Why Foundational Numeracy?

Foundational Numeracy is the cornerstone of a child's academic journey. By Class 3, children establish a lifelong understanding of mathematical concepts. This early proficiency is a strong predictor of long-term academic success, shaping their ability to grasp complex subjects and develop critical thinking skills.

The National Education Policy (NEP-2020) in India explicitly mandates that all children achieve foundational literacy and numeracy by Grade 3, highlighting the critical importance of this stage. However, statistics from ASER (2022) reveal a significant challenge: over 40% of children in Class 3 cannot perform simple two-digit subtraction, and only 1 in 4 children in rural India aged 5 can recognize numbers up to 10. These figures underscore the urgent need for effective foundational numeracy training to ensure every child has the opportunity to succeed.

NEP 2020 Pedagogical Reforms in Mathematics

Focus on Learning Outcomes

Shifting from mere syllabus coverage to ensuring tangible learning outcomes for every child.

Local Materials & Integration

Utilizing indigenous materials and integrating play, storytelling, peer learning, and technology for concept-building.

Real-World Applications

Reducing dependency on textbooks to foster practical, real-world applications of mathematical concepts.

Teacher Empowerment

Training teachers in child psychology, developmentally appropriate practices, and differentiated instruction to cater to diverse learning needs.

Foundational Concepts Teachers Must Focus On

Number Sense

Understanding quantity, counting, and comparing numbers.

Data Handling

Skills in sorting, classifying, and creating pictographs.

Operations

Mastering addition, subtraction, and grouping.

Measurement

Concepts of length, weight, time, and money.

Geometry

Identifying shapes, understanding space, and recognizing patterns.

Icebreaker: Math Bingo (15 min)

Materials & Setup

- Bingo card (3x3 grid)
- Markers or pens for participants
- Trainer prepares clues beforehand

How to Play

- Each participant receives a unique Bingo card with random numbers (1–50).
- The trainer calls out mathematical clues, such as "Double of 12" or "A number divisible by 5".
- Teachers mark the matching numbers on their cards.
- The first person to complete a row or column shouts "Bingo!"

This interactive icebreaker uses the familiar game of Bingo to engage teachers with foundational math concepts in a fun and low-pressure environment. It encourages quick mental math and number recognition. You can generate custom Bingo cards for free at **myfreebingocards.com**.

Activity 1: Math Around Us – Photo Hunt

Objective

To enhance teachers' observational skills and help them discover mathematics embedded in their daily surroundings, fostering a deeper connection between abstract concepts and real life.

How to Participate

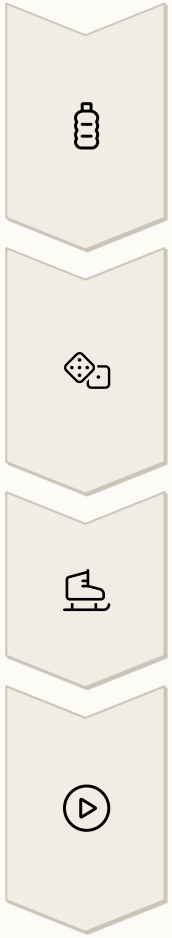
- Teachers form pairs to collaborate.
- Using their mobile phones, they capture images of objects or scenes around the school that involve mathematical principles (e.g., symmetry in architecture, geometric shapes in playground equipment, patterns in brickwork, measurements in natural elements).
- Pairs then discuss their findings, explaining the mathematical concept behind each photo, and share their unique observations with the larger group.

This activity not only makes learning math more tangible but also encourages teachers to think creatively about how they can bring similar real-world examples into their classrooms.

Free & Easy Math Kits – DIY Teaching Aids

Creating engaging and effective math lessons doesn't require expensive materials. With a little creativity, everyday household items can be transformed into powerful teaching aids that make foundational numeracy concepts tangible and fun for children. These DIY kits are not only cost effective but also allow for customizable, hands-on learning experiences.

For more inspiration and a ready-made resource, check out the Toybank Free Toolkit at **www.toybank.org/resources**. These simple tools empower teachers to create dynamic, interactive classrooms.



Bottle Caps

Ideal for counting, sorting, and understanding place value.

Dice

Great for games on addition, subtraction, and probability.

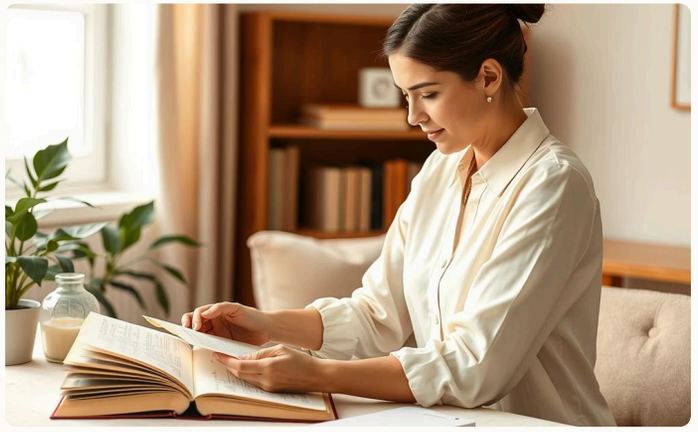
Ice-Cream Sticks

Perfect for grouping, tally marks, and building shapes.

Playing Cards

Versatile for comparison, probability exercises, and sorting games.

Activity 2: Redesign Your Textbook Lesson



Objective

Empower teachers to transform traditional, theory-heavy textbook lessons into dynamic, hands-on, and interactive learning experiences.

Process

1. Form 3-4 member groups to foster collaborative learning and idea sharing.
2. Each group selects a specific mathematical concept (e.g., fractions, telling time, understanding shapes, area and perimeter) from their textbook.
3. Design a new, interactive lesson plan for the chosen concept, incorporating local materials, student role-play scenarios, and engaging games.
4. Groups present their redesigned lessons to the class, followed by a reflection and feedback session.

Training Focus

Emphasis will be placed on how to scaffold learning for different abilities, effectively manage mixed-ability classrooms, and utilize formative assessments to gauge student understanding throughout the lesson.

Online Games & Math Platforms (Free)

Leverage the power of digital tools to make math engaging and accessible. Many free online platforms offer interactive games and activities designed to reinforce foundational numeracy concepts in a fun way. These resources can supplement classroom instruction, provide extra practice, and cater to diverse learning styles.

Grade	Concept	Game/Activity	Link
1–3	Number Line	Number Jump	**mathplayground.com/number_line_jump.html**
3–5	Fractions	Fraction Fling	**mathnook.com/math/fractionfling.html**
5–8	Quizzes	Math Jeopardy	**jeopardylabs.com**

Explore these platforms to find the best fit for your students' needs and integrate them seamlessly into your lesson plans to create a dynamic learning environment.

Movement-Based Learning: Body Math

Clap & Count

Engage auditory and kinesthetic senses by clapping when a number is a multiple of 3, 5, or any other target number.

Body Angles

Have students use their arms and legs to form various geometric angles (acute, right, obtuse) to understand spatial concepts.

Number Postures

Assign different body postures to represent even or odd numbers, or even specific digits, building number recognition.

Counting Steps

Integrate counting into physical activity by counting steps in tens, fives, or twos while walking around the classroom or playground.

Movement-based learning, or "Body Math," capitalizes on children's natural tendency to move, transforming abstract mathematical concepts into concrete physical experiences. This approach not only builds memory through physical activity but also provides an excellent outlet for energetic classes, keeping students engaged and focused.

Storytelling in Math

Storytelling is a powerful pedagogical tool that can make mathematical concepts relatable and memorable. By embedding math questions and problems within narratives, teachers can engage children's imaginations while developing their numerical skills.

Use Folklore & Fables

Incorporate traditional stories or fables that naturally involve quantities, sequences, or problem-solving. For example, "How many grains of rice did the clever crow collect?" can lead to discussions on counting and grouping.

Embed Math Questions

As you tell the story, pause to ask questions that require mathematical thinking, prompting children to analyze the narrative and apply numerical concepts.

Foster Critical Thinking

Stories provide a rich context for children to explore mathematical ideas, encouraging critical thinking and problem-solving in a non-intimidating way.

For more inspiration and resources on integrating storytelling into math, visit **bedtimemath.org/fun-math/**. This method turns math into an adventure, making learning both enjoyable and effective.

Outdoor Relay Math Game

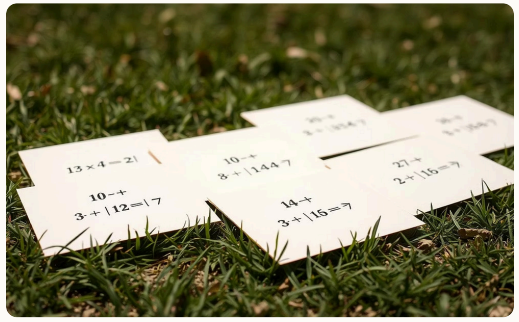
This dynamic game builds speed and accuracy in problem-solving through active team competition.

Team Challenge

Students divide into teams, fostering collaboration and quick thinking as they tackle math problems.

Problem & Tag

Each team member solves a math problem before tagging the next teammate, promoting sequential learning and quick transitions.



Flexible Tools

Utilize chalkboards or large cards for problem display, making the game adaptable to different environments and resource availability.

Score Tracking

Keep score throughout the game to add a competitive element, motivating students to improve their performance and speed.

This game can also be adapted for indoor use with flashcards, making it versatile for any classroom setting.

Free Tech Tools for Teachers

NCERT ePathshala App

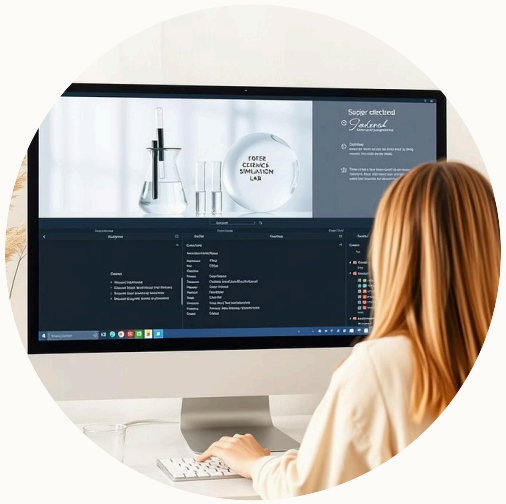
Access digital textbooks and supplementary learning materials for all grades.

ToyBank Activity Repository

Discover a wealth of play-based, hands-on learning activities to engage students.

NROER

Explore the **National Repository of Open Educational Resources** for diverse subjects and levels.



OLabs

Conduct virtual science experiments and simulations with **Online Labs**, perfect for Grades 9-12.

Pedagogical Guidance

Leverage these digital tools to actively build conceptual understanding, facilitate regular practice routines, and cultivate truly inclusive learning experiences for every student.

Group Reflection: Action Planning

Implement Next Week

Identify one specific activity to integrate into your math lessons.

Teach with a Game

Choose one math topic to introduce or reinforce using an interactive game.

Repurpose Materials

Think of one everyday material to repurpose into a creative math learning aid.

Child-Centered Approach

Outline one way to ensure your teaching methods are more child-centered.

Thank You!

We extend our sincere gratitude for your enthusiastic participation in today's session. Your dedication to fostering foundational numeracy is inspiring.

Your enthusiastic participation and dedication to foundational numeracy are truly inspiring.

Utilize the strategies, activities, and free resources shared to empower engaging math experiences.

Make math fun and accessible to build strong foundational understanding and inspire a love for numbers.

Let's continue to inspire a love for numbers!

Javaid Ahmad Bhat

Headmaster GMS Onagam

Email: javaidjawad3200@gmail.com

Phone: +91 7006119896