

Title: Approaches for Teaching and Assessing Numeracy at the Foundational Stage

Resource Person: Dr. Ruchi Mittal

Date: 20.05.2025

Venue: BBPS, Pitampura

On the third day of our enriching capacity-building programme. Ms. N. Rekhi introduced the resource person, Dr. Ruchi Mittal, Asst. Professor, B. El.Ed, IHE, D.U. The workshop was conceptualized to strengthen teachers' understanding of numeracy approaches and assessments at the foundational stage.



We began with a deep dive into six critical domains of mathematics in early childhood:

A. Pre-number Concepts: We discussed how matching, sorting, comparing, and seriation build cognitive readiness for formal number learning.

B. Numbers & Operations: The focus was on developing number sense, Counting and subitizing performing basic operations using manipulatives.

C. Shapes & Spatial Understanding:

Snapshots of workshop -:

- Equip educators with age-appropriate, childcentred pedagogical tools.
- Create awareness about the conceptual flow of mathematics learning.
- Encourage the use of play-based assessments in real classroom settings.
- Provide structured frameworks (ELPS, GRR, Four Blocks) to scaffold learning.
- Assessments and its tools.

Activities like Shape identification through games, Spatial vocabulary through treasure hunts (e.g., under the table, beside the chair), Building composite shapes with blocks

D. Measurement: Educators explored non-standard units to teach, length (e.g., hand spans), weight (e.g., comparing two bags), time (sequencing daily routines)

E. Data Handling: Through classroom-based examples, we covered Organizing and sorting reallife data, representing data visually using tallies and picture graphs and analyzing simple trends

F. Patterns: Children's recognition of patterns is foundational for algebraic thinking. Repeating and growing patterns with beads and tiles, Rhythmic clapping sequences, Drawing and extending shape patterns. Dr. Mittal introduced **the Four-Block Approach**, emphasizing its alignment with NEP 2020's vision for experiential and holistic learning. She highlighted the importance of structured pedagogy in developing foundational numeracy skills. The focus was on enhancing pedagogical strategies to improve foundational numeracy skills among early learners.

Block 1: Oral Math Talk

Participants engaged in activities that promote mathematical discussions, storytelling, and reallife problem scenarios to enhance conceptual understanding and communication skills.

Block 2: Skills Teaching

The facilitator demonstrated methods for introducing new mathematical concepts using concrete materials

and visual aids, following the **ELPS** Approach

(Experience - Language - Pictorial - Symbolic) and

Gradual Release of Responsibility model—

transitioning from teacher-led demonstrations to collaborative practice and independent student work.

Block 3: Skills Practice

Educators explored various exercises and tasks designed to reinforce mathematical concepts, focusing on problem-solving, reasoning, and application through practice.

Block 4: Math Games

The session included interactive games aimed at reinforcing concepts in an engaging manner, promoting strategic thinking and collaborative learning.

Hands-on Activities and Group Work

Participants collaborated to design lesson plans incorporating the Four-Block Approach, tailoring activities to suit diverse learning needs and contexts. We modelled lessons that began with reallife experiences (e.g., using cups for comparison), encouraging verbal interaction, then asking learners to draw and finally represent with numbers/symbols.

Dr. Mittal emphasized the importance of assessing numeracy skills in early education, highlighting that assessments should be developmentally appropriate, child-friendly, and integrated seamlessly into daily activities. Implementing a combination of the tools and







Block 2

Skills teaching

(Combine all strand of

proficiency)

Block 4

Math game

(Reinforcing learning and

problem solving)

Block 1

Oral math talk

(Math poem, oral calculation,

concept, children's experience)

Block 3

Skills practice

(Procedural, conceptual,

problem solving, reasoning)

techniques provide a comprehensive picture of each child's numeracy development, informing instruction and supporting targeted interventions.

Assessment Tools and Techniques

- Observation Checklists: Structured tools for systematically recording student behaviours and skills during activities.
- **Portfolios:** Collections of student work over time, showcasing learning progress and achievements.



- **Rubrics**: Scoring guides outlining criteria for evaluating student performance on specific tasks.
- Games and Manipulatives: Interactive tools that make assessment engaging and provide insights into students' understanding.

The workshop successfully equipped educators with the knowledge and skills to implement effective assessment practices in their classrooms. By embracing a variety of assessment methods and tools, we as facilitators can better support student learning and meet the goals outlined in NEP 2020 and NCF-FS 2022.

