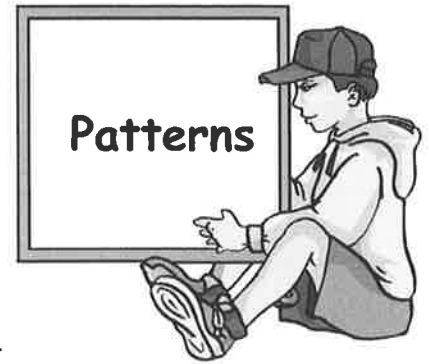


# CHAPTER 15



## Exercise 1

1. Show the next **two** drawings in each of these patterns :-

**a**

**b**

**c**

2. Copy each pattern of letters and find the **next** letter/s in the pattern.

- |                              |                                  |
|------------------------------|----------------------------------|
| <b>a</b> C, E, G, I, K, ...  | <b>b</b> B, E, H, K, N, ...      |
| <b>c</b> U, T, S, R, Q, ...  | <b>d</b> ab, bc, cd, de, ...     |
| <b>e</b> za, yb, xc, wd, ... | <b>f</b> pqr, prs, pst, ptu, ... |

## Exercise 2

1. Describe each of the following sequences by saying :-

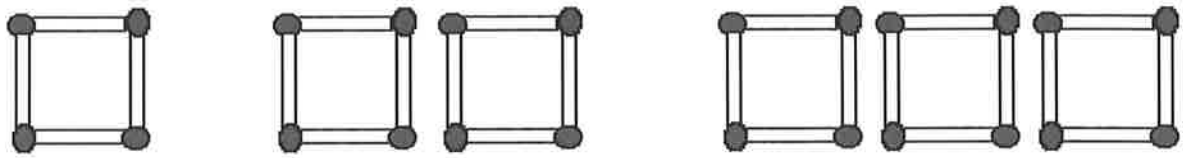
"Begin at the number "...." and go up (down) by "...." each time".

- |  |                                      |
|--|--------------------------------------|
| <b>a</b> 2, 5, 8, 11, 14, ...              | <b>b</b> 5, 9, 13, 17, 21, ...       |
| <b>c</b> 2, 8, 14, 20, 26, ...             | <b>d</b> 9, 19, 29, 39, 49, ...      |
| <b>e</b> 76, 81, 86, 91, 96, ...           | <b>f</b> 3, 4.5, 6, 7.5, 9, ...      |
| <b>g</b> 14, 16, ..., 20, 22, ..., 26, ... | <b>h</b> 102, 99, 96, 93, ...        |
| <b>i</b> 83, 72, 61, 50, ...               | <b>j</b> 4300, 4100, 3900, 3700, ... |

2. Write down the next **three** numbers in this sequence :-


1, 5, 6, 11, 17, ..., ..., ...

3. Look at this pattern made with matches.



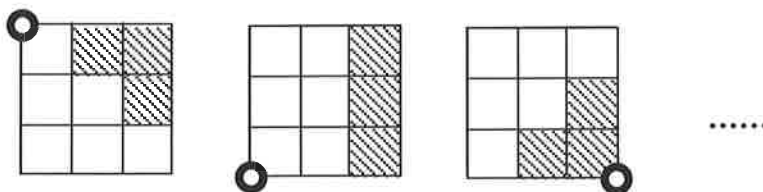
- Draw the pattern showing the matches needed for 4 squares.
- The pattern for the number of matches needed is 4, 8, 12, ..., ....  
Copy this **sequence** and fill in the next 3 numbers.
- Copy the following and complete :-  
"Start with 4 matches for 1 square and add ... matches for each extra square".
- How many matches will there be with 7 squares ?
- How many matchstick heads will there be with 7 squares ?
- If a matchstick head was also placed in the centre of each square, how many matchstick heads in total will there be with 10 squares ?

### Exercise 3

- Write down the first eight **square** numbers.
- Which of these numbers are **square** numbers :-  
81, 94, 98, 100, 110, 120, 121, 136, 144, 400, 1000, 1600 ?
- Write down the first five **triangular** numbers.
- What is the seventh **triangular** number ? 
- Which of these numbers are **triangular** numbers :-  
4, 10, 20, 21, 28, 32, 36, 40, 44, 45, 50, 55 ?

### Revision Exercise

- Copy the first 3 drawings in this pattern.



- Draw the 4th pattern.

2. a Very carefully, describe the following pattern :- 12, 19, 26, 33, 40, ...  
 b Write the next 3 terms of the pattern.

3. a Describe this pattern in a similar way :- 92, 84, 76, 68, ...  
 b Write the next 3 numbers in this pattern.

4. Describe each of the following number patterns carefully and write down the next **three** numbers each time :-

a 11, 16, 21, 26, 31, ...

b 1, 16, 31, 46, 61, ...

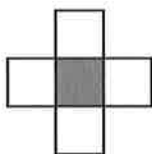
c 81, 74, 67, 60, ...

d 1·8, 3·1, 4·4, 5·7, 7·0, ...

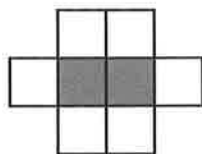
5. Find the next 3 letters in this pattern :-

A B C D F G H I K L ..... .....

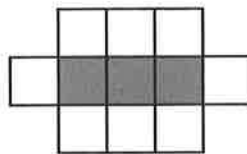
6. A tiler lays tiles using the following pattern :-



1 grey tile  
4 white tiles



2 grey tiles  
6 white tiles



3 grey tiles  
... white tiles

.....

4 grey tiles  
.....

- a Draw (neatly) pattern numbers 4 and 5.  
 b Copy and complete this table :-

Grey tiles	1	2	3	4	5	6
White tiles	4	...	...	...	...	...



- c Describe carefully how the pattern is formed.  
 d Use the description to find how many white tiles are needed if he uses 20 grey tiles.

7. Write down all the **square** numbers that lie between 45 and 85.

8. Write down all the **even triangular** numbers that lie between 8 and 40.