YEAR 3

1. There are 36 rooms in the council building. Each floor has 6 rooms. How many floors are there?
2. Write a number sentence to match this problem.

3. Find the missing numbers in the following sequence.

Number of floors (T)	1	2	3	4	5	6
Number of rooms (N)	6	12	18			
Difference						

4. Write a rule to explain the relationship between the number of floors and the number of rooms (for example, for each floor, you add … because …)

Extension
5. Write the additive rule for this sequence.

6. If this pattern continued, how many rooms would there be if the building was:
   ▶ 10 floors
   ▶ 15 floors
   ▶ 50 floors
7. Explain the strategy you used to find the answer.

The council wants to build additional rooms. However, because of shadowing, the building must get smaller as it gets higher. Due to town planning laws, it cannot be higher than 11 floors.
8. Complete the missing numbers below to work out how many rooms will be added with each additional floor.

Number of floors (T)	6	7	8	9	10	11
Number of rooms (N)	36	41	45			51
Difference						

9. Describe the pattern you see.

10. The council wants an additional 15 rooms. How many additional floors will the council have to build?
11. Explain the strategy you used to find the answer.

YEAR 4

1. There are 36 rooms in the council building. Each floor has 6 rooms. How many floors are there?
2. Write a number sentence to match this problem.

3. Find the missing numbers in the following sequence.

Number of floors (T)	1	2	3	4	5	6
Number of rooms (N)	6	12	18			
Difference						

4. Use words to write the multiplicative rule for the sequence

5. Use symbols to write this rule.

6. Use this rule to calculate how many rooms there would be if there was:
   ▶ 10 floors
   ▶ 15 floors
   ▶ 50 floors
   ▶ 100 floors
7. Show your working.

8. The council wants to build additional rooms. However, because of shadowing, the building must get smaller as it gets higher. Due to town planning laws, it cannot be higher than 11 floors. Complete the missing numbers below to work out how many rooms will be added with each additional floor.

Number of floors (T)	6	7	8	9	10	11
Number of rooms (N)	36	41	45			51
Difference						

9. The council wants an additional 15 rooms. How many additional floors will the council have to build?
10. Explain the strategy you used to find the answer.
11. Find the next two terms in the following sequences
    ▶ 1, 2, 4, 8
    ▶ 3, 6, 12, 24
    ▶ 1, 3, 9
    ▶ 2, 4, 8
    ▶ 10, 100, 1000
12. Describe in words how to go from one number to the next number.
13. Either:
    ▶ Organise this information in a table
      Or
    ▶ Write a rule using symbols
14. For each of these sequences, work out the value of the 10th term in the sequence. Show your working and explain the strategy you used.