



MATHEMATICA

Concrete - Pictorial - Abstract Pedagogy

Grades 1 - 8



THE ONLY PROGRAM THAT BUILDS
MATHEMATICAL THINKING



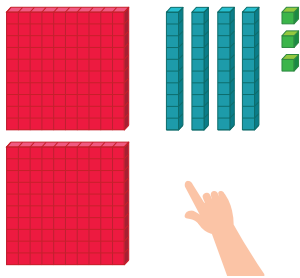
Mathematical Thinking with Singapore's Renowned Pedagogy

CONCRETE-PICTORIAL-ABSTRACT

CONCRETE

Begins with students using **physical objects** to understand quantities & operations

3-DIGIT NUMBERS

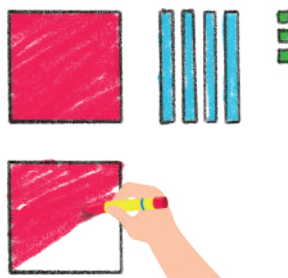


FRACTIONS



PICTORIAL

Then they move to representing these quantities & operations with **pictures**



ABSTRACT

Only when a solid understanding is built, do they move to using **symbols & numbers**

$$200 + 40 + 3 = 243$$

$$\frac{1}{2} + \frac{1}{4} = \frac{3}{4}$$

WITH MANY EXCITING FEATURES

that build deep Math expertise

Watch Out

Will help the students to be mindful of the commonly made mistakes.

Watch Out

Add 431 and 16.

Incorrect Solution ✖

H	T	O
4	3	1
+	1	6
5	9	1

Correct Solution ✔

H	T	O
4	3	1
+	1	6
4	4	7

Write the numbers correctly in place value tables.

Let's Try

Includes in-text questions that will help students assess their learning progress.

Let's Try

Classify the given fractions as proper, improper, or mixed and write them in the boxes below.

$\frac{11}{8}$,	$11\frac{4}{5}$,	$\frac{2}{10}$,
$\frac{2}{9}$,	$\frac{22}{11}$,	$\frac{1}{5}$

Proper	Improper	Mixed

CA 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

Identify different routes from A to F and find the shortest distance in km.
Scale: 1 cm = 5 km

Reflection Corner

For each topic, tick one column based on your reflection.

	I can do it on my own.	I can do it with help.
Identify halves, quarters, and thirds.	<input type="checkbox"/>	<input type="checkbox"/>
Write and represent fractions.	<input type="checkbox"/>	<input type="checkbox"/>
Find the fraction of a set of objects.	<input type="checkbox"/>	<input type="checkbox"/>

Communication Skills

such as presenting ideas & communicating effectively

Let's Speak

Rohan filled a paper cup with marbles and another cup with cotton. Discuss with your partner which cup is heavier.

A cup with marbles A cup with cotton

Collaboration Skills

such as working with others & appreciating others' ideas

Let's Work Together

Work in pairs to subtract $\frac{1}{2}$ from $\frac{3}{4}$ using an activity.

1. Use a strip of paper to show $\frac{3}{4}$.
2. Use another strip of paper to show $\frac{1}{2}$.
3. Align the strips to subtract $\frac{1}{2}$ from $\frac{3}{4}$.
4. Write the answer.

Use the same approach to find: (a) $1 - \frac{2}{3}$ (b) $\frac{3}{4} - \frac{1}{8}$

Connect to Life

Helps students understand concepts more deeply and see their practical relevance

Connect to Life

Let's see how we can use multiplication of fractions in our life! Here's a recipe to make sweet corn salad!

Ingredients (to serve 5):

- $1\frac{1}{2}$ cup boiled sweet corn
- $\frac{1}{4}$ cup finely chopped cucumber
- $\frac{3}{4}$ cup finely chopped onions
- $\frac{1}{4}$ cup chopped tomatoes
- $2\frac{1}{2}$ tsp. lemon juice

Method: Mix all the ingredients in a large bowl. Season it with salt, pepper, and coriander. You need to make this for a party with 15 friends. Calculate the quantities of ingredients needed to complete your dish. Try out the recipe and impress your friends!

Indian Rootedness

Helps students celebrate and appreciate Indian cultural heritage

Marvels of India

Mandala (Sanskrit for "circle") is an art form made up of geometric patterns and symbols. It first appeared in Buddhist art in India during the first century. Mandalas can also be seen in Rangoli designs in Indian households.

Do the given designs have rotational symmetry? _____

Enrichment Activities after every chapter

Enhances depth of knowledge and practical application in each discipline

Math Lab Activity

Helps students engage in hands-on learning and solidify their understanding of mathematical concepts

MATH LAB ACTIVITY

Aim: To learn how to multiply fractions.

Materials Needed: Paper, black and red colour pencils.

Steps: Let's multiply $\frac{2}{3} \times \frac{3}{4}$ visually.

1. Draw a square.
2. Divide it into rows and show using starting lines.
3. Divide it into columns to show by colouring the columns red.

4. Count the cells that have both red colour and starting lines. Here, it is 6.

5. Count the total number of cells in the grid. Here, it is 20.

6. So, $\frac{2}{3} \times \frac{3}{4} = \frac{6}{20}$

Use the steps to solve: (a) $\frac{2}{3} \times \frac{1}{2}$ (b) $\frac{2}{3} \times \frac{5}{6}$

Mental Math

Helps students use different techniques to solve problems mentally

MENTAL MATH

Addition by Breaking into Tens and Ones

Add 13 and 12.

Add 45 and 34.

(a) $10 + 25 =$ (b) $70 + 10 =$ (c) $64 + 35 =$

(d) $40 + 31 =$ (e) $48 + 12 =$ (f) $72 + 25 =$

(g) $70 + 20 =$ (h) $37 + 52 =$ (i) $81 + 15 =$

Cross-Curricular Connect

Helps students understand interlinkages between subjects.

CROSS-CURRICULAR CONNECT

Art

Pattern Design Using Prime Numbers

Step 1: Draw a circle on a paper using a bangle or any circular object and make 12 equal marks on its boundary.

Step 2: Take a prime number, say 5, and draw a line from the point O to the 5th point (A) on the boundary.

Step 3: Now, from point A, draw a line up to the 5th point (B).

Step 4: Repeat this process and see the pattern.

Draw the same pattern with the prime numbers 7 and 11 in your notebook in the same circle.

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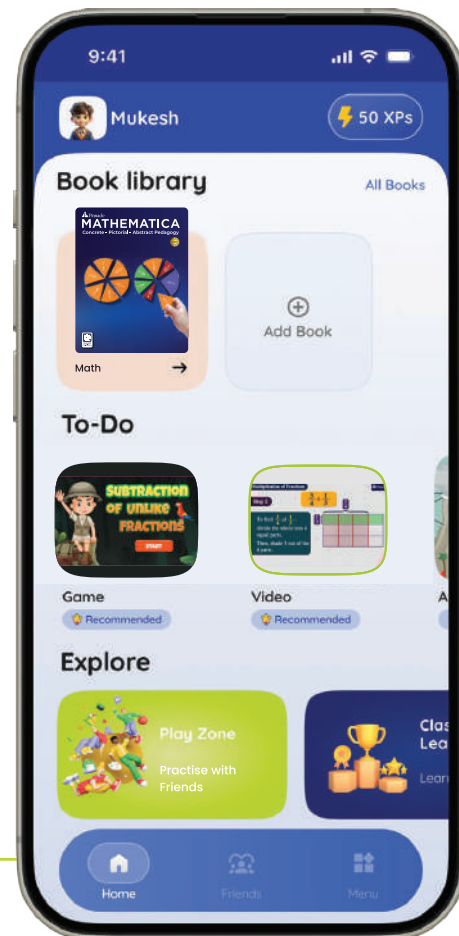
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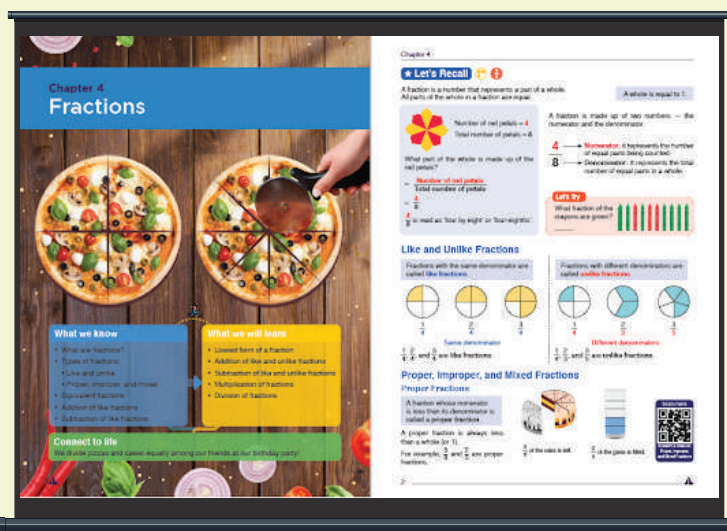


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