



Master Lesson Plan

For

Can You See the Pattern

Board	Standard	Subject	Chapter	Language	Reference Link	Creation
CBSE	STD V	Mathematics	Can You See the Pattern	English	Can You See the Pattern?	2020-12

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Can You See the Pattern

1. MS_ Can you see the Pattern - Objectives.

OBJECTIVES

Students will be able to:

- Investigate a given pattern and build the same.
- Recognise and identify patterns.
- State the rules for the given patterns.
- Gain insight into the patterns causing optical illusion.
- Build patterns by relating to a rule by means of an activity.
- Relate to the use and application of patterns in daily life.
- Create a 3 X 3 Magic Square when a series of nine consecutive numbers are given to them.
- Answer and solve problems based on the concept of patterns.
- Understand the importance of being disciplined.

Time to teach	Asset Type	Theme	SubTheme
10 Minutes	Main Script	Patterns	

2. SA_Patterns;Classroom Activity

Types of Activities :

1. Quiz: 1 -10
2. Join the Dots
3. Work Sheet

Activity Number One: - Quiz**Procedure:**

1. The whole class to be divided into four teams .
2. The teacher will write the first three or four elements of the pattern on the blackboard and give approximately 30 secs time to investigate the pattern.
3. Each team is given a chance to give the answer like in a quiz .
4. Whichever team wins most number of points, will win the game.

QUIZ QUESTIONS:

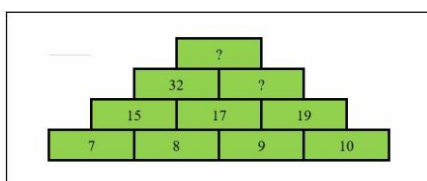
- 1) Find the next letter in the series D, G, J, M, P, _____

Ans: S

- 2) Find the next alphabet in the series C, E, I, O, W, _____

Ans: G

- 3) Understand the pattern and fill the missing box.



Ans: 36, 68**4) Understand the pattern and fill the missing box.**

17	17	17	17
?		34	
68			

Ans: 34**5) Which is the next ordered pair in the pattern?****(10, 5), (8, 4), (6, 3)**

- a. (2, 4) c. (2, 5)
b. (4, 2) e. (5, 2)

Ans: b**6) Which is the missing ordered pair in the pattern?****(3, 9), (5, 15), (?, ?), (9, 27)**

- a. (6, 9) c. (6, 18)
b. (7, 10) d. (7, 21)

Ans: d**7) Choose the correct option in place of question mark (?) in the following series:**

21, 25, 33, 49, 81, (?).

(a) 145

(b) 132

(c) 113

(d) 101

Ans: a

8) What is the pattern?

____,____, 11, 9, 7, 5

Ans: Add 2

9) What is the pattern?

25, 22,____,____, 13, 10

Ans: Subtract 3

10) Complete the numerical series 4, 8, 10, 20, 22,____,____, ____

Ans: 44, 46, 92

11) Complete the numerical series 22, 28, 21, 27, 20,____,____, ____

Ans: 26,19, 25

12) What is the number in place of '?' in the following diagram?

5	4	2
6	9	1
4	2	8
240	144	?

- (a) 34 (b) 28
(c) 30 (d) 32

Ans: 32

Hint: $(5 \times 6 \times 4) = 120$; $120 \times 2 = 240$; $(4 \times 9 \times 2) = 72$; $72 \times 2 = 144$

13) What will come in place of the question mark (?)

AE, FJ, KO, (?)

- (a) PT (b) PU
(c) PV (d) PF

Ans: a

14) The sequence of 3 figures shows a pattern. If the pattern repeats, how many marbles will there be in figure 4?



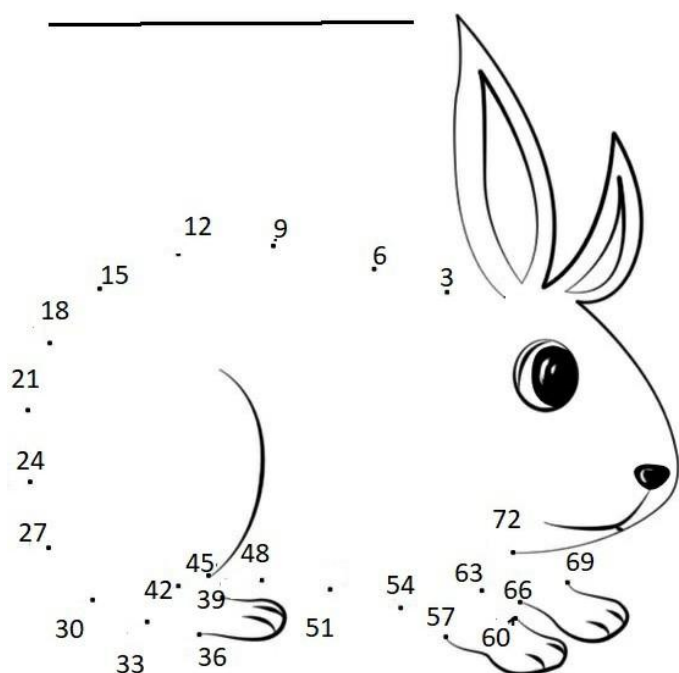
- a) 7 b) 8
c) 9 d) 10

Ans: 7

Activity Number Two: JOIN THE DOTS

Instruction to the Teacher: To hand over the sheet to the children and ask them to join the dots. After finishing the exercise, please ask them to mention the RULE.

WHAT IS THE PATTERN?



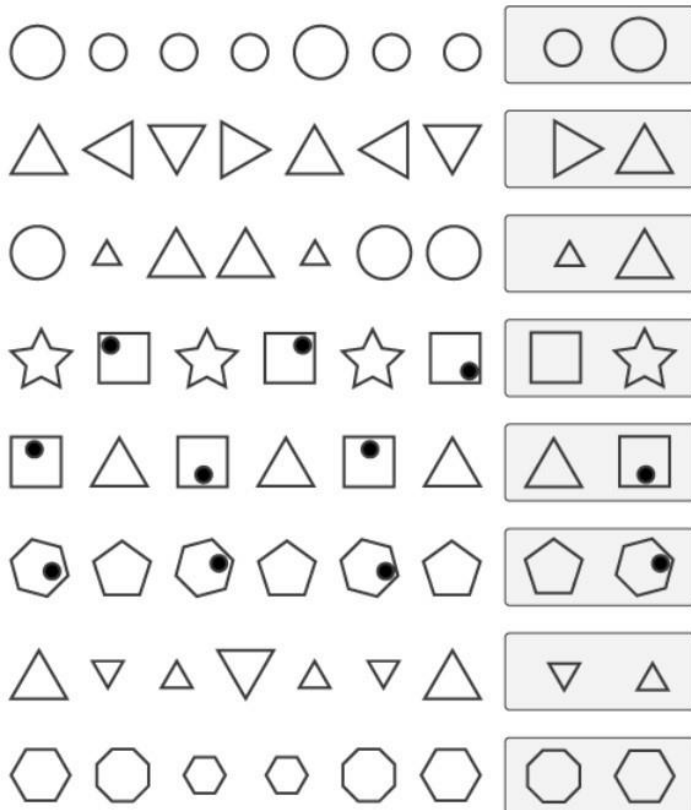
Activity Number Three : Worksheet

Instruction to the Teacher: Printed sheets to be handed over to the Students.

Shape Patterns

Name: _____ Class: _____

Look at the pattern in each row. Color the shape that continues the pattern

**Answer Sheet:**

Shape Patterns

Name: _____ Class: _____

Look at the pattern in each row. Color the shape that continues the pattern

○ ○ ○ ○ ○ ○ ○	 
△ ◁ ▽ ▷ △ ◁ ▽	 
○ △ △ △ △ ○ ○	 
☆ ◻ ☆ ◻ ☆ ◻	 
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Images: From SSSVV Portal

Rabbit - created

Time to teach	Asset Type	Theme	SubTheme
15 Minutes	Suggested Activity	Patterns	Recognising Patterns , Rec

3. MS_Introduction to Patterns

WHAT IS A PATTERN?

A pattern is a series or sequence that repeats.

We observe around us - things like colours, shapes, actions, numbers or other sequences that repeat. Think about words or melodies in songs, lines and curves on buildings, or even in the grocery store where boxes and jars of various items are lined up we observe a pattern.

But, one of the most common places to find patterns is in maths. Maths patterns are sequences that repeat

according to a rule or rules. In maths, a rule is a set way to calculate or solve a problem.

Let us recognise and identify the patterns in the following examples:

Ex.1) Find the next number in pattern.

A → C → F → J →

- A. O
- B. P
- C. N
- D. M

Ans : O

Hint: One letter is skipped between A and C, two letters are skipped between C and F, three letters skipped between F and J, hence four letters must be skipped between J and missing term. Hence after J + 4 letters (K, L, M, N) gives answer as O.

Ex.2) Find the next number in pattern.

25 → 30 → 40 → 55 →

- 1. 70
- 2. 80
- 3. 75
- 4. 65

Ans: 75

Hint: 25+(5) -- 30+(10) -- 40+(15) -- 55+(20). There fore we are adding multiples of 5.

Ex.3) Find the next number in pattern.

101 → 202 → 303 → 404 →

1. 505
2. 504
3. 606
4. 506

Ans: 505

Hint: Add 101 to the previous number.

Ex.4)

ORANGE→RANGE→RANG→ANG→_____?

1. ANG
2. AN
3. RAN
4. NG

Ans: AN

Hint: Pattern is formed by removing one letter from the front, then one letter from the end and repeating so on.

Ex.5) Complete the pattern: 234, 345, 456, 567,____, ____

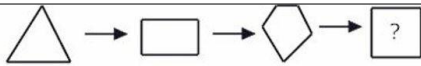
1. 678, 789
2. 567, 678
3. 678, 8910
4. 678, 698

Ans: 1

Hint: Add 111 to the previous number

OR The last two digits of the previous number is the first two digits of the next number. The third digit is the number following middle number.

Ex.6) Find the next figure in pattern.



A.



B.



C.



D.

**Ans: C****Hint: The number of sides are increasing by One.****Ex.7) Complete the pattern:**

A.



B.



C.



D.

**Ans: D****Hint: The shading is done anti-clockwise****Ex.8) Complete the pattern:**



- A. 
- B. 
- C. 
- D. 

Ans: A

Hint: Vertically Divide the box ---- Horizontally Divide the box ----- Diagonally divide the box from left down to right top ---Diagonally divide from right down to left top.

Ex.9) Complete the pattern:

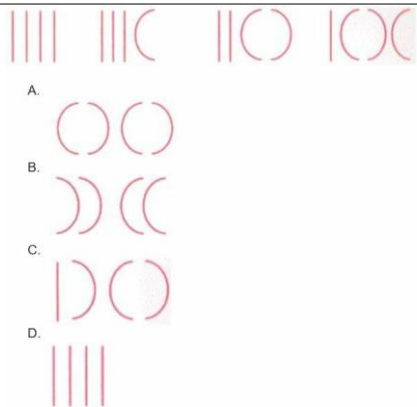


- A. 
- B. 
- C. 
- D. 

Ans: B

Hint: The ball is moving anti -clockwise touching every corner and mid-point of the box.

Ex.10) Complete the pattern:

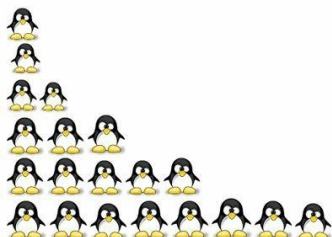


Ans: A

Hint: The last three parts of the previous figure form the first three parts of the next figure.

Ex 11:

The penguins are having a galatime! But see how disciplined they have become! They are all standing in rows that form a very interesting pattern. Can you guess the pattern these penguins are following?



Suggested Ans:

Observe the pattern.

Row 1: 1 penguin

Row 2: 1 penguin = 0 penguin + 1 penguin [in the previous 2 rows]

Row 3: 2 penguins = 1 penguin + 1 penguin [in the previous 2 rows]

Row 4: 3 penguins = 2 penguins + 1 penguin [in the previous 2 rows]

Row 5: 5 penguins = 3 penguins + 2 penguins [in the previous 2 rows]

Row 6: 8 penguins = 5 penguins + 3 penguins [in the previous 2 rows]

The penguins are forming the very famous **Fibonacci Series**! Here a number in the series is obtained by adding the previous two terms.

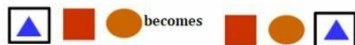
Ex:12 -In the following repeating pattern, what will be the next shape?



Ans:



Logic: When a green diamond appears in the series, the previous three shapes rotate one position left



Images-Original contribution

<https://pixabay.com/en/animal-cute-penguin-tux-160760/>

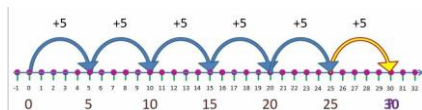
Time to teach	Asset Type	Theme	SubTheme
10 Minutes	Main Script	Patterns	Recognising Patterns , Rec

4. MS_Number Patterns

NUMBER PATTERN is a certain sequence in a series of numbers. This pattern is based on a common relationship between all numbers.

For example:

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



Here, we get the numbers in the pattern by skip counting by 5.

- Therefore to identify a number pattern we need first to find the rule being followed in the pattern.
- To find out the rule, we need to see the first few numbers in the series.
- The difference between consecutive numbers will help us understand the relationship between the

numbers.

The teacher with help of the PPT (Powerpoint Presentation attached with the asset) will discuss few common number patterns with the students.

The teacher will show the following numbers and ask the children what they observe?

8, 121, 212, 12321, 7845487

What is special about this number?

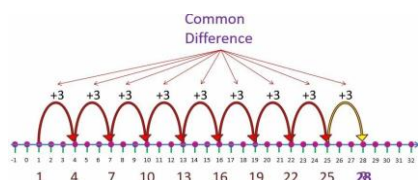
This is called a **PALINDROME NUMBER**. A palindrome number is one that remains the same on reversal. To check if a number is a palindrome or not, we reverse it and compare it with the original number, if both are the same, it's a palindrome otherwise not. We also have palindrome word and sentence.

ARITHMETIC SEQUENCE:

An Arithmetic Sequence is made by adding the same value each time.

1, 4, 7, 10, 13, 16, 19, 22, 25, ...

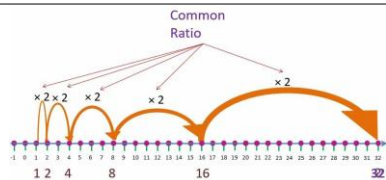
This sequence has a difference of 3 between each number. The value added each time is called the "common difference". The pattern is continued by adding 3 to the last number each time, like this:

**GEOMETRIC SEQUENCES:**

A Geometric Sequence is made by multiplying by the same value each time. What we multiply by each time is called the "common ratio".

1, 2, 4, 8, 16, 32, 64, 128, 256, ...

This sequence starts at 1 and has a common ratio of 2. The pattern is continued by multiplying by 2 each time, like this.

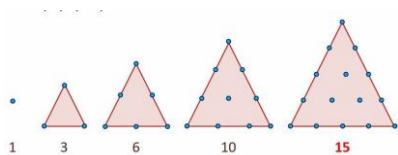


TRIANGULAR NUMBER SEQUENCE

This Triangular Number Sequence is generated from a pattern of dots that form a triangle.

By adding another row of dots and counting all the dots we can find the next number of the sequence:

1, 3, 6, 10, 15, 21, 28, 36, 45, ..



SQUARE NUMBER SEQUENCE

0, 1, 4, 9, 16, 25, 36, 49, 64, 81, ..

They are the squares of whole numbers. A SQUARE number is got when a whole number is multiplied by itself

CUBE NUMBER SEQUENCE

1, 8, 27, 64, 125, 216, 343, 512, 729, ...

They are the cubes of the counting numbers (they start at 1) A CUBE number is got when a number is multiplied two times by it self.

Example: $4 \times 4 \times 4 = 64$

FIBONACCI NUMBER SEQUENCE

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, ...

The Fibonacci Sequence is found by adding the two numbers before it together.

The 2 is found by adding the two numbers before it (1+1).

The 21 is found by adding the two numbers before it (8+13).

The next number in the sequence above would be 55 (21+34).

Can you figure out the next few numbers?

IMAGE SOURCE: SSSVV CREATIONS

Time to teach	Asset Type	Theme	SubTheme
15 Minutes	Main Script	Patterns	Number Patterns, Number P

5. QA_Guess my Rule

The teacher can show the questions to the students and ask them to explain the rule of the pattern:

Question 1:

Choose the rule for given pattern:



1. $\frac{1}{2}$ Rotation clockwise
2. $\frac{1}{4}$ Rotation clockwise
3. $\frac{3}{4}$ Rotation anticlockwise
4. No rotation.

Answer: 2

Explanation: We can see orange part moving by one fourth right side as we go along the pattern in clockwise direction.

Question 2:

Choose the Rule for the given pattern:



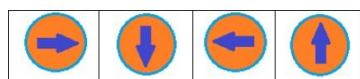
1. Add one Arm to preceding figure to get next figure of pattern.
2. Rotate preceding figure by $\frac{1}{2}$ clockwise to get next figure of pattern
3. Rotate preceding figure by $\frac{1}{4}$ anticlockwise to get next figure of pattern
4. Add two arms to preceding figure to get next figure of pattern.

Answer: 1

Explanation: we add one Arm to preceding figure we get the next Figure -Triangle = 3 arms; Square = 3 + 1 arms; Pentagon = 4 + 1 arms; Hexagon = 5 +1 arms.

Question 3:

Choose the Rule for the given pattern:



1. Rotate $\frac{1}{2}$ clockwise
2. Rotate $\frac{1}{4}$ clockwise
3. Rotate $\frac{1}{2}$ anticlockwise
4. Rotate $\frac{1}{4}$ anticlockwise

Answer: 2

Explanation: We can see the inside arrow moving by $\frac{1}{4}$ clockwise as we move along the pattern.

Question 4:

Find the rule for the given Number pattern:



A: Add 5 to preceding Number to get next number in pattern

B: Add 8 to preceding Number to get next number in pattern

C: Add 2 to preceding Number to get next number in pattern

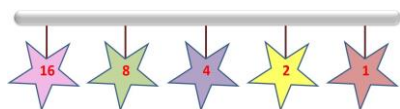
D: Add 3 to preceding Number to get next number in pattern

Answer: A

Explanation: Pattern is multiple of 5 as next number is preceding the previous number by + 5.

Question 5:

Find the rule for the given Number pattern:



A: Current number divided by 2 will be next number

B: Current number divided by 1 will be next number

C: Current number divided by 3 will be next number

D: Current number added by 4 will be next number

Answer: A

Explanation: Pattern is division by 2 as next number is, preceding number divided by 2.

Question 4:

Find the next number in sequence and state the Rule for the same.



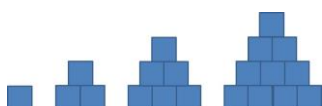
No. of Triangles	No. of Sticks used
1	3
2	6
3	9
4	?

Rule for the above is: No of matchsticks used = _____

Answer: No of matchsticks used = No of triangle X 3 = 4 X 3=12

Question 7:

Find the Rule for incrementing pyramid structure shown below:



Which pattern matches with number of boxes used to make next pyramid?

A: $0 + 1 = 1$

$1 + 2 = 3$

$3 + 3 = 6$

$6 + 4 = 10$

B: $1 \times 1 = 1$

$$1 \times 2 = 2$$

$$1 \times 3 = 3$$

$$1 \times 4 = 4$$

Answer: A.

Explanation: Adding 1, 2, 3, 4, 5 etc. to existing number of boxes will give boxes present in next pyramid.

Question 8:

Find the correct choice for missing row in the pattern given below:

$$\begin{array}{l}
 1 \times 8 + 1 = 9 \\
 12 \times 8 + 2 = 98 \\
 123 \times 8 + 3 = 987 \\
 1234 \times 8 + 4 = 9876 \\
 \boxed{ ? } \\
 123456 \times 8 + 6 = 987654 \\
 1234567 \times 8 + 7 = 9876543 \\
 12345678 \times 8 + 8 = 98765432 \\
 123456789 \times 8 + 9 = 987654321
 \end{array}$$

1. $12345 \times 8 + 5 = 98765$
2. $1234 \times 8 + 9 = 9876$
3. $123 \times 8 + 10 = 987$
4. $12 \times 8 + 3 = 98$

Answer: 1

Explanation: Adding digits incrementally to pyramid gives required pattern.

Question 9:

Find the rule and missing number from the square given below:

4	9	8
11	?	3
6	5	10

1: Sum = 21 and Number is “7”

2: Sum = 20 and Number is “8”

3: Sum = 25 and Number is “3”

4: Sum = 15 and Number is “13”

Answer :1

Explanation: Each row and column totals to 21

Question 10:

"PALINDROMES" -A palindrome is a word, phrase, verse or sentence that reads the same forward or backward.

Do the given patterns fit into the definition of palindromes?

1. M A D A M

2. M E D I U M

3. R O T A T O R

4. D A D

A: 1, 3 and 4

B: 1, 2 and 4

C: 1 and 2

D: 2 and 4

Answer: A

Explanation: Madam, Rotator and Dad can be read same from both sides.

Image Source:

https://cdn.pixabay.com/photo/2016/04/26/15/02/match-1354565_340.jpg for the Match stick

All other images are SSSVV creations.

Time to teach	Asset Type	Theme	SubTheme
10 Minutes	Assessments	Patterns	

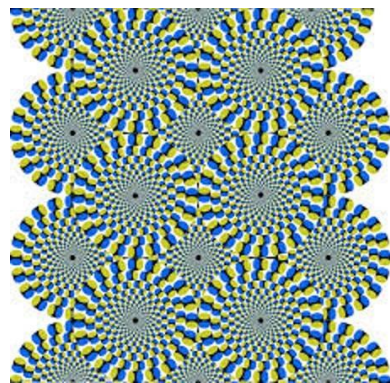
6. IA_Patterns and Optical Illusions

Do your eyes ever play tricks on you?

Sometimes we see some things that puzzle us so much that we have to rub our eyes and look again.

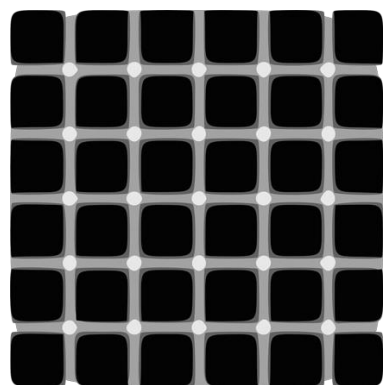
Chances are that you may have been tricked by an OPTICAL ILLUSION. Optical illusions are formed sometimes using repeated patterns.

1. Are the pinwheels moving?



No, the wheels are not turning. The Moiré effect can produce interesting and beautiful geometric patterns.

2. Count all the black dots you can see



There are no black dots. If you focus directly on each dot, you'll see that all of them are white.

3. Are the people going to fall in the ditch?



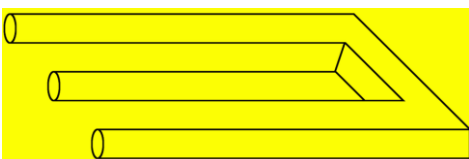
No. The road is painted like that with a three dimensional (3D) effect.

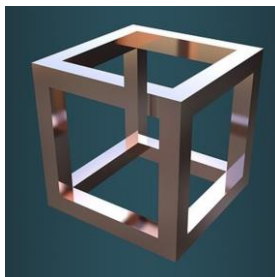
4. What do you see?



A wine glass or 2 faces or a table with a single stand.

5. What do you see?



3 pipes or 2 pipes ??????**6. What do you see?**

Cube. When you keep focusing on the edges, you see the edges interlocking.

7. What do you see?

Can you find the scenery or a face, a child and a bear sleeping?

Image Source:

<https://pixabay.com/id/vectors/ilusi-optis-pola-ilusi-geometris-5188412/>

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Time to teach	Asset Type	Theme	SubTheme
5 Minutes	Interesting Asides	Patterns	

7. SA_Pattern Building

Type of Activity: Demonstration by Students

Aim: To understand the concept of patterns through interesting classroom activities.

Resources Required: [mention quantities]

1.A 2 size Colour Sheets of four colours

- Green Sheet 2 nos.
- Blue Sheet 3 nos.
- Red Sheet 3 nos.
- Yellow sheet 3 nos.

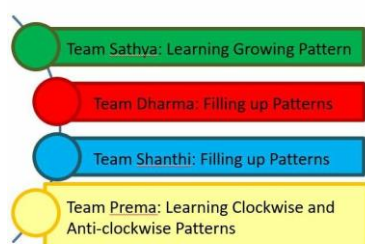
2.Chart Paper - 4 nos.

3.Crayons - all children

4.Scissors - each team four scissors

5.Glue - each team 2 tubes

Instruction: Divide the class into four teams as there are three ACTIVITIES planned.

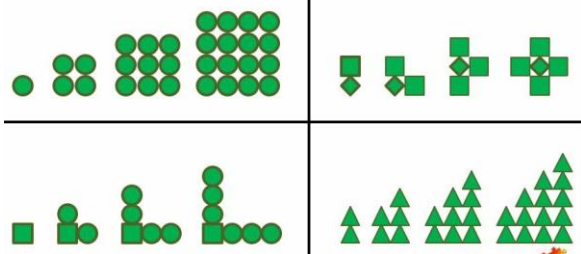


ACTIVITY I:

Team 1 : Learning Growing pattern.

Instructions:

- Hand over two sheets of one colour to the team.
- Ask the team to cut (with assistance from the teachers) circles, squares and triangles.
- Ask them to stick it on the chart paper as given below.
- Discuss the rule.

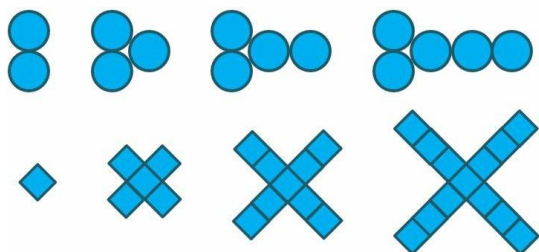
**ANSWER**

1. 1×1 ; 2×2 ; 3×3 ; 4×4 ... (1,2,3,4 multiplied by itself)
2. $1 + 0$; $1 + 2$; $1 + 4$; $1 + 6$ (1 Square+ Circles in 0,2,4,6 pattern)
3. The square moves clockwise by $1/4^{\text{th}}$
4. $(0+2)$; $(2+3=5)$ $(5+4=9)$ $(9+5=14)$ -Previous total+ 2,3,4,5

ACTIVITY II**Team 2 & 3 - Filling up Patterns**

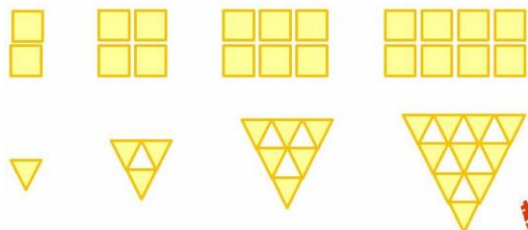
Instructions:

1. Give 3 different colour chart papers = Blue, yellow and red to both the teams.
2. Ask students of one group to use Blue chart paper for drawing and cutting out Circles and another group to draw and cut Squares.
3. Ask students of one group to use Yellow chart paper for drawing and cutting out Squares and another group to draw and cut Triangles.
4. Ask students of one group to use Red chart paper for drawing and cutting out Triangles and another group to draw and cut Circles.
5. Finally in two white chart paper ask each Team to stick the first three patterns of series given below.
6. Then ask the teams to exchange their chart paper with each other and fill in the next pattern.
7. Let them identify the Rule.



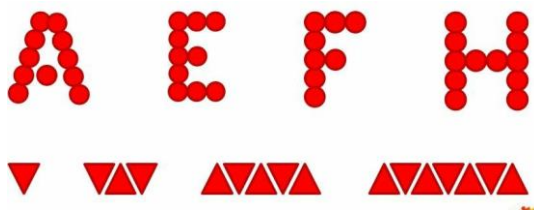
RULE:

- $(2+0)$; $(2+1)$; $(2+2)$; $(2+3)$ – 2 + 1; 2; 3; 4.....
- $(1+0)$; $(1+4)$; $(1+8)$; $(1+16)$ (1+Multiples of 4)



RULE:

- $(1+1);(2+2);(3+3);(4+4)$ – Two X number
- $(0+1);(1+2);(3+3);(6+4)$ – Previous Total+2,3,4,5...



RULE:

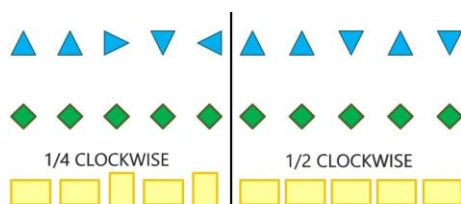
- A, E, F, H, I, K.....(alphabets with straight lines)
- $(0+1);(1+2);(2+3);(3+4)$

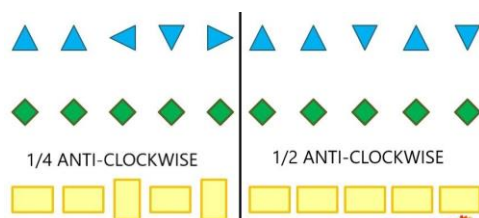
ACTIVITY III

Team 4 : Learning Clockwise and Anti clockwise patterns.

Instructions:

1. Ask students of the group to use Blue, Green and Yellow colour paper for drawing and cutting out Triangles, Diamonds, and Rectangles respectively.
2. Next in a big white chart paper ask half of the team to paste each shape of cut outs separately in the Clock wise pattern at $1/4$ turn.
3. Next, on an other white chart paper, ask the other half of the team to paste each shape of cut outs separately in the Clock wise pattern at $1/2$ turn.
4. Ask both the teams to now stick the shapes in their respective charts in an anticlockwise pattern at $1/4$ and $1/2$ turn respectively.
5. Ask them if they notice any difference in their respective charts with regard to the Clockwise and Anti-clockwise pattern.





Instructions to the Teacher:

Teacher to call one student from each team to give a brief explanation about their teams respective activity and discuss the rule with the entire class.

ACTIVITY IV: For all.

For all: Learning Number patterns.

Instructions:

1. Ask the Students to write numbers from 1 to 100.
2. Ask the students to find out various number patterns.
3. Let them highlight the different number patterns with different colours or write them down on the same sheet .
4. This can be discussed in the class by asking each child to read out their patterns.

Example:

(5,10,15,20,25.....)

(4,9,16,25,36.....)

(10,20,30,40,50.....)

Image Source: SSSVV Creations

Time to teach	Asset Type	Theme	SubTheme
15 Minutes	Suggested Activity	Patterns	

8. DD_Patterns in daily life

Teacher to ask the students if they do see patterns around them. Elicit response from them.

Here are some things the teacher can point out:

- The brick pattern on a building or home.

- **The pattern on the sidewalk or driveway.**
- **The tree rings.**
- **The patterns on a leaf.**
- **The arrangement of petals on flowers.**
- **The shadows of people, trees, buildings so on and so forth.**

So what does one understand from this?

PATTERNS are formed when Shapes, Colours, Numbers, Words, Sounds or Designs are repeated over and over again.

PATTERN IN WORDS:

I am a girl called **SUE**

Wearing a frock in **BLUE**

Carrying a picture **I DREW**

To give as a gift to **YOU**

THESE WORD PATTERNS WHICH WE COME ACROSS IN OUR DAY TO DAY LIFE ARE CALLED LIMERICKS.

PATTERN IN MATHS:

Number patterns are all about prediction. What will the 50th number of this pattern be?

3,6,9,12,.....

Even Numbers, Odd Numbers, Ascending, Descending, Ratio, Proportion etc are all examples of Patterns in Mathematics.

PATTERN IN DESIGN:

Do you know that the pattern on the Bee Hive led to the construction of Power grid?



PATTERNS IN THE SKY:



PATTERNS ON THE GROUND BELOW:



PATTERN IN ART & CRAFT:



PATTERNS IN CLOTHING:

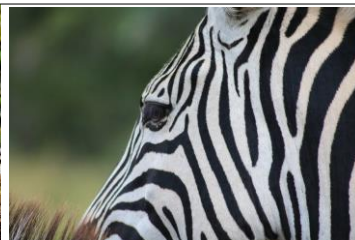


PATTERNS IN FOOD:



PATTERNS IN ANIMAL AND PLANT KINGDOM:



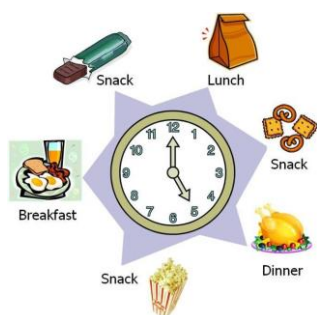


PATTERNS IN SPORTS:



PATTERNS IN BEHAVIOUR / HABITS

EATING PATTERN



Wash Your Hands After...



DAILY ROUTINE**Image Source:**

<https://pixabay.com/photos/bees-honey-insect-honeybees-bee-5433299/>

<https://pixabay.com/photos/electrical-power-distribution-4473108/>

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<https://fitnessrealitycheck.wordpress.com/2014/02/27/the-science-behind-meal-frequency-how-many-daily-meals-should-you-eat/>

<https://in.pinterest.com/pin/322288917056213309/>

<https://medium.com/@philmicrohels/how-to-create-a-healthy-routine-for-your-baby-aaba27045>

Time to teach	Asset Type	Theme	SubTheme
5 Minutes	Day-to-day Relevance	Patterns	

9. IA_Magic Corner

MAGIC SQUARE 3X3

We notice the The teacher first discusses the Magic Square given in the text book. In the book, few boxes in the MAGIC SQUARE are filled and children have to fill in the rest.

Now the Teacher gives the students a situation where in they are given 9 consecutive numbers and are told to create a MAGIC SQUARE.

The teacher with the help of the PPT (Powerpoint Presentation attached with the asset) can demonstrate to th class how a MAGIC SQUARE is created with any 9 consecutive numbers.

In the example discussed, 9 numbers listed are 12, 13,14,15,16,17,18,19,20.

First we determine the row/column total of the MAGIC SQUARE for the enlisted number.

This is derived by taking the middle number from the 9 numbers that is listed in an ascending order.

In this example, the middle number is 16.

The middle number X 3 will be the total of all the rows, columns and diagonals.

In this example, it will be $16 \times 3 = 48$.

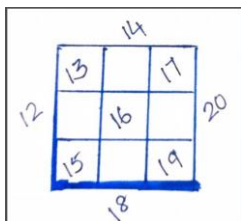


Fig. 1

First arrange the numbers diagonally as shown in Figure 1.

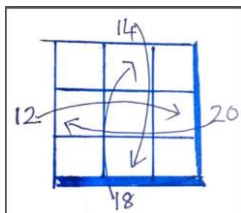


Fig. 2

Letting the numbers sitting inside the squares be as it is, move the numbers outside the square into the boxes as shown in Figure 2.

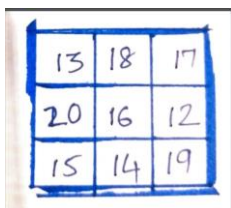
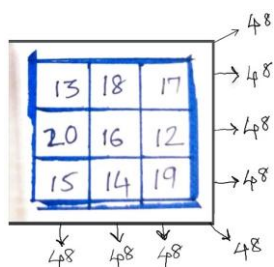


Fig.3

After putting the numbers in the boxes, the MAGIC SQUARE looks like in Figure 3.

**Fig 4.**

Total of the numbers in the rows, columns and diagonals total to 48.

Once this is demonstrated, teacher can give series of 9 consecutive numbers to the class and ask the class th students to walk up to the board and fill in the boxes as shown in steps.

IMAGE SOURCE: SSSVV Creations.

Time to teach	Asset Type	Theme	SubTheme
10 Minutes	Interesting Asides	Patterns	

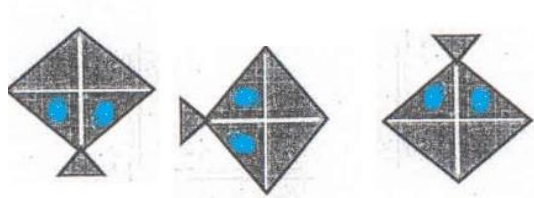
10. QA_Exercise on Patterns

Question 1: One of the following words has the same mirror image?

1) ROW 2) SIP 3) BOW 4) WOW

Ans : WOW

Question 2: Draw and continue the pattern by making a $\frac{1}{4}$ th turn in the clockwise direction

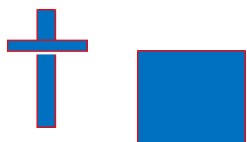


Ans :



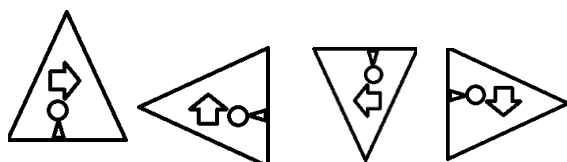
Question 3: How many line/lines of symmetry can be drawn for these shapes?

Hint: Line of Symmetry is a line which divides the shape into two identical parts.



Ans : a---1, b---4

Question 4 :



The above pattern will look the same

a. After half a turn

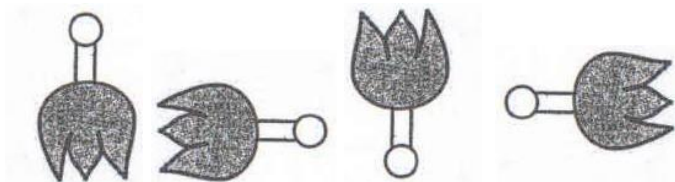
b. After a 360° turn

c. After 45° turn

d. After $3/4^{\text{th}}$ turn

Ans: b

Question 5 : Tick the appropriate underlying rule----



1. the pattern- flower is moving a $1/4$ turn in the anticlockwise direction
2. the pattern- flower is moving a $1/2$ turn in the anticlockwise direction
3. the pattern- flower is moving a $1/4$ turn in the clockwise direction
4. the pattern- flower is moving a $1/2$ turn in the clockwise direction

Ans: 3

Question 6 :

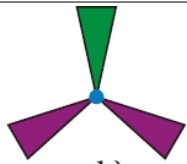
IOI, IO4, 8, III, IIII

1. All the numbers remain same on $\frac{1}{2}$ a turn
2. All the numbers remain same on $\frac{1}{4}$ turn
3. All the numbers except 104 remain same on $\frac{1}{2}$ a turn
4. All the numbers except 8 remain same on $\frac{1}{4}$ a turn

Ans: 3

Question 7 :

Draw the fan after its $1/3$ turn



Ans : Left blade of the fan will be of green colour. Other two blades will be of purple.



Question 8 :

$$1 + 3 + 5 = ? = ? \times ?$$

1. Sum of the 3 odd numbers is the multiplication of that number
2. Sum of the 3 even numbers is the multiplication of that number
3. Sum of the first 3 odd numbers is the multiplication of 3
4. Sum of the first 3 even number is the multiplication of 3

Ans: 3

Question 9 : A new cookbook is becoming popular. The local bookstore ordered 1 copy in June, 2 copies in July, 4 copies in August, and 8 copies in September. If this pattern continues, how many copies will the bookstore order in November?

Hint: June - 1; July - 2; August - 4; September - 8; October - 16; November - 32

Ans : 32

Question 10 : Missing number in this sequence?

3, 9, _____, 81, 243, _____

Hint: Multiplying by 3

Ans : 27, 729

Question 11 : One triangle needs 3 rods, 2 triangles need 5 rods. How many rods are needed to have a pattern of 5 triangles ?

Ans : 11



Question 12: Which pattern matches the below-

749749749

551551551	855855855
263263263	585858585

Ans: 263263263

Image Source: SSSVV creations.

Time to teach	Asset Type	Theme	SubTheme
15 Minutes	Assessments	Patterns	Recognising Patterns , Rec

11. VC_Set your daily pattern with good habits

Set your daily pattern with good habits

Nature follows a regular pattern. Just imagine what would happen if the sun rose only at 10 A.M. Also in daily life what would happen if mother did not wake up on time, father did not fill petrol in his bike, and everyone did as they pleased? There would be utter confusion and chaos.

Therefore children! Always set a regular pattern to do things on time in a disciplined manner. If not, you will find yourself like Mohan in this story:

Mohan was a very lazy boy. He would not do anything on time, be it waking up in the morning or doing any of his daily tasks. His mother found it difficult to wake him from his sleep every day. She used to shout repeatedly “Mohan, wake up. Its time to go to school.” Mohan would pretend that he did not hear her and would pull the blanket over for that extra sleep.

By the time he got up, it was time for the school bus to arrive. His mother used to hurriedly help him brush, have a bath and have breakfast before boarding the bus.

In the evenings, after coming back from school, despite his mother reminding him to be back home from play on time to finish his homework, he would keep playing till late and would end up skipping some homework.

One day his mother decided not to wake him up. He slept till 9.30 in the morning. When he woke up, he realised that the school would have started. He was to conduct the morning assembly with his friends that day. He was in panic. He ran to his mother and told with tears in his eyes, “Why didn’t you wake me up? I would miss my assembly sessions today. My teacher and principal would punish me. Please take me to school and talk to the Principal.”

His mother took him to school. By that time assembly was over and children had settled down for routine classes. His mother told the truth to the Principal why he missed the assembly. Principal told Mohan, “You know, all your friends have got prize for conducting the assembly very well. You missed it.”

Mohan realised his mistake and hung his head. With tears in his eyes, he told his mother and Principal, “I am really sorry. I promise that I will wake up every day on time and I will do my entire daily task without mother having to remind me to do it.”

Story : SSSVV Creations

Time to teach	Value Type	Value Sub Type	Value Attribute
20 Minutes	Right Action		Stories

12. MS_Can you see the Pattern - Summary

SUMMARY:

- **Patterns are formed when a series of numbers, colours, shapes, actions, or others repeat in a certain sequence.**
- **These patterns are governed by a rule.**
- **Therefore, to identify a pattern we need to first find the rule being followed in the pattern.**

- **To find out the rule, we need to see the relationship between first few elements in the series.**
- **The difference between consecutive elements will help us understand the relationship between the numbers.**
- **Based on the above, patterns can be further built.**
- **Patterns are seen everywhere in daily life.**
- **Certain patterns cause optical illusion.**
- **Learnt to make a 3 X 3 Magic Square when a series of nine consecutive numbers are given.**
- **It is important to follow a disciplined pattern in life to succeed.**

Time to teach	Asset Type	Theme	SubTheme
10 Minutes	Main Script	Patterns	