

The sequence of small steps has been produced by White Rose Maths. White Rose Maths gives permission to schools and teachers to use the small steps in their own teaching in their own schools and classrooms. We kindly ask that any other organisations, companies and individuals who would like to reference our small steps wider kindly seek the relevant permission. Please contact [support@whiterosemaths.com](mailto:support@whiterosemaths.com) for more information.

# Year 1

## Small Steps Breakdown

Block 1 – Multiplication & Division

**White Rose Maths**

# Year 1 – Yearly Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value (within 10)				Number: Addition and Subtraction (within 10)				Geometry: Shape	Number: Place Value (within 20)		Consolidation
Spring	Number: Addition and Subtraction (within 20)				Number: Place Value (within 50) (Multiples of 2, 5 and 10 to be included)			Measurement: Length and Height		Measurement: Weight and Volume		Consolidation
Summer	Number: Multiplication and Division (Reinforce multiples of 2, 5 and 10 to be included)			Number: Fractions		Geometry: position and direction	Number: Place Value (within 100)		Measurement : money	Time		Consolidation

# Overview

## Small Steps

- Count in 10s
- Make equal groups
- Add equal groups
- Make arrays
- Make doubles
- Make equal groups - grouping
- Make equal groups - sharing



## NC Objectives

Count in multiples of twos, fives and tens.

Solve one step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

## Count in 10s

### Notes and Guidance

Children count in tens for the first time.

They use pictures, bead strings and number lines to support their counting.

Counting in 10s on a hundred square will also support children to see the similarities between the numbers when we count in tens.

### Mathematical Talk

How can we count the birds and flowers?

Will \_\_\_\_\_ appear on our number line? Why?

What is the same about all the numbers we say when we are counting in tens?

### Varied Fluency

- 1 How many birds are there altogether?



There are \_\_\_\_ birds in each tree.

There are \_\_\_\_ trees.

There are \_\_\_\_ birds altogether.

- 2 How many flowers are there altogether?



There are \_\_\_\_ flowers in each bunch.

There are \_\_\_\_ bunches.

There are \_\_\_\_ flowers altogether.

- 3 Use a 0-100 bead string to count in tens.

Can we count forwards and backwards in tens?



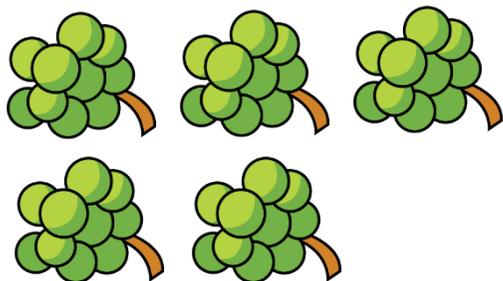
Can we count in tens on a number line as well?

How does this match counting on a bead string?

## Count in 10s

## Reasoning and Problem Solving

Here are the grapes in a shop.



Max wants to buy forty grapes.

Are there enough grapes?

Yes there are enough grapes. There are fifty grapes and Max only needs forty.

Jemima is counting in 10s on a hundred 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

She starts at 10

- Shade in all the numbers Jemima will say.
- What is the same about the numbers she says?

What is different about the numbers?

Jemima will say 10, 20, 30, 40 and 50

All the numbers have the same ones digit (0)  
They all have different tens digit.  
The tens digit goes up by 1 for each new number she says.

# Making Equal Groups

## Notes and Guidance

Children use stories, pictures and concrete manipulatives to explore making equal groups and write statements such as ‘there are \_\_\_ groups of \_\_\_.’ They will identify whether groups are equal or not. Children will look at groups that look different but are the same.

At this stage children do not explore multiplication formally.

## Mathematical Talk

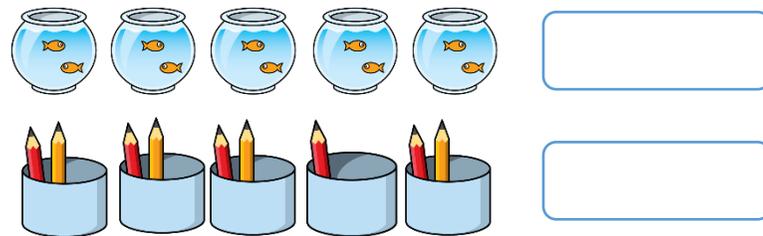
How do I know groups are equal? What does equal mean?

How many *pencils* are there in each *pot*? How can I complete the sentence to describe the groups.

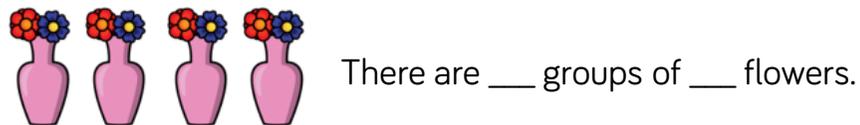
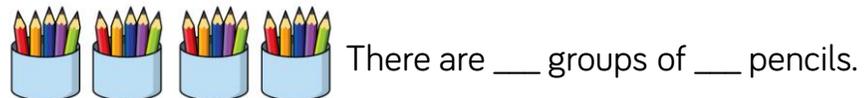
Are Josh’s groups equal or unequal? How can we make them equal?

## Varied Fluency

- 1 Are the groups equal or unequal? Write a label for each.



- 2 Complete the sentences



- 3 Josh is drawing equal groups of 3



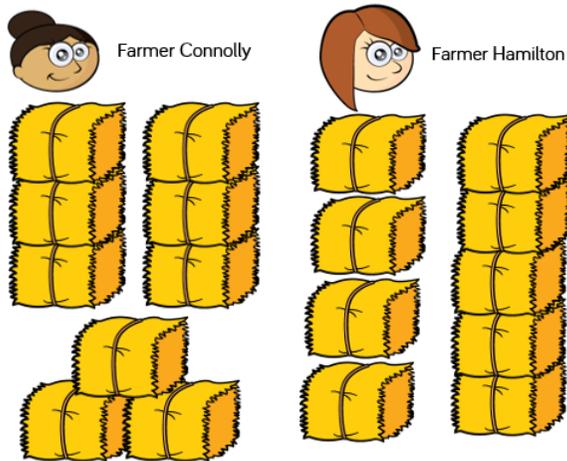
Complete his drawing.

# Making Equal Groups

## Reasoning and Problem Solving

Farmer Hamilton and Farmer Connolly are making hay bundles.

Who made equal groups?



Possible answer:

Farmer Connolly has because she has 3 groups of 3 hay bundles.

Farmer Hamilton's look the same but they are not.

Use concrete materials or pictures to complete the questions.

Jemima has 4 equal groups. Show me what Jemima's groups could look like.

Kim has 3 unequal groups. Show me what Kim's groups could look like.

Children will show 4 groups where there are the same amount in each group for Jemima and 3 groups that are unequal for Kim.

Encourage children to do this in more than one way.

## Add Equal Groups

### Notes and Guidance

Children use equal groups to find a total. They focus on counting equal groups of 2, 5 and 10 and explore this within 50. Children begin by linking this to real life, for example animal legs, wheels, flowers in vases etc. Children then begin to represent the equal groups pictorially and with number sentences.

### Mathematical Talk

How many apples are there in each bag?

How can we represent this with counters/cubes/on a number line/in a number sentence etc?

What other equipment could you use to represent your pattern? What's the same? What's different?

Which is more, 3 groups of 10 or 4 groups of 5? Prove why.

### Varied Fluency

1 How many wheels altogether?



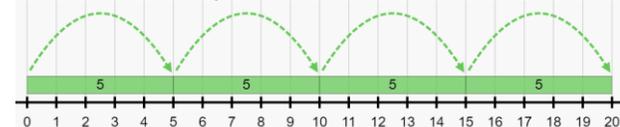
$$2 + 2 + 2 + 2 + 2 =$$

How many fingers altogether?



$$5 + 5 + 5 =$$

2 How many apples are there? Complete the sentences.



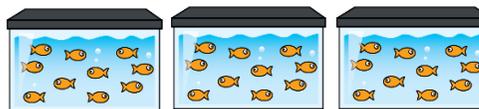
$$5 + 5 + 5 + 5 =$$

There are \_\_\_ apples.

There are \_\_\_ groups of \_\_\_ apples which is equivalent to \_\_\_

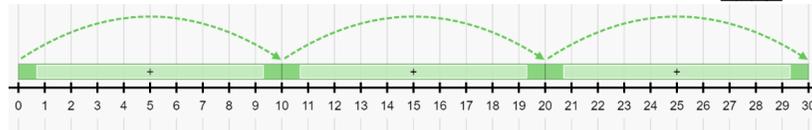
3 How many fish are there?

Complete the sentences and the number line.



$$+ + =$$

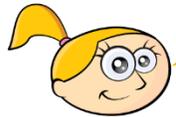
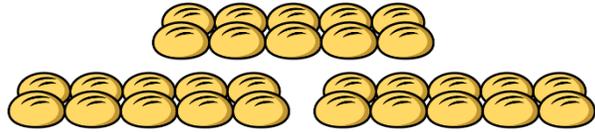
There are \_\_\_ fish.



# Add Equal Groups

## Reasoning and Problem Solving

Tania and Suzie are making equal groups of bread.



We need one more group to make 40

Tania

We need 10 more to make 40



Suzie

Who do you agree with? Explain why.

Possible answer:  
I agree with both.  
They are counting in groups of 10 so they need one more group of 10.

Gavin is counting bananas.



Can you spot his mistake?

Possible answer:  
Gavin has written three for three groups and five for five bananas.

Tash and Jane have equal groups of either 2, 5 or 10.

Jane has 5 equal groups.

Tash has 3 equal groups.

Tash's total is more than Jane's total.

Each of their totals is less than 40.

What could they be counting in?

What could their totals be?

How many will be in each group?

Use equipment to help you.

Answer:  
Tash must have a larger group than Jane because she has less groups but her total is more.

They could have:  
Jane:  $2 + 2 + 2 + 2 + 2 = 10$   
Tash:  $5 + 5 + 5 = 15$

Jane:  $5 + 5 + 5 + 5 + 5 = 25$   
Tash:  $10 + 10 + 10 = 30$

## Make Arrays

### Notes and Guidance

Children begin to make arrays by making equal groups and building them up in columns or rows.

They use a range of concrete and pictorial representations alongside sentence stems to support their understanding.

Children also explore arrays built incorrectly and recognise the importance of columns and rows.

### Mathematical Talk

How many equal groups do I have? How many in each group?  
Can I represent my *apples* with counters?

How many counters in each row? How many counters in each column?

How can I record my array with a number sentence?

### Varied Fluency

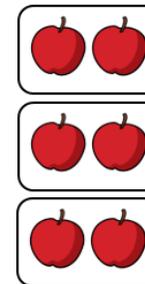
- 1 Build the array shown with counters. Complete the sentences.

There are \_\_\_ apples in each row.

There are \_\_\_ rows.

\_\_\_ + \_\_\_ + \_\_\_ = \_\_\_

There are \_\_\_ apples altogether.



- 2 Complete the table.

Array	Description - columns	Description - rows	Totals
	5 columns 2 cookies in each column	2 rows 5 cookies in each row	$2 + 2 + 2 + 2 + 2 = 10$ $5 + 5 = 10$
	___ columns ___ donuts in each column	___ rows ___ donuts in each row	
	___ columns ___ fish in each column	___ rows ___ fish in each row	
	3 columns 5 cupcakes in each column	5 rows 3 cupcakes in each row	

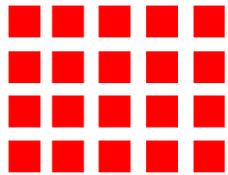
# Make Arrays

## Reasoning and Problem Solving

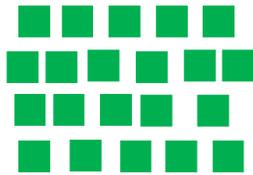
Mo and Libby are making arrays.



Mo



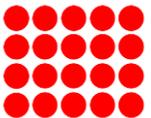
Libby



Who has made a mistake? Explain why.

Possible answer:  
Libby has made a mistake because her array is not in columns. There are an unequal amount of squares in each row.

Toby and Lilly are writing number sentences to describe the array.



Toby

$$4 + 4 + 4 + 4 + 4 = 20$$



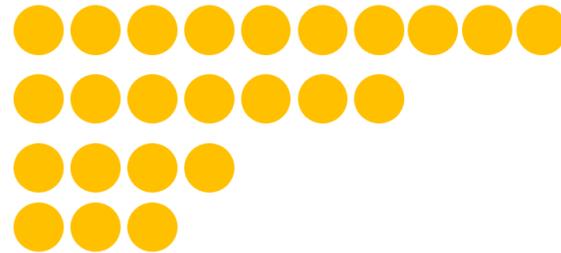
Lilly

$$5 + 5 + 5 + 5 = 20$$

Who do you agree with? Explain why.

Possible answer:  
They are both right. Toby has counted the columns. Lilly has counted the rows.

Jenny makes an array but stops. She has finished her first row. Can you complete her array?



Possible answer:  
Array showing  $10 + 10 + 10 + 10 = 40$

# Making Doubles

## Notes and Guidance

Children explore doubling with numbers up to 20. They look at representations to decide whether that shows doubling or not.

Children show and explain what doubling means using concrete and pictorial representations.

They record doubling using the sentence 'Double \_\_\_ is \_\_\_.'

## Mathematical Talk

Can you sort these representations in to doubles and not doubles? How do you know they've been doubled?

Which ones are confusing? Why?

Take the number pieces and double it. What is double \_\_\_ ?

What comes next in my table, why?

How can we show the double differently?

## Varied Fluency

- 1 Sort the representations into the table. Which show doubles and which do not?

Doubles	Not doubles

- 2 Take a number piece and double it. Complete the sentence.



Double \_\_\_ is \_\_\_



Double \_\_\_ is \_\_\_

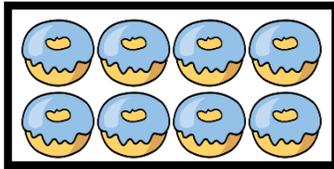
- 3 Complete and continue the table.

Representation	Different Representation	Double
		Double 1 is 2 $1 + 1 = 2$
		Double 2 is ___ $2 + 2 = \underline{\quad}$
		Double ___ is ___ $\underline{\quad} + \underline{\quad} = \underline{\quad}$
		Double ___ is ___ $\underline{\quad} + \underline{\quad} = \underline{\quad}$

# Making Doubles

## Reasoning and Problem Solving

Louise doubles her donuts. The image shows what she had after she doubled her donuts.



Sandy



Louise started with 4 and ended with 8 donuts.

Matilda



Louise started with 8 and ended with 16 donuts.

Nate



Louise started with 2 and ended with 4 donuts.

Who do you agree with? Explain why.

Possible answer:  
Sandy is correct because the image shows what she was left with. She had 8 after she doubled and double 4 is 8.

Work out:

Double 3 =

Double 4 =

Double 5 =

What do you notice? What's the same?  
What's different?

Now try:

Double 2 =

Double 4 =

Double 8 =

What do you notice? What's the same?  
What's different?

Possible answer:

Double 3 = 6

Double 4 = 8

Double 5 = 10

The answer gets two more because the start number gets two more ones added for example,



Double 2 = 4

Double 4 = 8

Double 8 = 16

The first number doubles and the last number doubles.

# Make Equal Groups - Grouping

## Notes and Guidance

Children start with a given total and make groups of an equal amount. They record their understanding in sentences, not through formal division at this stage.

Children can develop their understanding of equal groups by also being exposed to numbers which do not group equally.

## Mathematical Talk

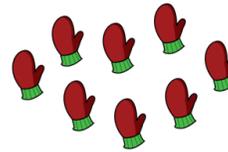
We have \_\_\_ *mittens* how many equal groups of 2/5/10 can I make?

What would happen if there were 21 cubes?

Have I got equal groups? Does each group need to look the same for it to be equal still? What makes it equal?

## Varied Fluency

- 1 How many equal groups of 2 can you make with the mittens?



There are \_\_\_ groups of 2 mitten  
If you had 10 mittens, how many equal groups of 2 mittens could you make?

- 2 Take 20 cubes. Complete the sentences.  
I can make \_\_\_ equal groups of 2  
I can make \_\_\_ equal groups of 5  
I can make \_\_\_ equal groups of 10

- 3 Complete the table. Use equipment to help you.

Representation	Description
	6 has been sorted into 3 equal groups of 2
	___ has been sorted into ___ equal groups of ___
	15 has been sorted into 3 equal groups of 5.
	___ has been sorted into ___ equal groups of ___

# Make Equal Groups - Grouping

## Reasoning and Problem Solving

Zeb and Paulo each have the same amount of sweets.

They each have less than 20 sweets.

Zeb has 5 equal groups of sweets.  
Paulo has grouped his sweets in tens.

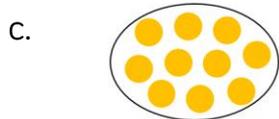
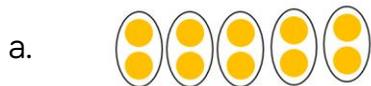
How many sweets do they each have?

Answer: 10

Zeb has 5 equal groups of 2 = 10

Paulo has 1 equal group of 10 = 10

Look at the different images.  
What's the same? What's different?



Possible answer:  
They all equal 10  
a is 5 equal groups of 2  
b is 2 equal groups of 5  
c is 1 equal group of 10

I am thinking of a number between 20 and 30

I can only make equal groups of 5 with it.

What must my number be?

What happens when I try make groups of 2 with it?

What happens when I try make groups of 10 with it?

Answer: 25

Children can use practical equipment to solve this and discover what happens.

If you make equal groups of 2 with it there will be 1 left over.

If you make equal groups of 10 with it there will be 5 left over.

## Sharing Equally

### Notes and Guidance

Children will explore sharing practically by using 1:1 correspondence. To begin with, children need to represent the groups they are sharing into with a physical object or a pictorial representation. For example, share the 12 balls between the two buckets. Share the 12 dots between the two circles.

Children should also be exposed to opportunities where an amount will not share equally.

### Mathematical Talk

How can I share the muffins equally?

How many muffins on this plate? How many on this plate? Are they equal? If I had 9 muffins what would happen?

How can I share \_\_\_ between \_\_\_?

How can I represent this number story? What do the *cubes* represent (bananas)? What do the *trays* represent (boxes)?

## Varied Fluency

- 1 Share the muffins equally between the two plates. Complete the sentence  
\_\_\_ cakes shared equally between 2 is \_\_\_



- 2 Use 20 cubes and hoops to represent your friends. Can you share the cubes between 5 friends?  
20 shared between 5 equals \_\_\_  
Can you share the cubes between 2 friends?  
20 shared between 2 equals \_\_\_  
Can you share the cubes between 10 friends?  
20 shared between 10 equals \_\_\_

- 3 Tim has 16 bananas. He shares them equally between two boxes. Represent and solve the problem.

# Sharing Equally

## Reasoning and Problem Solving

Each child has the same amount of sweets. The amount of sweets they have is less than 20. They share the sweets equally in different ways. Can you work out how many they had to begin with?



I share my sweets between two bags and have none left over.

I share my sweets between five bags and have one left over.



Lexi



Robin

I share my sweets between ten bags and have 6 left over

Answer: 16

Grant and Lauren are sharing 5 cakes.



Grant

I should get the left over cake because I bought them.



Lauren

Nobody should get the left over cake.

Who is being fair?  
Explain why.

Possible answer:

Lauren is being fair because they will both get equal amount of cakes. They will have two each.