NEP 20

Mathematics Fundamental stage

PATTERN TYPES

Patterns can be identified based on a particular rule. For example, counting numbers have a pattern- each number is one more than the preceding number and each number is one less than the succeeding number. Patterns can be of many types like sound patterns, number patterns, patterns in shapes, patterns in colours, patterns based on symmetry etc.

Four steps to teaching patterns: Working with patterns usually consists of four major steps. Teachers need to conduct appropriate activities within and outside classrooms to develop the conceptual idea of Patterns among children. Some suggestions are:

i. Identifying pattern: Pattern can be identified by observing the rule which the pattern is following for example, if it is a repeating pattern, progressing pattern etc. like 1,2,1,2… or 2,5,8,11, ….

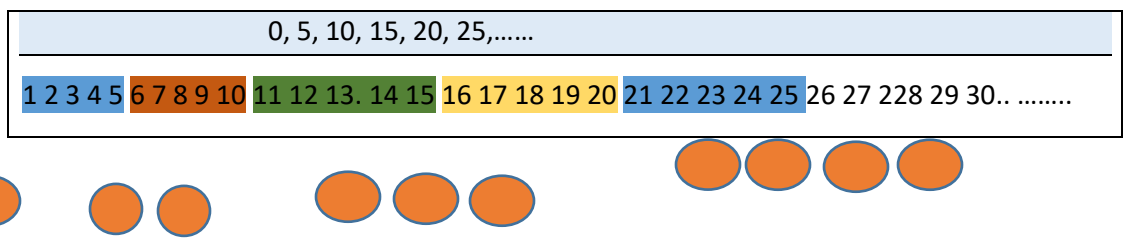
Describing the rule:

After identification of pattern, next step is to describe the rule and identifying the unit of repeat (In case of repeating patterns). Let children see patterns around them and form rules to extend like patterns on sarees, tiles, boarders, etc.

iii. Extending pattern: Further extending the pattern by using the unit of repeat. For example, in the pattern 1, 2, 3, 1, 2, 3, 1, 2, 3, the unit of repeat id '1, 2, 3'. So, by recognizing this unit of repeat, the pattern can be extended further as '1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, 1, 2, 3, and so on'. Similarly, for any repeating pattern, once the unit of repeat is recognized by the child, he/she can easily extend the pattern.

Creating new patterns: Once the child can achieve the above three steps, child can start creating new patterns by identifying, analyzing, extending and exploring patterns further and using his/her own creativity.

Example: 0, 5, 10, 15, 20, 25, ...



Data Handling.

Data in everyday life:

Data refers to information in a raw form which is collected from various sources. Having access to data and the capacity to interpret data can be a source of power. The availability of data, which is reliably and systematically collected, makes a system transparent. This is important for a democratic society. It is only when people have confidence in their own capacity to handle and interpret data that they will also seek data. We collect data when we need to answer a specific question, a problem or when we want to understand a situation in generality. This may be because we need to decide. It is noteworthy that though data answers some questions, at the same time it raises further questions which cannot be answered from the data. Data collection and handling are usually thought of as a part of statistical activity and so only of interest to people specializing in statistics. We rarely acknowledge the fact that in everyday situations, we are collecting and using data. A teacher is collecting data even when she takes the attendance of children in her class.

Data components: The major components of data handling include collecting, representing, and interpreting simple data, recording data using tally marks, collecting data, and representing in terms of pictograph, choosing appropriate scale and unit for display through pictographs, drawing conclusions from the data.

By acquiring these skills, the child should be able to achieve the following:

i. Attempt to record information in her/his own way.
ii. Participate in discussions with others to draw inferences from the recorded information.
iii. Devise ways to present the recorded information in such a way that its interpretation can be made simpler.
iv. Show/describe problems in interpretation of information. v. Devise pictorial ways of representing information like pictograms and bar graphs.

The following approaches should be followed:

i. Organise activities and provide opportunities to record information in numbers and to draw inferences or make decisions out of it.

ii.Involve children in discussion to highlight the importance of recording of information.

iii. Create situations such that child uses her/his ways to record and present the information in a meaningful manner.

iv. Give opportunities to children for exploring ways of recording and presenting data and draw inferences from the data.

v. Encourage children to participate in activities and discussion, raising questions, making interpretations, etc.

vi. Engaging students with group assessment where students work as a group and collect and present data and draw inference based on it.