

## Year 5 – Autumn Block 4 – Multiplication and Division – Square Numbers

### About This Resource:

This PowerPoint has been designed to support your teaching of this small step. It includes a starter activity and an example of each question from the Varied Fluency and Reasoning and Problem Solving resources also provided in this pack. You can choose to work through all examples provided or a selection of them depending on the needs of your class.

### 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](#)

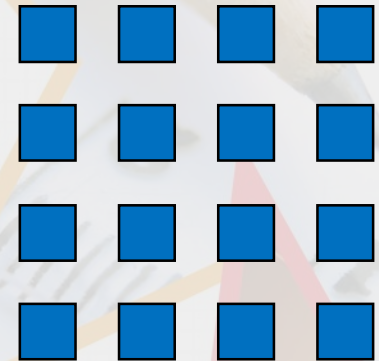
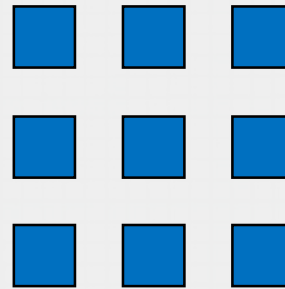
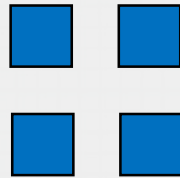
[More resources](#) which follow the same small steps as White Rose.

Did you like this resource? Don't forget to [review](#) it on our website.

# Step 5: Square Numbers

## Introduction

What are the next 3 numbers in this pattern?

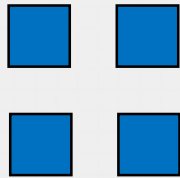


## Introduction

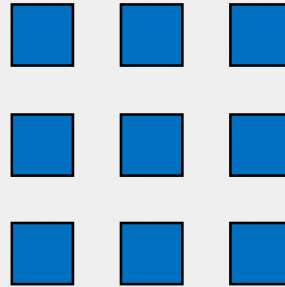
What are the next 3 numbers in this pattern?



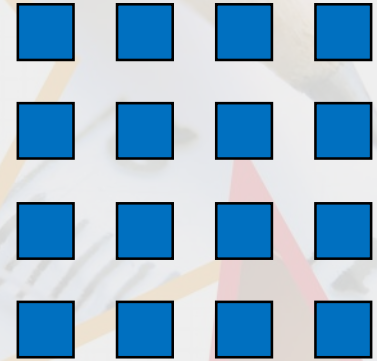
$$1 \times 1 = 1$$



$$2 \times 2 = 4$$



$$3 \times 3 = 9$$

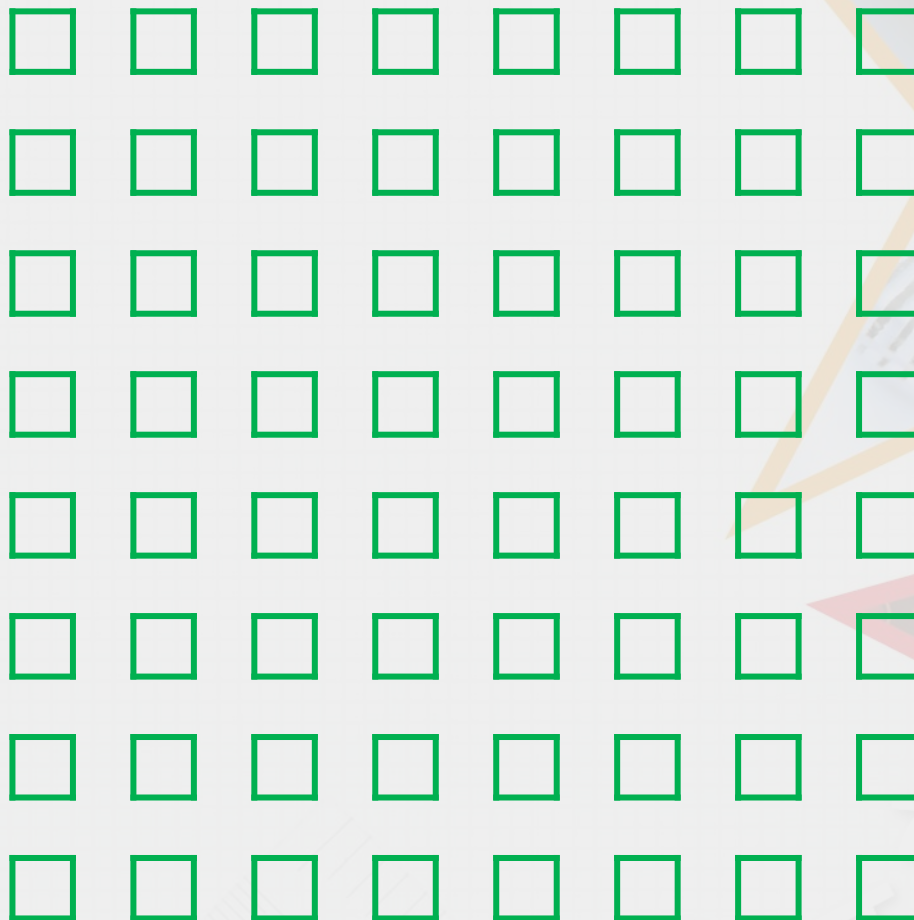


$$4 \times 4 = 16$$

The next three square numbers in the pattern are:  
**25 (5 x 5), 36 (6 x 6) and 49 (7 x 7)**

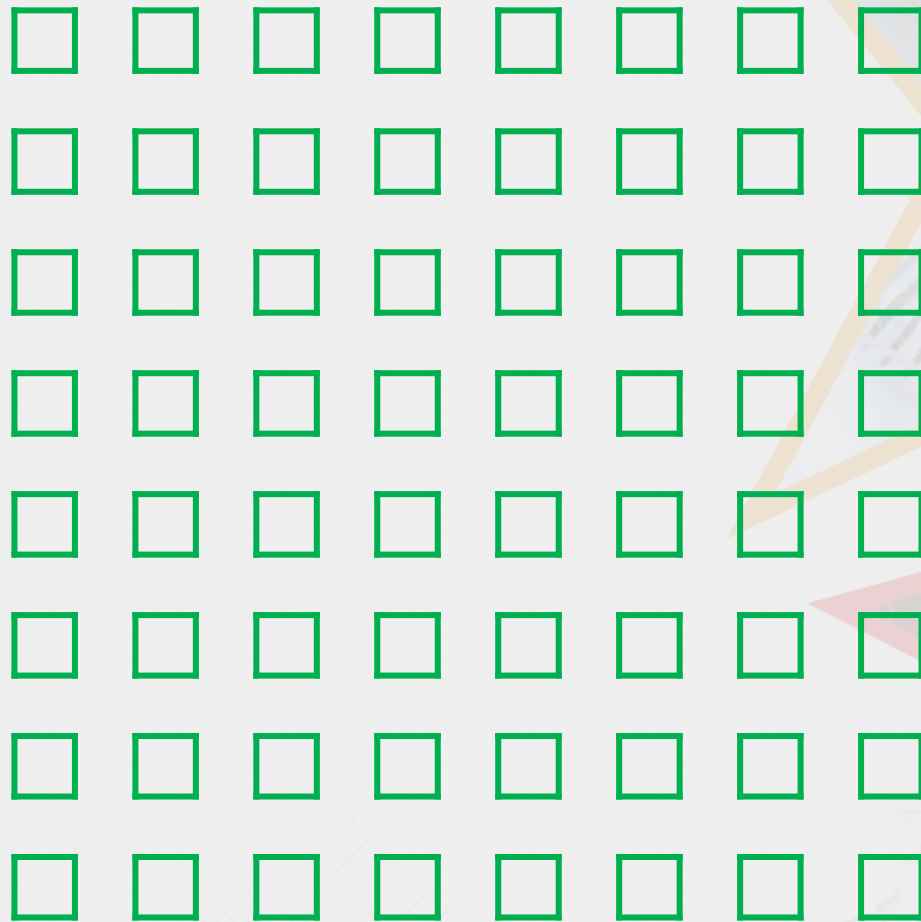
## Varied Fluency 1

Which squared number does this diagram represent?



## Varied Fluency 1

Which squared number does this diagram represent?



$$8^2 = 64$$

## Varied Fluency 2

Calculate:

**2 squared**

**8<sup>2</sup>**

**7 squared**

**5<sup>2</sup>**

**6 squared**

## Varied Fluency 2

Calculate:

**2 squared**

**4**

**8<sup>2</sup>**

**64**

**7 squared**

**49**

**5<sup>2</sup>**

**25**

**6 squared**

**36**

### Varied Fluency 3

Circle the square numbers.

100	16	21	27	36
-----	----	----	----	----

121	1	10	30	46
-----	---	----	----	----

80	81	82	83	84
----	----	----	----	----

### Varied Fluency 3

Circle the square numbers.

100	16	21	27	36
-----	----	----	----	----

121	1	10	30	46
-----	---	----	----	----

80	81	82	83	84
----	----	----	----	----

## Varied Fluency 4

Complete the table below.

$\underline{\quad}^2$	$4 \times 4$	16
	$8 \times 8$	
$9^2$		81
	$10 \times 10$	

## Varied Fluency 4

Complete the table below.

$4^2$	$4 \times 4$	16
$8^2$	$8 \times 8$	64
$9^2$	$9 \times 9$	81
$10^2$	$10 \times 10$	100

## Problem Solving 1

**25 is the sum of two square numbers.**

$$25 = 4^2 + 3^2$$

**Using the example above, complete the following:**

**34 is the sum of two squared numbers. What could they be?**

**45 is the sum of two squared numbers. What could they be?**

## Problem Solving 1

25 is the sum of two square numbers.

$$25 = 4^2 + 3^2$$

Using the example above, complete the following:

34 is the sum of two squared numbers. What could they be?

**$5^2$  and  $3^2$**

45 is the sum of two squared numbers. What could they be?

**$6^2$  and  $3^2$**

## Problem Solving 2

**Solve the following problems.**

**I think of a number. I square it and take away 10. The answer is 54. What was my number?**

**I think of another number. I square it and add 15. The answer is 115. What was my number?**

## Problem Solving 2

Solve the following problems.

I think of a number. I square it and take away 10. The answer is 54. What was my number?

8

I think of another number. I square it and add 15. The answer is 115. What was my number?

10

## Reasoning 1

Josh says,



All square numbers are odd.

Is Josh right? Convince me.

Reasoning 1

Josh says,



All square numbers are odd.

Is Josh right? Convince me.

Josh is not correct because...

## Reasoning 1

Josh says,



All square numbers are odd.

Is Josh right? Convince me.

**Josh is not correct because there are square numbers which are even. For example,  $4^2 = 16$ .**