

SCIENTIFICA

Learning-by-Doing Pedagogy

Grades 1 - 8



**DO SCIENCE.
LEARN SCIENCE.**



The Scientific Method LEARNING BY DOING

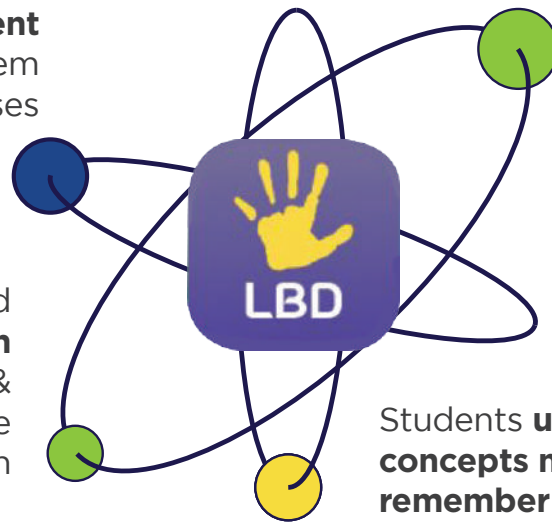
LBD deepens conceptual understanding & prepares students to apply learning in life

Students build a **scientific temperament** that prepares them for higher classes

Students are **engaged** and **invested** in the learning process

Students find **applications in day-to-day lives** & construct knowledge on their own

Students **understand concepts more deeply** & **remember them for longer**



Various approaches of LBD that deliver Experiential Learning

EXPERIMENTS

Learn by Doing

Buoyant Force Experiment!

Take a plastic ball, a tennis ball, and a glass marble. Push each one to the bottom of a beaker filled with water. Which object does not experience sufficient buoyant force to float back to the surface? Share your findings with the class.



INVESTIGATIONS

Learn by Doing

Let's measure the length of shadows!

Plant a stick in a sunny spot. Trace and measure the length of its shadow in the morning, noon, and evening. Record your observations in the table below.

Time	8 am	12 pm	3 pm
Length			



When is the shadow the longest and the shortest?

HANDS ON ACTIVITIES

Learn by Doing

Let's create craters!

Smooth some dry sand on a plate with your fingers. Drop a few marble balls onto it. Did you see craters after dropping the marbles? This is how craters look on the Moon.



ROLE PLAYS

Learn by Doing

Let's role play!

In groups, draw a zebra crossing on the floor with chalk, and then role-play how to stay safe on the road. You can act as the people on the road, vehicles, or a traffic police person.



MODELS

Learn by Doing

Let's create joints!

Using a pencil, a ball, and a cup, make a ball-and-socket model.

Can you create a model of any other joint using materials from your school bag?



POSTERS & CHARTS

Learn by Doing

Let's Make a Poster!

Collect different types of cloth pieces. Using a pair of scissors and glue, create a poster showing the clothes that people wear based on different weather conditions, traditions, and occupations.



A ADVANTAGE



SEAMLESS INTEGRATION OF NEP & NCF RECOMMENDATIONS FOR ENHANCED LEARNING

21st Century Skills


Deeply integrated in all chapters to prepare students for real-world challenges

Thinking Skills

such as solving real-world problems, creating new ideas & learning from mistakes

Let's Think

We often see clouds grow in size and move. Does this mean clouds are living things?





Reflection Corner

How am I doing?

I can name the different seasons.

I can list the clothes we wear in different seasons.

I can list the food we eat in different seasons.



Communication Skills

such as presenting ideas & communicating effectively

Let's Speak

Discuss with your partner if the tool shown in the image is a lever or not. If yes, which category of levers does it belong to? Why?




Collaboration Skills

such as working with others & appreciating others' ideas

Let's Work Together

Let's flex!

Pair up with a partner. Bend your elbows and feel the bones and muscles in each other's arms. Discuss how the shape and size of the muscles changes as you flex your arms.




Connect to Life

Helps students understand concepts more deeply and see their practical relevance

Connect to Life

Look at your wrist. The blue lines are the blood vessels.

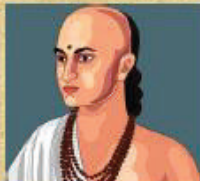


Indian Rootedness

Helps students celebrate and appreciate Indian cultural heritage

Marvels of India

Aryabhata, an ancient Indian astronomer, stated that the Earth is round in his book, the 'Aryabhatiya'.



Enrichment Activities after every chapter

Enhances depth of knowledge and practical application in each discipline

Subject Enrichment

helps students dive deeper into the subject by doing a variety of activities, projects, and field trips.

SUBJECT ENRICHMENT

1. Let's Be Bird Watching

Go to a field nearby or a park with your friend to observe birds. Write or draw your observations in the following table. Ask your friend to help identify the birds you do not recognise.

Bird	Colour(s) of its Plumage	Type of Beak	Type of Feet and Claws
Pigeon	Grey	Strong, short and hard	Piercing/tear

Cross-curricular connect


helps students understand interlinkages between subjects.

CROSS-CURRICULAR CONNECT

Sports

What is your favourite sport? Which parts do you use when you play it? Describe how these parts help you play the sport.

Muscles work in pairs. When one contracts, the other relaxes. Identify and name one sport where people have to work as a pair and perform work that will benefit both of them. Explain.



Environmental Awareness

helps students develop an understanding of the environment and learn to care for it.

ENVIRONMENTAL AWARENESS

Plant a tree!

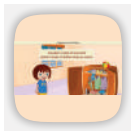
Many animals, insects, and birds live on plants and trees. We should take care of them and plant more trees.

Adopt a tree or plant a sapling. Water it every day. Birds and other animals can make it their home. Make a bird feeder and hang it on the tree for the birds to eat from.



Connected At-Home Learning enabled through the Student App

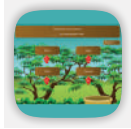
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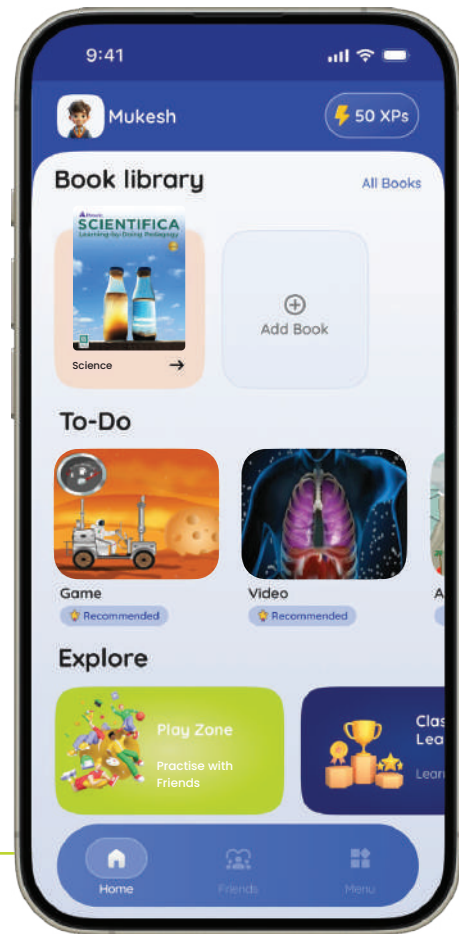
Practise with Friends



Learn with Videos

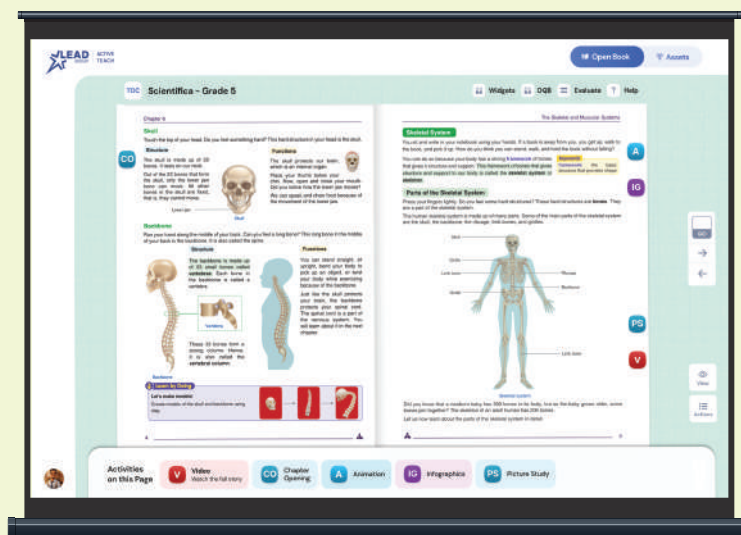


Practise with Quizzes and Exercises



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LESSON PLANS

ENGAGING VIDEOS

WORKSHEETS

ANSWER KEYS

INTERACTIVE PRACTICE



**SCAN & EXPERIENCE
HOW SCIENCE BECOMES
ENGAGING &
EXPERIMENTAL
WITH SCIENTIFICA**