

# Play With Patterns

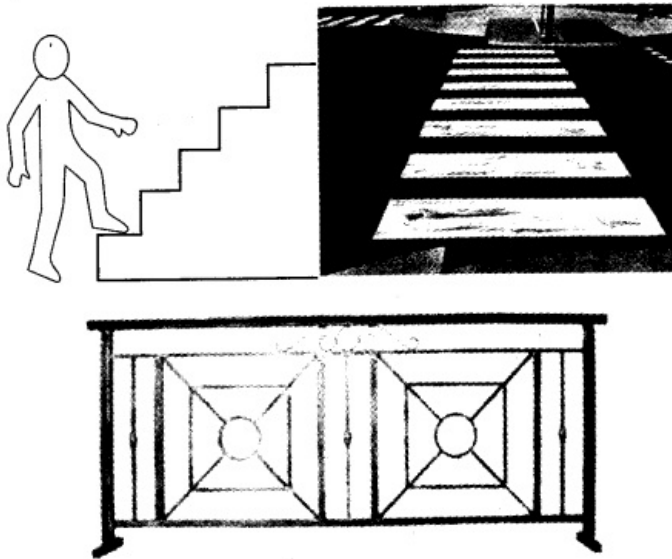
## Around Us

1. Look around you and list three things in which you find some patterns.

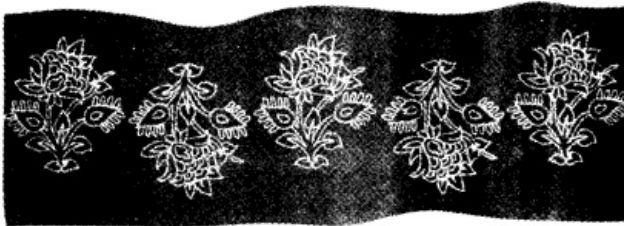
Ans. Staircase, Zebra crossing, Railing in a balcony.

2. Draw some patterns which you have found around yourself.

Ans.



3. Can you see a pattern in the way each block is repeated?



Ans. Yes, I can see that one block is placed upwards and the next is placed downwards.

## Practice Time

Given below are some patterns.

1. Figure out the rule for each and continue the pattern.

**Ans.** (a) In this pattern; the colour of the pot changes from red to blue and then to red at each step.

(b) In this pattern A is written twice, followed by B written once.

AABAABAAB

(c) In this pattern; the number of petals increases from 1 to 3 and to 5. After that this sequence is repeated.

(d) In this pattern the blue colour is moving anticlockwise in steps of one.

(e) In this pattern; the figure is rotating clockwise in steps of one.

(f) In this pattern; the sequence of morning, afternoon, evening and night is repeated.

Morning, Afternoon, Evening, Night, Morning, Afternoon, Evening, Night

## Growing Patterns

1. Can you see the rule and continue the pattern?

**Ans.** In this pattern; the number of marks in the oval is growing by one. After halfway mark the figure gets inverted.

## Number Patterns

1. We have made some patterns with pictures. We can make patterns with numbers too. Like 21, 41, 61, 81, 101, 121

You know the next number, don't you?

This series is growing by 20.

21, 41, 61, 81, 101, 121, 141, 161, 181,

A. Look for the rules and continue these growing patterns:

(a) 51, 56, 61, 66, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

(b) 7, \_\_\_\_\_, 21, 28, 35, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

(c) 2, 4, 8, 16, 32, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

(d) 12 A, 13 B, 14 C, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

**Ans.** (a) 51, 56, 61, 66, 71, 76, 81, 86

(b) 7, 14, 21, 28, 35, 42, 49, 56

(c) 2, 4, 8, 16, 32, 64, 128, 256

(d) 12 A, 13 B, 14 C, 15 D, 16 E, 17 F.

B. Look at these growing patterns. Find out what to add to each number to get the next one.

(a) 1, 3, 6, 10, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

(b) 0, 2, 6, 12, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

(c) 1, 3, 7, 13, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

(d) 2, 3, 6, 11, 18, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

**Ans.** (a) Following sequence is observed in this pattern:

$$1 + 2 = 3 \quad 3 + 3 = 6 \quad 6 + 4 = 10$$

The number which is added in each step is growing by 1 Hence the pattern is as follows:

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

(b) Following sequence is observed in this pattern:

$$0 + 2 = 2 \quad 2 + 4 = 6 \quad 6 + 6 = 12$$

The number which is added in each step is growing by 2.

Hence the pattern is as follows:

0, 2, 6, 12, 20, 30, 42, 56, 72

(c) Following sequence is observed in this pattern:

$$1 + 2 = 3$$

$$3+4=7$$

$$7 + 6 = 13$$

The number which is added in each step is growing by 2 Hence the pattern is as follows:

1, 3, 7, 13, 21, 31, 43, 57, 73 '

(d) Following sequence is observed in this pattern:

$$2 + 1 = 3$$

$$3 + 3 = 6 \quad 6 + 5 = 11 \quad 11 + 7 = 18$$

The number which is added in each step is growing by 2 Hence the pattern is as follows:

2, 3, 6, 11, 18, 27, 38, 51, 66

### Secret Messages

Amrita and Paritosh are writing secret messages:

3W3H3E3R3E 3A3R3E 3Y3O3U

3 I3 N 3T3H3E 3C3A3N3T3E3E3N

1.Can you tell what they are trying to say?

**Ans.** Following are the secret messages:Where are you?

In the canteen

3.There are two secret messages. Look at the patterns and find the hidden sentences.

112L204V5E6Y708U

**Ans.** The message is:I LOVE YOU

4.ATBHCIDSEBFOGOHKIJSKFLUMN

**Ans.** The message is:

THIS BOOK IS FUN

5.Now you also make your own secret messages.

**Ans.** 1 I 2 L 3 O 4 V 5 E 6 I 7 N 8 D 9 I 10 A I LOVE INDIA

AMBACNDMEOFHGAHNILJIKVLEMSNAOTPDQERLS

HTI

MANMOHAN LIVES AT DELHI

### Even and Odd Number Patterns

91	92	93	94	95	96	97	98	99	100
81	82	83	84	85	86	87	88	89	90
71	72	73	74	75	76	77	78	79	80
61	62	63	64	65	66	67	68	69	70
51	52	53	54	55	56	57	58	59	60
41	42	43	44	45	46	47	48	49	50
31	32	33	34	35	36	37	38	39	40
21	22	23	24	25	26	27	28	29	30
11	12	13	14	15	16	17	18	19	20
1	2	3	4	5	6	7	8	9	10

Half these numbers are in yellow. What patterns do you see in these numbers? Continue the same pattern and fill in the blanks:

96, 98, 100, 102, 104, 106, 108, 110, 112, 114

1. How far can you continue this pattern?

Ans. This pattern can be continued endlessly.

These numbers have a special name. They are called even numbers.

2. Do any of these even numbers end with 3 or 5?

Ans. None of the even numbers end with 3 or 5.

3. What do even numbers end with?

Ans. Even numbers end with 2, 4, 6, 8 or 10.

4. Look at the pattern of numbers in blue. Continue the pattern and fill in the blanks.

Ans. 99, 101, 103, 105, 107, 109, 111, 113, 115

5. What do the numbers in blue end with?

Ans. The numbers in blue end with 1, 3, 5, 7 or 9.

6. Write all odd numbers between 400 and 410.

Ans. 401, 403, 405, 407, 409.

7. Write all even numbers between 155 and 165.

Ans. 156, 158, 160, 162, 164.

8. If we add 1 to any odd number we get an ---- (even/odd) number.

Ans. If we add 1 to any odd number we get an even number.

9. If we add 1 to any even number we get an ---- (even/odd) number.

Ans. If we add 1 to any even number we get an odd number.

10. What do you get if you add an even number to an odd number?

Ans. Odd number.

### Names in an Order

Adil has to arrange this list so that the names starting with A comes first and then come those with B, C, D and so on. Number these names in the order in which they will come.

Sharada	11	Mahadevan	8
Tsering	12	Adil	1
Gurinder	4	Baichung	2
Harsha	5	Raja	10
Narayan	9	Kavita	7
Warsha	13	Elvis	3
Jalaj	6		

Jalaj is proud to have a special name. He says if you read it backwards it is still the same.

1. Which of the following names have the same pattern?

Harsh, Anna, Kanak, Munna, Ongbi

Ans. Anna and Kanak.