What are Living Organisms Made Up of?	LO03	G09C05SCLO03	Identify the cell as the structural and functional unit of living organisms.	Explains the role of cellular components (nucleus, mitochondria, endoplasmic reticulum, vacuoles, chloroplast, cell wall), including the semi permeability of cell membrane in making cell the structural basis of living organisms and functional basis of life processes	SSC_C-3.1
09	Biology	05	The Fundamental Unit of Life	What are Living Organisms Made Up of?	LO04	G09C05SCLO04	Differentiate between unicellular and multicellular organisms	Select from drop down	none
09	Biology	05	The Fundamental Unit of Life	What are Living Organisms Made Up of?	LO05	G09C05SCLO05	Describe the general structure of a cell, including the cell membrane, cytoplasm, and nucleus	Select from drop down	none
09	Biology	05	The Fundamental Unit of Life	What are Living Organisms Made Up of?	LO06	G09C05SCLO06	Draw llabelled diagram of different parts of compound microscope	Select from drop down	none
09	Biology	05	The Fundamental Unit of Life	What are Living Organisms Made Up of?	LO07	G09C05SCLO07	Plan and conduct an experiment to observe the structure of onion peel cells under a compound microscope		
09	Biology	05	The Fundamental Unit of Life	What is a Cell Made Up of? What is the Structural Organisation of a Cell?	LO08	G09C05SCLO08	Identify and describe the functions of key cellular organelles such as the nucleus, mitochondria, ribosomes, endoplasmic reticulum, and golgi apparatus	Explains the role of cellular components (nucleus, mitochondria, endoplasmic reticulum, vacuoles, chloroplast, cell wall), including the semi permeability of cell membrane in	SSC_C-3.1

Extensive mapping of LO with DIKSHA content

MATHEMATICS

Class	Subject	Chapter No	Chapter Name	Topic	LO Number	LO Code	LO	Competency	CG Code	Link of Video Content
10	Mathematics	01	Real Numbers	Fundamental theorem of Arithmetic	LO01	G10C01MALO01	Extend the methods of finding LCM and HCF and Observe the Product of HCF and LCM of two numbers is equal to product of the two numbers	Develops understan…	SMA_C-1.1	*https://diksha.gov.in/play/collection/do_3130736097896857601174 2?contentId=do_3130850774444523521246 9*
10	Mathematics	01	Real Numbers	Fundamental theorem of Arithmetic	LO02	G10C01MALO02	*Applying Euclid's division Lemma: - to find HCF of two numbers* .	States and motivates…	SMA_C-3.1	https://diksha.gov.in/play/collection/do_3130736097896857601174 2?contentId=do_3130191962715832321882
10	Mathematics	01	Real Numbers	Fundamental theorem of Arithmetic	LO03	G10C01MALO03	Applies the Fundamental Theorem of Arithmetic for solving problems (for e.g. finding HCF and LCM of two numbers or unit digits of powers of numbers).	Develops understan…	SMA_C-1.1	https://diksha.gov.in/play/collection/do_3130736097896857601174 2?contentId=do_3130794905687244801945 8
10	Mathematics	01	Real	Revisiting Irrational	LO04	G10C01MALO04	Identify Rational and Irrational Numbers in	Extends the underst…	SMA_C-2.1	https://diksha.gov.in/play/content/do_3130886470877675

Timestamping of the e-Content, editing of content and listing of additional content

MATHEMATICS

Class	Subject	Chapter No	Chapter Name	Topic	LO Number	LO Code	LO	Competency	CG Code	Link of Video Content	Start time	End time	Starting Plate name	New video link	Additional Content (Video (pls put time frame in bracket below the video link and add new title also in the bracket)/ PDF/ text document/ activity sheet/ concept map
10	Mathematics	01	Real Numbers	Fundamental theorem of Arithmetic	LO01	G10C01MALO01	Extend the methods of finding LCM and HCF and Observe the Product of HCF and LCM of two numbers is equal to product of the two numbers	Develops understan...	SMA_C-1.1	*https://diksha.gov.in/play/collection/do_3130736097896857601174 2?contentId=do_313085077444452352124 69*	*0.14*	27.05	Class 10 Chapter-1 Topic- Extension of Euclid's Division Lemma for HCF & LCM	Extension of Euclid'...	https://diksha.gov.in/play/collection/do_3130736097896857601174 2?contentId=do_3128622147913400321425 6 (Page 6 of ppt)
10	Mathematics	01	Real Numbers	Fundamental theorem of Arithmetic	LO02	G10C01MALO02	*Applying Euclid's division Lemma: - to find HCF of two numbers .*	States and motivates...	SMA_C-3.1	https://diksha.gov.in/play/collection/do_3130736097896857601174 2?contentId=do_3130191962715832321882	0.31	4.05	Class 10 Chapter-1 Topic- HCF by Euclid's Division Lemma	HCF by Euclid's Divi...	https://diksha.gov.in/play/collection/do_3130736097896857601174 2?contentId=do_3130191959020339201407
10	Mathematics	01	Real Numbers	Fundamental theorem of Arithmetic	LO03	G10C01MALO03	Applies the Fundamental Theorem of Arithmetic for solving problems (for e.g. finding HCF and LCM of two numbers or unit digits of powers of numbers).	Develops understan...	SMA_C-1.1	https://diksha.gov.in/play/collection/do_3130736097896857601174 2?contentId=do_3130794905687244801945 8	0.21	11:41	Class 10 Chapter-1 Topic- Visualisation of LCM & HCF	Visualisation of LC...	https://diksha.gov.in/play/collection/do_3130736097896857601174 2?contentId=do_3130708915293306881628 (TIMESTAMP IS PAGE 1 & 2)
10	Mathematics	01	Real Numbers	Revisiting Irrational Numbers	LO04	G10C01MALO04	Identify Rational and Irrational Numbers in the given group of numbers	Extends the underst...	SMA_C-2.1	https://diksha.gov.in/play/content/do_3130886470877675521287	12:00	16:58	Class 10 Chapter-1 Topic- Introduction of Rational Numbers		https://diksha.gov.in/play/collection/do_3130736097896857601174 2?contentId=do_3128622147913400321425 6 (TIMESTAMP IS PAGE NUMBER 13 TO 18)
10	Mathematics	01	Real Numbers	Revisiting Irrational Numbers	LO05	G10C01MALO05	Explain the irrationality of √2, √3, √5 and other surds such as m+ √n etc. using the Fundamental Theorem of Arithme	Extends the underst...	SMA_C-2.1	https://diksha.gov.in/play/collection/do_3130736097896857601174 2?contentId=do_3130850857708503041162 9	0.27	6.24	Class 10 Chapter-1 Topic- Revisiting Rational Numbers		https://diksha.gov.in/play/collection/do_3130736097896857601174 2?contentId=do_3130708915293306881628 (TIMESTAMP IS PAGE 4 TO 7)

Create Question Banks Using Generative AI

1. Creation of questions bank with the use of Generative AI tools and categorize them in three difficulty levels: Easy, Medium, and Hard.
2. Review and validate the questions for accuracy and relevance.
3. Tagging of questions with corresponding LOs and concepts for adaptive use in PAL.

Class: 9

Subject: Science

Chapter 1: Matter in our surroundings

Topic: Characteristics of matter

Pre-requisite

Q1. What is matter?

a) Anything that occupies space and has mass
b) Anything that shines and is hard
c) Anything that is soluble in water
d) Anything that is transparent
Answer: a) Anything that occupies space and has mass

Q2. What is the term for the space occupied by matter?

a) Mass
b) Volume
c) Density
d) Hardness
Answer: b) Volume

Q3. Which of the following describes a hard material?

a) It cannot be compressed easily.
b) It can be scratched easily.
c) It dissolves in water.
d) It is transparent.
Answer: a) It cannot be compressed easily.

Q4. In which state of matter do particles move randomly and freely?
a) Solid
b) Liquid
c) Gas
d) Plasma

Answer: c) Gas

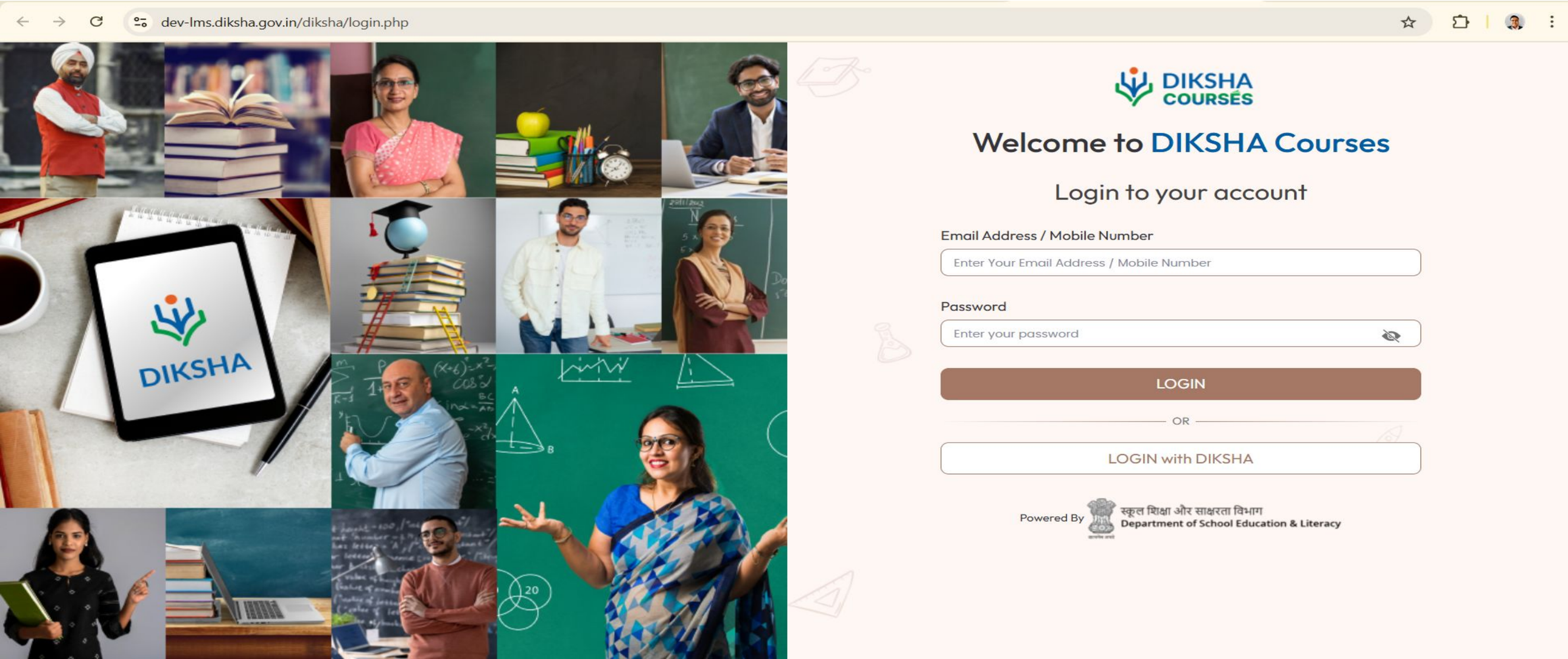
Q5. Which of these states of matter has a definite shape and volume?
a) Solid
b) Liquid
c) Gas
d) Plasma

Answer: a) Solid

Learning Outcome 1: Define matter

Demo

Demo


dev-lms.diksha.gov.in/diksha/login.php
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Welcome to DIKSHA Courses
Login to your account
Email Address / Mobile Number
Enter Your Email Address / Mobile Number
Password
Enter your password
LOGIN
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Thank You