

Learn to create patterns

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Prior Knowledge:

- Draw various shapes like circle, square, etc.
- Identify simple designs in real life
- Extend the sequence of a simple pattern with or without numbers

Objectives:

Students should be able to:

- Identify pattern and understand the rule behind its construction.
- Extend a pattern and also construct a new pattern using various objects.
- Create block patterns by stamping thumb prints, leaf prints, vegetable prints, etc.
- Understand the presence of patterns in day-to-day life.
- Understand and construct simple number patterns.

ENGAGE

Activity 1: Teacher conducts a game where students are asked to sit and stand alternately.

Students play the game according to the instructions.

Teacher assesses the students by observing those who follow the instructions.

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Activity 2: Teacher asks the students to take a sheet of paper and fold it twice. They are then asked to tear a piece from any corner of the sheet, open and observe the paper. Again students have to fold the paper twice and tear a piece from another corner. They have to open the sheet, observe and say something about what they see.

Students perform the activities as instructed, look at the unfolded paper and talk about what they have created.

The teacher assesses the students by seeing the patterns created by each of them.

EXPLORE

Activity 1: Teacher asks students to colour alternate shapes/objects with two different colors of their choice. (Outline of shapes/objects are given to students in an activity sheet.)

Students colour the shapes/objects appropriately. Teacher assesses the students by reviewing the completed activity sheets.

Teacher assesses whether students have colored all the objects and used the same set of colors throughout.

Activity 2: Teacher asks students to stick leaves up and down on a chart / paper.

Students stick the leaves in the given chart appropriately.

Teacher assesses the students by reviewing the completed charts.

Activity 3: Teacher gives ice-cream sticks covered with white paper and three sets of different colour sheets cut in the shape of a rectangle. The teacher asks students to roll the colour papers on top of the ice-cream sticks with some space in-between the colour paper and the white paper

Students roll the colour paper over ice-cream stick and forms pattern.

Teacher assesses students by observing their activity.

EXPLAIN

Activity 1: Teacher divides the class into 2 or 3 groups. each group is given different colours of tiles/beads/bells and they are asked to arrange the given objects in an order to form a pattern. After the activity, teacher asks students to explain their construction.

Students arrange items in any order and give an appropriate explanation.

The teacher assesses students by their engagement level, nature of the patterns formed and explanations offered.

Activity 2: Teacher gives a stamp pad to each group and asks the students to make a pattern using their thumb and other finger impressions.

The students form various patterns using their fingers/thumb impression.

The teacher assesses students by their engagement level and the nature of the patterns formed.

Activity 3: Teacher gives paper cups with numbers written in the cups to each group [like 2,4,6,....20/ 5,10, 15,.....50/ 10, 20, 30,....100]. Teacher instructs that they have to form a pyramid with the cups in the correct order of

numbers.

Students have to arrange the cups in the shape of a pyramid in the increasing order of numbers.

The teacher assesses students by their engagement level and the patterns formed.

Activity 4: Teacher shows a video on patterns to students

https://www.youtube.com/watch?v=4x-K_1svTdY

ELABORATE

Activity 1: Teacher asks the students to look around the classroom, identify various patterns that are present and explain what they see. Teacher could also ask students to draw and colour what they see.

Students look around the class, identify various patterns and provide an appropriate explanation.

Teacher assesses the students based on their explanation and their drawing and colouring work.

Activity 2: Teacher prepares a Kaleidoscope with beads/bangle pieces and asks the students to look at it one by one.

Students will be able to see various patterns made by the Kaleidoscope.

The teacher assesses the students by asking different questions like:

Have you seen any of these patterns in your day-to-day life?

Which pattern do you like the most? Why?

EVALUATE

Evaluation is carried out with the help of a given worksheet.

Classroom try-out and reflection

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Objective:

- To introduce patterns in an easy and interesting manner to students and involve them with hands on activities.
- To introduce number patterns as an extension of what they have learnt in class I and relate them to their daily life.

ENGAGE

Activity 1 - Sit/Stand Game

I started the lesson by playing the Sit/Stand game. Students were split into two groups. When I gave one group an instruction to sit, the other group had to stand. I kept alternating between the sit/stand commands.

Through this game, students were introduced



to the idea of patterns and at the same time enjoyed themselves.

Activity 2 - Creating patterns in paper

All the students were given an A4 sheet and asked to fold it twice equally. Some of the students found it difficult to fold the paper but once it was shown to them they were able to do it on their own. They were then asked to tear a piece of paper from the corner of the sheet. This process was followed by asking them to fold the paper multiple times. When they were not able to cut the corner of the paper on their own, I used

scissors to help them. Finally, when they opened the paper, they were amused to see the patterns that were formed.

One of the students counted the diamond shapes in his paper and exclaimed that he had 4 diamonds. This excited the other students and they followed him by counting their diamond shapes.

EXPLORE

Activity 1 - Creating patterns using shapes

Students were asked to name a few shapes that they knew about. Most of their responses were round (circle) and triangle. I drew a circle, triangle, square, rectangle and star on the board. Students were asked to pick any two shapes of their choice and draw it in their notebooks and repeat it to form a pattern. Additionally, they were asked to fill the shapes using different colors. They repeated this process with three different sets of shapes.

Outcome:

Even though students knew some shapes, they initially struggled to draw it on their own. They had to be instructed and guided the first few times. Thereafter, students were able to do it themselves.

Activity 2 - Learning pattern using leaves

Ten Neem leaves were given to each student and they were asked to create any pattern or design using it. Their first response was to simply pile up the leaves. After I showed them a sample, one student was able to create a pattern and the others followed him and arranged it in different ways.

Challenge:

Initially the students were confused with front, back and the sides of the leaves. However, with guidance they were able to understand the

concept.

Outcome:

While most of them were following my example, one student did it differently in a creative manner.

EXPLAIN

Activity 1 - Creating patterns with thumb and finger impression

Students were given a white sheet with a stamp pad and were asked to form any pattern on their own.

Challenge:

When I gave the paper and stamp pad, they made thumb impressions without any particular pattern. One student framed a pattern like 5's and then the others started forming patterns like 2's and 3's. Most of the time, students observed and followed their peers.

Outcome:



They understood that a fixed set of thumb impressions could also form a pattern

Activity 2 - Creating patterns with multiple objects - beads, sticks and bells.

I used the school's Math kit which had beads, sticks and bells of different colors. Since they

were only 6 students on that day, I divided the class into 3 groups and asked them to form patterns with them.

When this activity was given, students started fighting over the beads, sticks and bells. So I gave each student a set of materials to work with. However, this might not be possible in a large class. A different grouping method should be thought through and tried out.

Challenge:

Using the materials given to them, students were asked to form a pattern with two colors. Students were asked to spend time and observe the pattern they had created. This enabled some of them to rectify the mistakes they had made originally. To my surprise, I found a student forming a pattern with three different colors.

Outcome:



Students became familiar with two/three colour pattern.

Activity 3 - Introducing patterns with numbers

In this activity, I introduced them to number patterns. I wrote a pattern on the board and asked them to observe carefully and answer it in their notebooks. It was easier for them to grasp the patterns in increasing order than the decreasing order.

e.g.

1, 2, 3,,,

2, 4, 6,,,

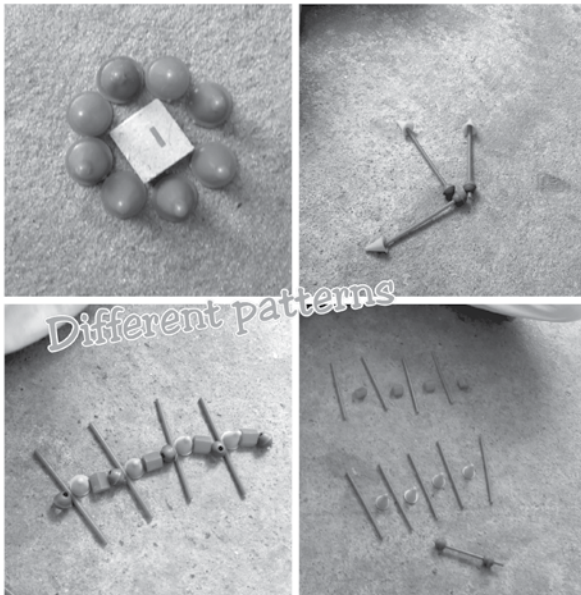
10, 20, 30,,,

25, 20, 15,,,

ELABORATE

Activity 1 - Recognizing the patterns in a Kaleidoscope

As an extension of the concept, I gave them a Kaleidoscope and asked them to look at the different patterns. I asked them what they saw and whether they liked it. They said they noticed patterns that resemble flowers, diamonds etc.



They also drew imaginary patterns in the air.

Overall reflection

- Students enjoy learning mathematics through activities and they expect new activities every day. I have realized the need to engage students with interesting activities to teach key concepts in mathematics.
- These activities have helped students understand patterns with shapes and colors. Students were able to do the textbook exercises.



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