Planner

Types of number

- Finding multiples of a number
- Finding all of the factors of a number
- Finding all of the prime numbers less than 100
- Finding square numbers

Keywords

You should know

explanation 1

1 Here are the first five multiples of 2.
2, 4, 6, 8, 10

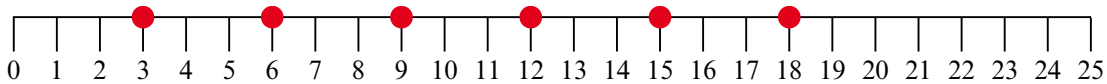
a Write the next five multiples of 2.

b What is another name for the multiples of 2?

c Is 40 a multiple of 2? How do you know?

d Is 45 a multiple of 2? How do you know?

2 The red dots on this diagram show the first six multiples of 3.



a What is the difference between any multiple of 3 and the next multiple of 3?

b What are the next two multiples of 3 after 18?

c What is the tenth multiple of 3?

d What is the hundredth multiple of 3?

3 **a** Write the first ten multiples of 4.

b Write the first ten multiples of 6.

c **i** Which numbers from your lists are multiples of 4 and multiples of 6?

ii Describe this set of numbers.

4 **a** Write the first ten multiples of 5.

b Write the first ten multiples of 8.

c **i** Which numbers from your lists are multiples of 5 and multiples of 8?

ii Describe this set of numbers.

5 Describe each of the following statements as true or false.

Give a reason for each answer.

a 88 is a multiple of 8.

b 12 is a multiple of 2 and a multiple of 3.

c 18 is a multiple of 4.

d 6 is a multiple of 12.

***e** Any multiple of 4 is also a multiple of 2.

***f** Any multiple of 3 is also a multiple of 6.

explanation 2 online

6 Give a reason to explain why each of these statements is true. The first one has been done for you.

a 3 is a factor of 15 $3 \times 5 = 15$

b 8 is a factor of 32

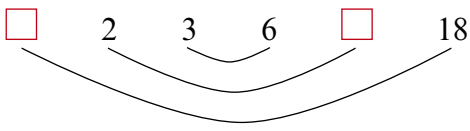
c 9 is a factor of 27

d 25 is a factor of 100

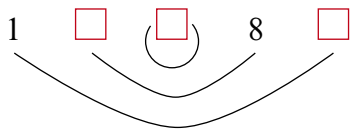
e 7 is a factor of 28

f 9 is a factor of 45

7 Copy and complete this diagram to show the factor pairs of 18.



8 Copy and complete this diagram to show the factor pairs of 16.



9 Draw a diagram to show the factor pairs of these numbers.

a 20 **b** 24 **c** 32 **d** 27

10 **a** List all the factors of 30 (there are 8 of them).

b List all the factors of 45 (there are 6 of them).

c Which numbers from your lists are factors of 30 and factors of 45?

11 **a** List all the factors of 60 (there are 12 of them).

b List all the factors of 40 (there are 8 of them).

c Which numbers from your lists are factors of 60 and factors of 40?

explanation 3 online

12 The Sieve of Eratosthenes is a way to find prime numbers.

You will need a copy of a 100-square.

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

a Cross out 1 because it is not a prime number.

b Circle 2 and then cross out all of the multiples of 2.

c The next number that is not crossed out is 3.
Circle 3 and then cross out all of the multiples of 3.

d The next number that is not crossed out is 5. Circle 5 and then cross out all of the multiples of 5.

e Continue like this until you cannot circle any more numbers.
You have found all of the prime numbers less than 100.

f List all of the prime numbers that are less than 100.

13 **a** Why is 3 a prime number?

b Why is 6 not a prime number?

c Why is 1 not a prime number?

d Why is 2 the only even prime number?

***14** Find a pair of prime numbers that add together to make these numbers.

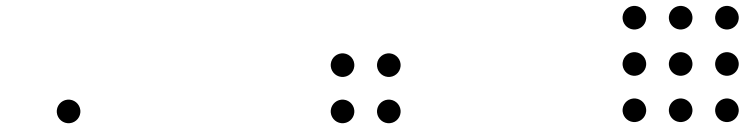
a 12 **b** 16 **c** 24 **d** 30

***15** Find a pair of prime numbers that multiply together to make these numbers.

a 21 **b** 55 **c** 26 **d** 35

explanation 4

16 Here is a sequence of diagrams showing the square numbers 1, 4 and 9.



$1^2 = 1 \times 1 = 1$ $2^2 = 2 \times 2 = 4$ $3^2 = 3 \times 3 = 9$

a Copy and continue the pattern to show the next two square numbers.

b Copy and complete the table.

Number	1	2	3	4	5	6	7	8	9	10	11	12
Number squared	1^2	2^2	3^2									
Square number	1	4	9									

17 Work these out.

a $7^2 + 1^2$ **b** $3^2 + 4^2$ **c** $8^2 - 4^2$ **d** $10^2 - 7^2$