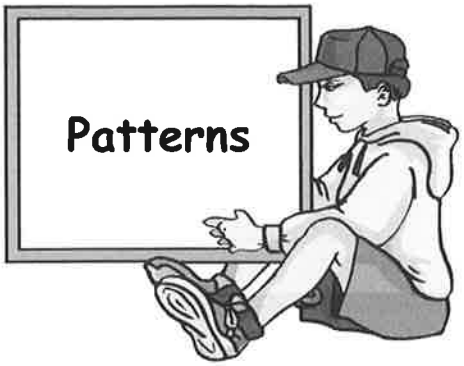
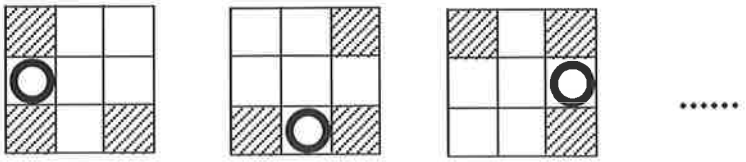
CHAPTER 14



Consolidation

1. Draw the **4th** pattern in this sequence.



2. **a** Describe this pattern in words :- 4, 19, 34, 49, ..., ...

   b Write down the next **two** terms of the pattern.

3. Describe each of these patterns **and** write down the next **two** terms each time :-

   a 3, 11, 19, 27, 35, ...

   b 2, 20, 38, 56, ...

   c 91, 82, 73, 64, ...

   d 1, 4, 9, 16, 25, ...

4. Write down the next **two** letters in these patterns :-

   a B, E, H, K, ...

   b W, T, Q, N, ..., ...

5. Write down :- **a** the 10th square number **b** the 30th square number.

Exercise 1

1. Copy and complete the table which shows the number of legs on ants.

No. of Ants (A)	1	2	3	4	5	6
No. of Legs (L)	6	12	?	?	?	?

   a Copy and complete :- **number of legs** = ... x the number of ants.

   b Write a formula using symbols connecting L and A.

   c Use your formula to find the total number of legs on 20 ants.

2. Copy and complete the table which shows the number of strawberries in a sundae.

No. of Sundaes (s)	1	2	3	4	5	6
No. of Strawberries (S)	15	30	?	?	?	?

   a Write a formula using symbols connecting S and s.

   b Use your formula to find the number of strawberries needed for 40 sundaes.

3. For the three tables below, find formulae (or rules) connecting the two letters :-

a

No. of Magazines (M)	1	2	3	4	5	6
No. of Pages (P)	40	80	?	?	?	?

P = ... × ....

b

No. of Burgers (B)	1	2	3	4	5	6
Cost in pence (C)	75	150	?	?	?	?

C = ... × ....

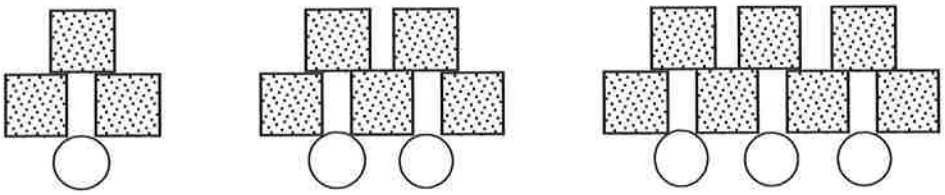
c

No. of Boxes (B)	3	4	5	6	7	8
No. of Hankies (H)	360	480	?	?	?	?

H = ... × ....

Exercise 2

1. Here is a pattern made with squares and circles.



1 circle
3 squares

2 circles
5 squares

3 circles
7 squares

a Draw the next pattern of squares and circles.

b Copy the following table and complete it :-

No. of Circles (C)	1	2	3	4	5	6
No. of Squares (S)	3	5	7	?	?	?

c Write a formula using symbols connecting S and C. S = ... × C + ...

d Use your formula to find how many squares are needed for 50 circles.

2. This table shows the cost of hiring a vacuum cleaner for a few days :-

No. of days hired (D)	1	2	3	4	5	6
Cost in £'s (C)	9	14	19	24	?	?

a How much will it cost to hire the cleaner for **(i)** 5 days **(ii)** 6 days ?

b How much **extra** does it cost for each additional day of hire ?

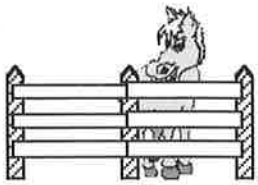
2. c Write down the formula for determining the cost of hiring the vacuum cleaner.

C = ... × D + ...

d How much will it cost to hire the cleaner for a fortnight ?

3. Shown below are two tables of values connecting pairs of letters.

Write down a formula or rule connecting the second letter in the table to the first letter.



a

Buses (B)	1	2	3	4
Cars (C)	45	85	125	165

C = ...

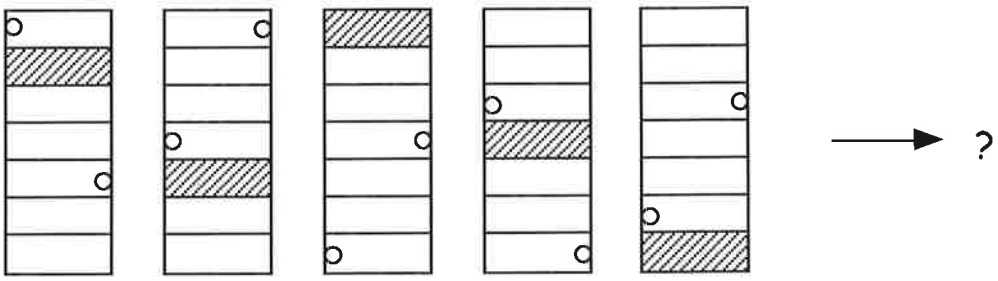
b

Fence Posts (P)	2	3	4	5
Boards (B)	3	6	9	12

B = ...

Revision Exercise

1. Draw the next shape in this pattern.



2. Write down the next **three** numbers in each of these sequences :-

a 3, 9, 15, 21, ..., ..., ...

b 86, 74, 62, 50, ..., ..., ...

c 3200, 1600, 800, ..., ..., ...

d 8, 11, 15, 20, ..., ..., ...

3. Write down all the square numbers between 48 and 122.

4. An amateur referee's fees are shown in the table below.

No. of Games (G)	1	2	3	4	5
Fees in £'s (F)	20·50	41·00	61·50	?	?

a How much will a referee have after :- **(i)** 4 games **(ii)** 5 games ?

b Write a formula connecting F and G using symbols.

c Use your formula to find how much a referee will have earned after 10 games.

d A referee's total fees for a season was £410. How many games had he refereed ?

5. A plumber bills his customers with an initial call out charge plus an hourly rate.
Examples of his charges are shown in the table :-

No. of Hours (H)	1	2	3	4	5	6
Charge in £'s (C)	46	56	66	?	?	?

a How much will it cost to call out the plumber for 4 hours ?

b How much extra does he charge for each additional hour ?

c Write down the formula for determining the cost of calling him out :-

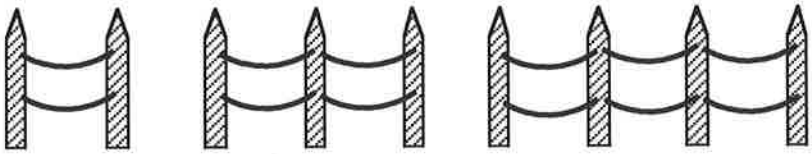
C = ... x H + ...

d What is his call out fee ?

e What does he charge for a job lasting 8 hours ?

f One job had to be done over 3 days, the total bill coming to £236.
How many hours did this job take ?

6. A fence is made using strips of wire and posts.



2 posts
2 strips

3 posts
4 strips

4 posts
6 strips

a Copy and complete the table below.

No. of Posts (P)	2	3	4	5	6	7
No. of Strips (S)	2	4	6	?	?	?

b Write down a formula linking S and P. S = ... x P - ....

c How many strips of wire would you need if you had 10 posts ?

d How many posts would you need if you had 98 strips of wire ?

7. Shown below are two tables of values connecting pairs of letters.
Write down a formula connecting the second letter to the first letter.

a

P	1	2	3	4
M	10	25	40	55

b

H	1	2	3	4
F	10	14	18	22