Varied Fluency
Step 5: Square Numbers

National Curriculum Objectives:

Mathematics Year 5: (5C5d) Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)
Mathematics Year 5: (5C8a) Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes

Differentiation:

Developing Questions to support identifying and calculating square numbers up to 12 x 12 using pictorial representations for each question. Each question includes the full calculation including the notation for squared.
Expected Questions to support identifying and calculating square numbers up to and including 12 x 12 using numbers and pictorial representations for some questions.
Greater Depth Questions to support identifying and calculating square numbers up to and including 12 x 12 using numbers and words.

More Year 5 Multiplication and Division resources.

Did you like this resource? Don't forget to review it on our website.

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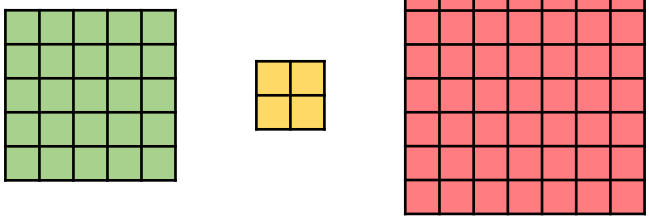
Square Numbers

1a. Match the calculation to the correct arrays.

5^2 (5 x 5)

7^2 (7 x 7)

2^2 (2 x 2)



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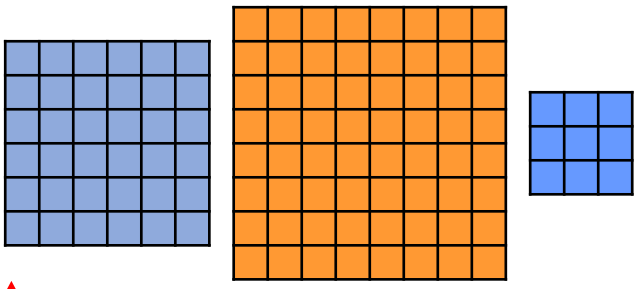
Square Numbers

1b. Match the calculation to the correct arrays.

6^2 (6 x 6)

3^2 (3 x 3)

8^2 (8 x 8)



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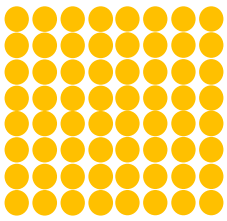
2a. Calculate:

$4^2 =$



$8^2 =$

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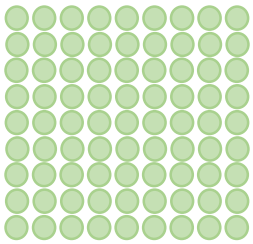
2b. Calculate:

$2^2 =$



$9^2 =$

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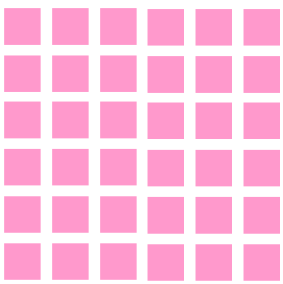
3a. Find the factors of the number represented below. Is it a square number?



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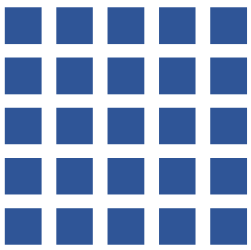
3b. Find the factors of the number represented below. Is it a square number?



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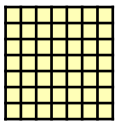
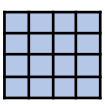
4a. Complete the table below.

7^2		
$__^2$		

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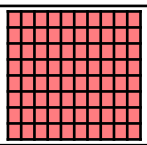
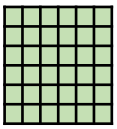
4b. Complete the table below.

$__^2$		64
6^2		

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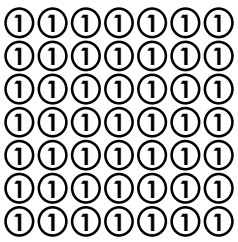
Square Numbers

5a. Match the square numbers to the correct representations.

3^2 5^2 7^2



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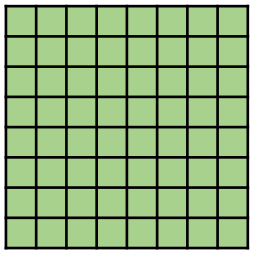
Square Numbers

5b. Match the square numbers to the correct representations.

12^2 8^2 4^2

144



E

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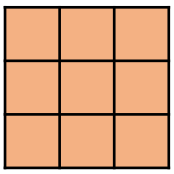
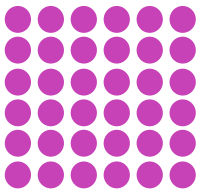
6a. Complete the number statements.





___ 2 =

___ 2 =

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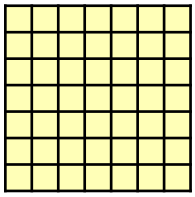
6b. Complete the number statements.



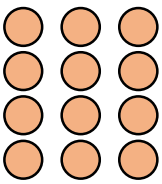
___ 2 =

___ 2 =

E

VF

7a. Find the factors of each number below. Circle the square number.



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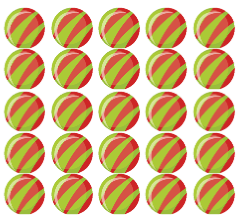
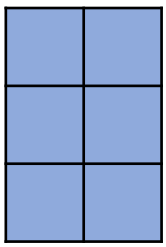
7b. Find the factors of each number below. Circle the square number.





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8a. Complete the table below.

$__^2$	2 x 2	4
	4 x 4	
11^2	__ x __	
	__ x __	64

E

VF

8b. Complete the table below.

$__^2$	5 x 5	
	9 x 9	
12^2	__ x __	
	__ x __	100

E

VF

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Square Numbers

9a. Match the calculations to the correct square numbers.

nine squared	ten squared	eight squared

one hundred	sixty-four	eighty-one

GD VF

10a. Calculate:

Three squared =	__ x __ = 81
__ x __ = 25	Two squared =

GD VF

11a. Find the factors of each number below. Circle the square numbers.

thirty-six

18

sixty-four

GD VF

12a. Complete the table below.

$__^2$	__ x __	144
		49
		64
		9

GD VF

Square Numbers

9b. Match the calculations to the correct square numbers.

seven squared	twelve squared	eleven squared

one hundred and forty-four	one hundred and twenty-one	forty-nine

GD VF

10b. Calculate:

Six squared =	__ x __ = 1
__ x __ = 16	Ten squared =

GD VF

11b. Find the factors of each number below. Circle the square numbers.

81

ninety-nine

121

GD VF

12b. Complete the table below.

$__^2$	__ x __	81
		121
		100
		1

GD VF

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Varied Fluency
Square Numbers

Developing

1a. $5^2 = 25$; $7^2 = 49$; $2^2 = 4$

2a. $4^2 = 16$; $8^2 = 64$

3a. Factors of 36 – 1, 6 and 36. 36 is a square number.

4a. $7^2 = 49$; $4^2 = 16$

Expected

5a. $3^2 = 9$; $5^2 = 25$; $7^2 = 49$

6a. $3^2 = 9$; $6^2 = 36$

7a. Factors of 12 – 1, 3, 4, 12;
Factors of 16 – 1, 4, 8, 16 (square number)

8a.

2^2	2 x 2	4
4^2	4 x 4	16
11^2	11 x 11	121
8^2	8 x 8	64

Greater Depth

9a. Nine squared = eighty-one; ten squared = one hundred; eight squared = sixty-four.

10a. Three squared = 9; 9 x 9 = 81; 5 x 5 = 25; two squared = 4

11a. Factors of 36 – 1, 2, 3, 4, 6, 9, 12, 18, 36
Factors of 18 – 1, 2, 3, 6, 9, 18
Factors of 64 – 1, 2, 4, 8, 16, 32, 64
36 and 64 are square numbers.

12a.

12^2	12 x 12	144
7^2	7 x 7	49
8^2	8 x 8	64
3^2	3 x 3	9

Varied Fluency
Square Numbers

Developing

1b. $6^2 = 36$; $3^2 = 9$; $8^2 = 64$

2b. $2^2 = 4$; $9^2 = 81$

3b. Factors of 25 – 1, 5 and 25. 25 is a square number.

4b. $8^2 = 64$; $6^2 = 36$

Expected

5b. $12^2 = 144$; $8^2 = 64$; $4^2 = 16$

6b. $5^2 = 25$; $7^2 = 49$

7b. Factors of 25 – 1, 5, 25 (square number)
Factors of 6 – 1, 2, 3, 6

8b.

5^2	5 x 5	25
9^2	9 x 9	81
12^2	12 x 12	144
10^2	10 x 10	100

Greater Depth

9b. Seven squared = forty-nine; twelve squared = one hundred and forty-four; eleven squared = one hundred and twenty-two.

10b. Six squared = 36; 1 x 1 = 1; 4 x 4 = 16; ten squared = 100

11b. Factors of 81 - 1, 3, 9, 27, 81
Factors of ninety-nine – 1, 3, 9, 11, 33, 99
Factors of 121 – 1, 11, 121
81 and 121 are square numbers.

12b.

9^2	9 x 9	81
11^2	11 x 11	121
10^2	10 x 10	100
1^2	1 x 1	1

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