Released March 2018

Years 1/2

Small Steps Guidance and Examples

Block 1 – Place Value & Statistics

White Rose Maths

Year 1 /2– 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				Number: Addition and Subtraction				Geometry: Shape		Measurement: Money	
Spring	Number: Multiplication and Division (Y1: Place Value to 50 included)				Number: Fractions			Measurement: Length and Height		Measurement: Mass, Capacity and Temperature		Consolidation
Summer	Year 1: Place Value within 100 Year 2: Statistics		Geometry: Position and Direction		Problem solving and efficient methods		Measurement: Time			Investigations		Consolidation

Week 1 to 2 – Place Value & Statistics

Overview

Small Steps

Year 1	Year 2
Counting to 100	Make tally charts
Partitioning numbers	Draw pictograms (1-1)
Comparing numbers (1)	Interpret pictograms (1-1)
Comparing numbers (2)	Draw pictograms (2, 5 and 10)
Ordering numbers	Interpret pictograms (2, 5 and 10)
One more, one less	Block diagrams

Counting to 100

Notes and Guidance

Children build on their previous learning of numbers to 50. They continue grouping in 10s to make counting quicker and more efficient.

Children are introduced to the hundred square and use it to count forwards and backwards within 100

Mathematical Talk

What is the most efficient way to count the objects?

How many are in each group?

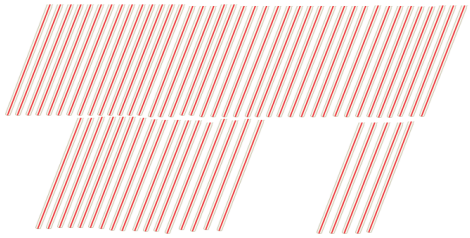
What do you notice about the layout of the hundred square?

Is there an efficient way to find numbers?
Will I count the number ___ if I am counting from ____ to ____?

Varied Fluency

1 How many flowers are there altogether?
Can you represent the flowers using ten frames and counters?

2 How many straws are there?
Bundle the straws in tens to make them easier to count.



3 Use the hundred square to:

- Count forwards from 80 to 92
- Count backwards from 73 to 65
- Write down the numbers between 68 and 81
- Find what number comes between 76 and 78

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

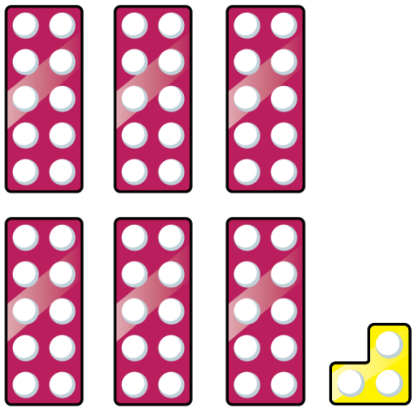
Counting to 100

Reasoning and Problem Solving

6 +3 = 9

Reuben

Reuben represents his calculation with number shapes.



Explain the mistake Reuben has made.

Reuben has counted the six 10s as 1s and added it to the 3.

Circle the mistake in each sequence.

- 34, 35, 36, 38, 39
- 98, 97, 96, 95, 93
- 78, 79, 18, 81, 82

- 38 instead of 37
- 93 instead of 94
- 18 instead of 80

Make Tally Charts

Notes and Guidance

Children should be confident counting in 5s and have an understanding of the vocabulary total, altogether, more, less and difference.

Tally charts need to be taught as a systematic method of recording data as a running total for an unknown quantity.

Mathematical Talk

What does 1 mark represent? How would we count the single marks?
What do you notice about every fifth marker? How would we count these?
Why do we count in 5s and 1s? What makes this method of counting more efficient?
How do we ensure that we use our tally marks to work systematically? (Recording tally marks systematically 1:1 as objects are counted NOT counting objects as a set then recording the matching tally in order to avoid miscounting)

Varied Fluency

1 Complete the tally chart.

Favourite colour	Tally	Total
Blue	𝍸 III	
Red	𝍸 𝍸 II	
Yellow	II	
Green	III	

What does the data tell you? Tell me the story.

2 Complete the tally chart for Year 2

Year group	Tally	Total
Year 1	𝍸 𝍸	10
Year 2		19
Year 3	𝍸 𝍸 𝍸 𝍸 I	21
Year 4	𝍸 𝍸 𝍸 II	17

What could the title be for this tally chart?

3 Make a tally chart about one of the following topics:

- Equipment in class (scissors, glue etc)
- Favourite sport
- Favourite fruit
- Ways of getting to school (walk, car, cycle etc)
- A choice of your own

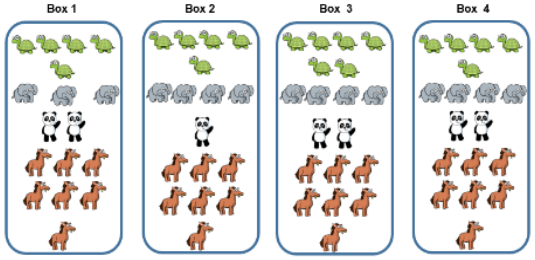
Make Tally Charts

Reasoning and Problem Solving

Frankie makes a tally chart of the animals he saw at the zoo

Animals at the zoo	Tally
	𝍸
	𝍸 ||
	||
	𝍸 ||

Tick one box below that shows all of the animals Frankie saw and explain why the others are incorrect.



Box 1 is incorrect because there are not enough elephants to match the tally chart.

Box 2 is incorrect because there are not enough pandas to match the tally chart.

Box 3 is incorrect because there are too many turtles.

What is the same? What is different?

Favourite ice-cream flavours in class 1	Tally
Vanilla	𝍸 𝍸 𝍸
Chocolate	𝍸 𝍸 𝍸 𝍸
Strawberry	𝍸 ||
Mint	|

Favourite ice-cream flavours in class 1	Tally
Vanilla	𝍸 𝍸 ||
Chocolate	𝍸 𝍸 𝍸 𝍸
Strawberry	𝍸
Mint	|||

The same:
Both tally charts show that chocolate is the favourite flavour, mint is the least favourite flavour, chocolate is the favourite, then vanilla, then strawberry and that mint is the least favourite.

Different:
In Class 1, three more children like Vanilla.
It shows that are more children in Class 2 than Class 1
More children like mint in Class 2
Mint is 3 times more popular in Class 2

Partitioning Numbers

Notes and Guidance

Children continue grouping in 10s to identify how many tens and ones are within a number. Children should be given the opportunity to use concrete resources to group objects.

Children are introduced to place value charts when reading and recording tens and ones within a number.

Mathematical Talk

Can you make groups? How many could we put in each group?

What happens when we have 10 ones?

How many groups of 10 are there?

How many ones are there?

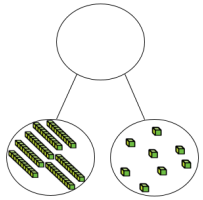
Varied Fluency

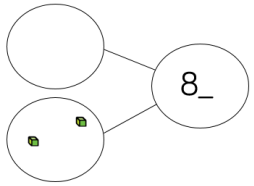
1 Use Base 10 to make these numbers then complete the stem sentences.

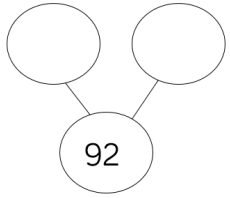
70 96 64 81 92 66 99

70 has 7 tens and 0 ones.

2 Complete the part whole models.







3 Show these numbers using a place value chart and Base 10 or straws.

Tens	Ones

73 50
88 79
91 85
62 93

Partitioning Numbers

Reasoning and Problem Solving

I have 9 ones

Marvin

Scott

I only have 4 tens so your number must be bigger than mine

Is Scott correct?
Prove it.

Scott is incorrect. Each of his ten is worth more than each of Marvin's ones therefore he has a larger number.

Use Base 10 to make a number:

- Greater than 84
- Less than 70
- Greater than 75 but less than 87

Children may make a range of numbers to fit the given criteria. Ensure children are not mixing up the tens and ones.

Use Base 10 to make a number.

With 5 tens and less than 8 ones

How many possible numbers are there?

They could make 50, 51, 52, 53, 54, 55, 56 or 57
So there are 8 possibilities.

Draw Pictograms (1-1)

Notes and Guidance

Children use tally charts to produce pictograms.
To build children's understanding and confidence they begin by filling in one missing column or row. Children then move on to editing given data to see the importance of checking that data reflects the pictogram.
Finally children draw a pictogram from the data given.
It is important that children see pictograms both horizontally and vertically.

Mathematical Talk

How did you know how many images to draw?

What is the same and what is different about these two pictograms? (same data but shown horizontally and vertically)

Which pictogram is easier to read? Why?

What symbol could we draw? Why did you choose this?

Varied Fluency

1 Complete the pictogram.

Hair colour		Number
Black	●●●●●	5
Blonde	●●●●●●●	7
Brown		9
Ginger	●●●●	4

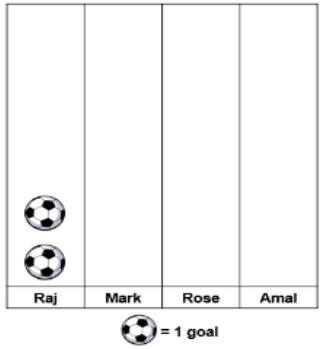
2 Use the tally chart to help you complete the pictogram.

Fruit	Tally
Banana	𝍸 I
Grapes	I I I I
Pear	𝍸 I I I
Apple	I I I

Fruit	Number
Banana	🍌🍌🍌🍌🍌🍌
Grapes	🍇🍇
Pear	🍐🍐🍐
Apple	🍎🍎

3 Complete the pictogram using the data given.

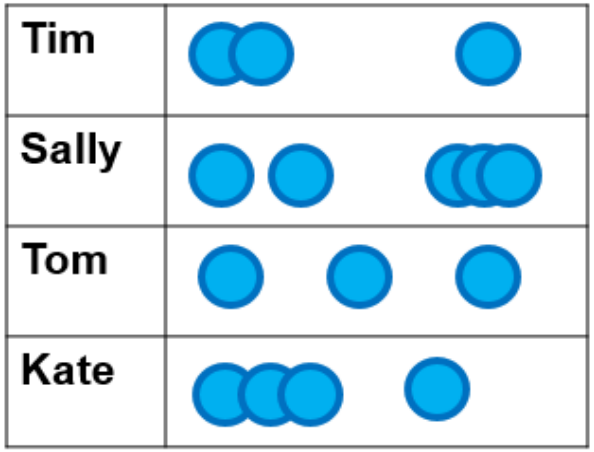
Name	Tally of goals scored
Raj	I I
Mark	𝍸 I I I I
Rose	𝍸
Amal	𝍸 I



Draw Pictograms (1-1)

Reasoning and Problem Solving

Here is a pictogram showing the number of counters each child has.



How could you improve the pictogram?

Possible answer

Children show understanding that the pictogram is hard to read as the symbols are over the top of each other. It would be much clearer if the circles were evenly spaced.

Use the clues below to help you complete the pictogram.

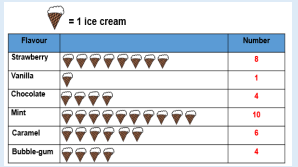
- More caramel was sold than Bubble-gum flavour, but less than strawberry flavour.
- Mint Chocolate was the most popular flavour by 2
- Vanilla was the least popular by 3

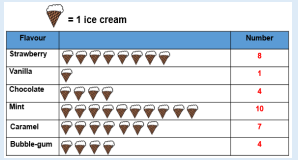
= 1 ice cream

Flavour		Number
Strawberry		
Vanilla		
Chocolate		
Mint		
Caramel		
Bubble-gum		4

How many different ways are there to complete the pictogram?

Possible answers





Comparing Numbers (1)

Notes and Guidance

Children use their partitioning knowledge to begin comparing numbers within 100. It is important for children to work with a range of equipment to make comparisons more visual.

Children use the language 'more than', 'less than' and 'equal to' alongside the inequality symbols.

Mathematical Talk

Which number has the most/least tens? Which number has the most/least ones?

If the number is greater/less which direction will we move on the number line?

How can we count efficiently?

Varied Fluency

1 Make these numbers on place value charts.

78 and 61

Tens	Ones

90 and 89

Tens	Ones

64 and 92

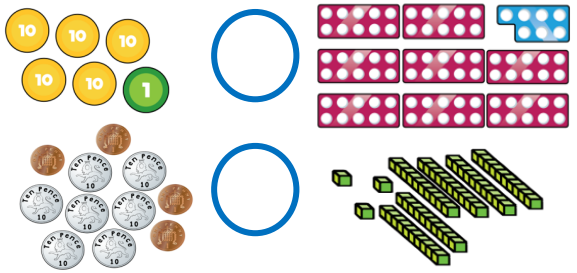
Tens	Ones

Which number from each pair is the largest?

2 On the number line, label a number:

- Less than 69
- Greater than 79
- Greater than 69 but less than 79

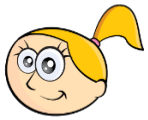
3 Compare the numbers using >, < or =



Comparing Numbers (1)

Reasoning and Problem Solving

Poppy and Freya have some coins.



Poppy

Freya

Poppy and Freya's coins add up to more than 50p.
Freya's amount is greater than Poppy's.

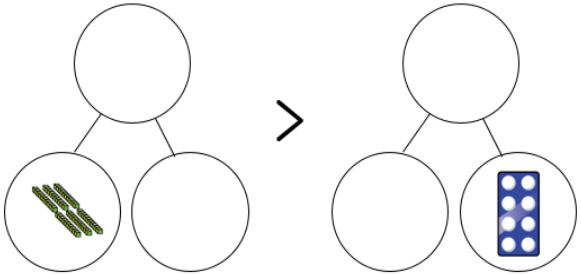
What coins could the girls have?

Children can find a variety of ways.
For example:

P: 20p, 20p, 20p, 20p
F: 50p, 20p, 20p, 20p

P: 20p, 20p, 20p, 10p
F:, 20p, 20p, 20p, 20p

How many ways can you complete the part whole models to make the calculation correct?



Children can choose a range of numbers to complete the part whole models but need to ensure the first model is greater than the second.

Interpret Pictograms (1-1)

Notes and Guidance

Children answer questions by using the information from pictograms. They use their knowledge of one to one correspondence to help them interpret the data presented.

It is important that children are able to compare data within the pictograms.

Mathematical Talk

How do you know where to find the information?

What strategy did you use to check?

Can you think of your own questions to ask a partner?

Varied Fluency

1 Use the pictogram to answer the questions.

Colour	
Blue	
Green	
Red	
Purple	

= 1 t-shirt

What was the most popular colour t-shirt?

What was the least popular t-shirt?

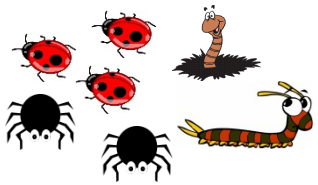
How many more blue t-shirts were sold than red?

How many t-shirts were sold in total?

2 Use the pictogram to complete the stem sentences.

Minibeast	
Woodlouse	
Ladybird	
Centipede	
Worm	
Spider	

= 1 minibeast



There are ____ ladybirds.

There are _____ centipedes and worms altogether.

_____ is the difference between worms and spiders.

How many more sentences can you write?

Interpret Pictograms (1-1)

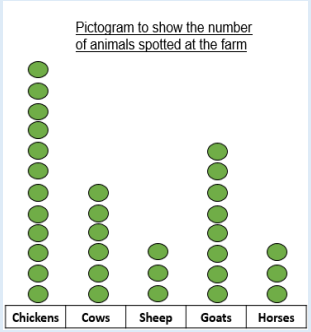
Reasoning and Problem Solving

Sam writes these statements about his pictogram:

- There were more cows than sheep.
- There were the same number of sheep and horses.
- There were more chickens than any other animal.
- There were less cows than goats.

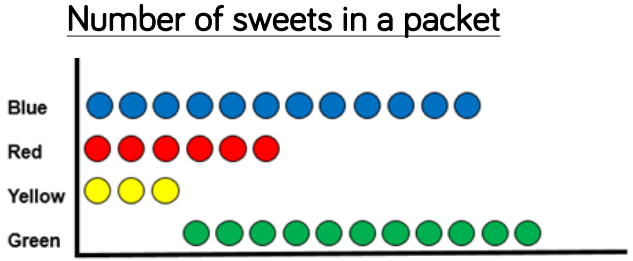
Can you draw the pictogram, with a heading, so that Sam's statements are correct?

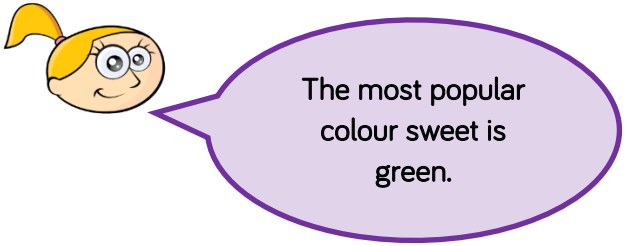
Possible answer



Children may have different numbers from this and still be correct.

Here is a pictogram.



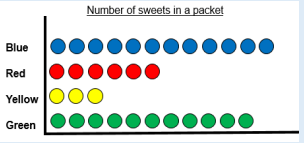


Do you agree with Anya?

Explain why and correct any mistakes.

Anya is wrong because the green sweets are not lined up correctly. There are 11 green and 12 blue.

It should look like this



Comparing Numbers (2)

Notes and Guidance

Children compare numbers using comparison language and the comparison symbols (< , > and =)

Children begin to understand the value of the digits in a 2-digit number and use this to help them order numbers more efficiently.

Mathematical Talk

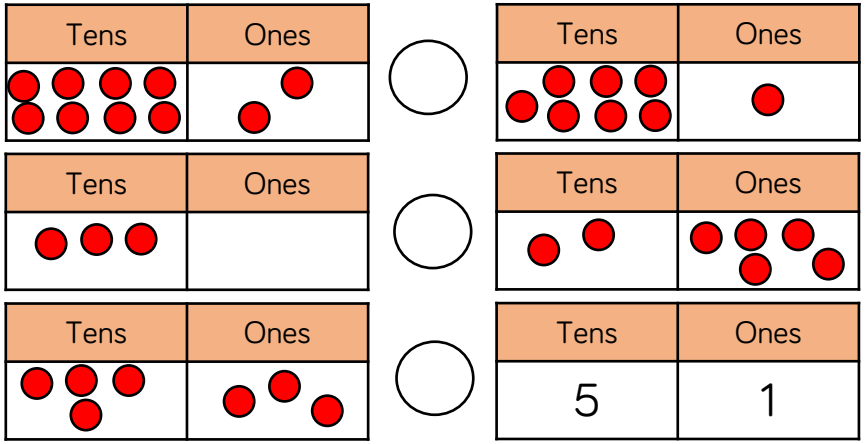
Which number is the biggest/smallest? How do you know? Which digit is the most important?

Is there more than one number that could complete the statement?

What is the largest/smallest number that could complete the statement?

Varied Fluency

1 Compare the numbers using <, > or =



2 Complete the statements.

70 < ☐ 86 > ☐ ☐ > 91

☐ < 52 64 < ☐ ☐ < 100

3 Complete the stem sentences.

62 is _____ than 55 but less than _____.

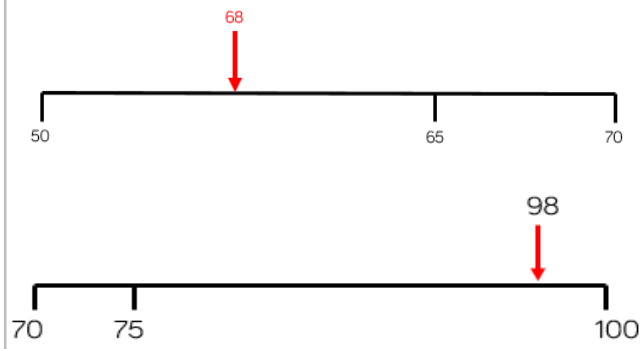
90 is less than _____ but _____ than 88.

___ is greater than _____ but less than _____.

Comparing Numbers (2)

Reasoning and Problem Solving

Leo has marked numbers on his number lines.
Has he made any mistakes?



Can you show the following numbers on your own number line?

- 75
- 34
- 91
- 87

68 is greater than 65 and therefore should come after it on the number line.

The number is marked correctly – there is no mistake.

How many different ways can you complete the place value charts to make the statement correct?

Tens	Ones
5	

<

Tens	Ones
	3

50 < 53
51 < 53
52 < 53
Placing a 6, 7, 8 or 9 in the Tens column means that children can then place any number in the Ones.

Draw Pictograms (2, 5 & 10)

Notes and Guidance

Children look at pictograms where the symbols represent 2, 5 or 10 items.

Careful consideration needs to be given to the picture or symbol used so that it can be halved.

They count in twos, fives, and tens to complete and draw pictograms.

Mathematical Talk

Why is it important to use a picture to represent 10 objects in this pictogram?

Discuss with children that when using larger numbers, 1-1 correspondence becomes impractical.

If a symbol = 2, how can you show 3 on a pictogram? How can you show 5? How can you show any odd number?

Varied Fluency

1 Use the tally chart to complete the pictogram.

Animal	Tally of goals scored
Dog	𝍸 𝍸
Cat	𝍸 𝍸 ||||
Rabbit	𝍸 𝍸 ||
Fish	𝍸 𝍸 𝍸 |

● = 2 animals

Animal	
Dog	●●●●●
Cat	●●
Rabbit	●●●●
Fish	●●●●●

2 Use the information from the table to complete the pictogram.

Number of books read in each class

Class 1	𝍸 𝍸 𝍸 𝍸 𝍸
Class 2	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸
Class 3	𝍸 𝍸 𝍸
Class 4	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸
Class 5	𝍸 𝍸 𝍸 𝍸
Class 6	𝍸 𝍸 𝍸

Number of books read in each class

Class 1	📖 📖
Class 2	📖 📖 📖 📖 📖
Class 3	📖 📖
Class 4	📖 📖 📖
Class 5	
Class 6	📖 📖 📖 📖

📖 = 5 books

3 Year 2 sell cakes at a bake sale.
The table shows the data.
Draw a pictogram to represent the data.
Each circle represents 10 cakes.

● = 10 cakes

Number of cakes sold

Chocolate cake	𝍸 𝍸 𝍸 𝍸
Lemon cake	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸
Red velvet cake	𝍸 𝍸 𝍸 𝍸 𝍸
Mint cake	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸
Carrot cake	𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸 𝍸

Draw Pictograms (2, 5 & 10)

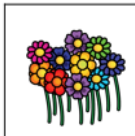
Reasoning and Problem Solving

Create a pictogram to show who was born in what season in your class.

Use what you know about pictograms to help you.

Here is an example.

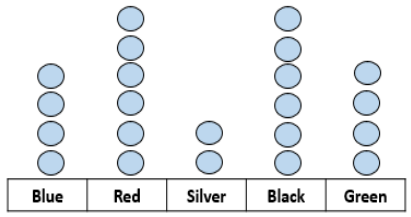
Seasons we were born in

			
Spring	Summer	Autumn	Winter

= 2 children

Zac and Lily both draw a pictogram to show how many cars they have seen pass their school.

Pictogram to show the number of cars



= 5 cars

Mine is better because it shows big numbers.

Mine is better because I can count in 10s

Pictogram to show the number of cars

Animal	
Blue	●●
Red	●●●
Silver	●
Black	●●●
Green	●●

● = 10 cars

Whose pictogram is better?
Explain your reasoning.

Possible answer. They are both equally as good. Each pictogram is easy to read. One counts in 5s and the other counts in 10s, but they both show the same information.

Ordering Numbers

Notes and Guidance

Children order sets of objects and numbers from smallest to largest and largest to smallest.

Children use the language 'most', 'bigger', 'biggest', 'larger', 'largest', 'smaller', 'smallest' and 'least'.
Children revisit and practise position and ordinal numbers (first, second, third etc.).

Mathematical Talk

How are we ordering these objects/numbers? Which should be start with?

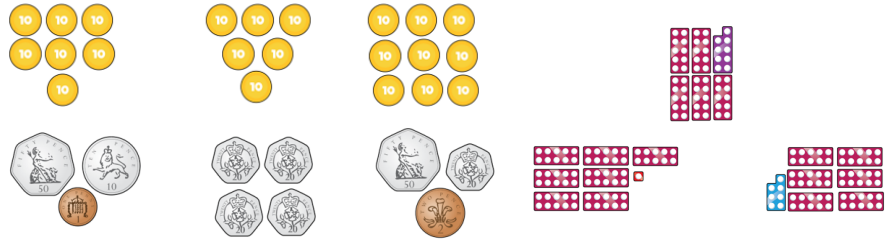
Which is the biggest/has the most?
Which is the smallest/has the least?
Which number/group comes next? How do you know?

How many more/less objects are in group A than group B?

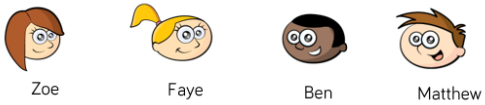
Varied Fluency

1 Put these objects in the correct place in the table.

Most		Least



2 Put the children in the correct order.



Ben is first in the line. Zoe is fourth. Faye is second. Matthew is third place in the line.

3 Order the numbers from smallest to largest.

57	8	21

100	93	72

Ordering Numbers

Reasoning and Problem Solving

How have these numbers been ordered?

18, 39, 52, 64, 65, 80

Explain how you know.

Numbers have been ordered from smallest to largest. Children should explain that the numbers are getting larger each time.

Complete the number tracks.

65	78		91	99

89	80	72		

		57		

Why did you choose the numbers you did?
Are they the only numbers that could have completed the number tracks?

1. Children could choose any number >78 but <91.
2. Children could choose any numbers <72.
3. Children can choose any numbers to make the track go from largest to smallest or smallest to largest.

Interpret Pictograms (2, 5 & 10)

Notes and Guidance

Children build on previous work of counting in 2s, 5s and 10s and answer questions based on this information.
To help the children to fully understand pictograms it is important they have collected their own data previously in tally charts and constructed larger scale pictograms practically.
Children need to be confident to halve 2 and 10.
It is important the children are exposed to both horizontal and vertical pictograms.

Mathematical Talk

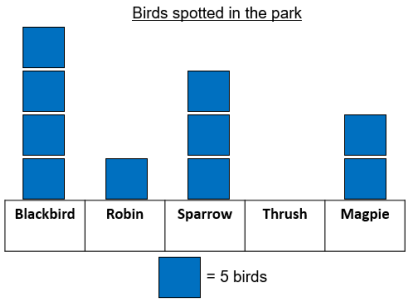
How can we represent 0?

What does this pictogram show? What would the title of this pictogram be?

What is each symbol worth?

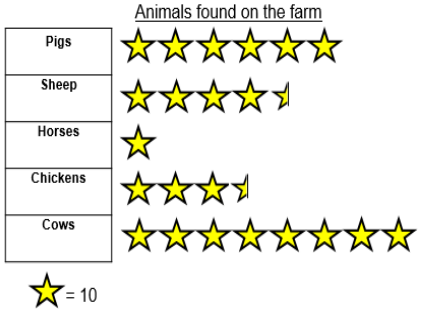
Varied Fluency

1 Find the difference between sparrows and robins.
What is the total number of birds?
How did you calculate this?
Can you think of your own question to ask a friend?



2 Which is the most popular sport?
How many children voted for football and swimming?

3 Using the pictogram, sort the statements into true and false.



Statement	True or False?
Horses were the least popular animal.	
The number of chickens seen were half the number of cows.	
The total amount of pigs and sheep is 70	
The difference between cows and horses is 60	
There were 10 less chickens than sheep.	

Interpret Pictograms (2, 5 & 10)

Reasoning and Problem Solving

Harry and Lucy have carried out a traffic survey.

Van	⊗ ⊗ ◖
Bus	⊗ ⊗ ⊗ ⊗
Bike	⊗ ⊗ ⊗
Lorry	⊗ ⊗
Car	⊗ ⊗ ⊗ ⊗ ⊗

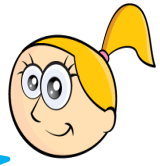
⊗ = 10

Harry says;

If I add the number of lorries and bikes together then it will be equal to the number of cars

Is he right? Convince me

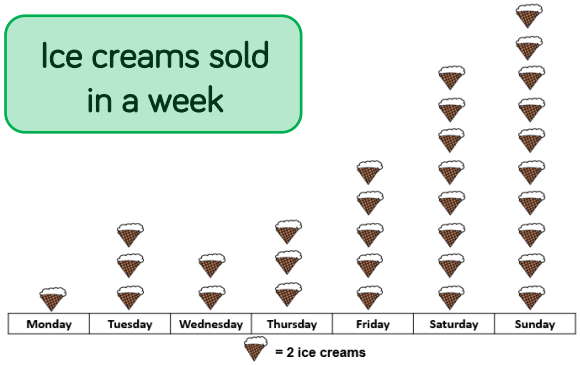
Lucy says;



To find the total number of vehicles I need to add all the images up.

Is she correct? Explain your answer.

Harry is correct because there are 10 lorries (2 lots of 10) and 30 bikes (3 lots of 10).That means there are 50 lorries and bikes altogether. This is the same as the number of cars, which is 50. Lucy is incorrect because she has ignored the key. That means there will be 165 cars, not 16 and a half.



Convince me

On Sunday the most ice creams were sold.

True or False (Why?)

Three ice creams were sold on Tuesday.

Justify

If the staff needed to pick which day to have off during the week, which would be the best day and why?

The most ice creams were sold on Sunday because this is the column with most pictures of ice creams on it. There were not 3 ice creams sold on Tuesday, there were 30 sold. One ice cream is worth 10 ice creams. The best day off would be Monday because that is the day they sold the least amount.

One More, One Less

Notes and Guidance

Children find one more and one less than given numbers to 100

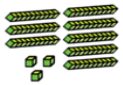
Children begin using concrete materials and physically add 1 more or take 1 away before moving to more abstract methods such as number tracks or hundred squares.

Mathematical Talk

Do we need to add more or take some away?
How can we represent this?
How many tens were there? How many tens are there now?
How many ones were there? How many ones are there now?
Which place value column changes when finding 1 more and 1 less?
What happens when I find 1 more than a number with 9 ones?
What happens when I find 1 less than a number with 1 one?

Varied Fluency

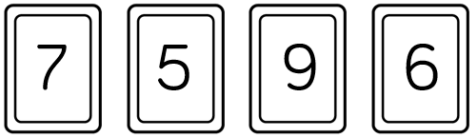
1 Show one more and one less than the numbers given.

One less		One more
		
		
		

2 Find the missing numbers.

		37			
	46	47			
55		57			
65					

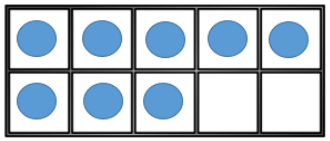
3 Use the number cards to make 2 digit numbers.
Now write down one more and one less than the numbers you have made.
Use equipment if needed.



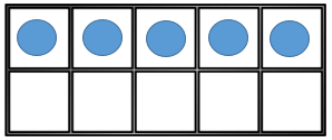
One More, One Less

Reasoning and Problem Solving

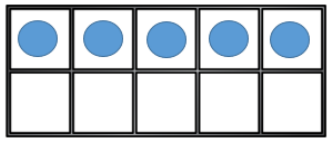
Can you move two of the counters so Jacob has 1 more than Emma and Toni has 1 less than Emma?



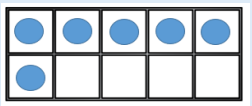
Emma



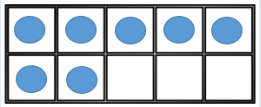
Jacob



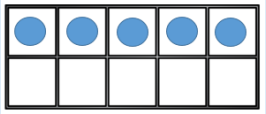
Toni



E



J



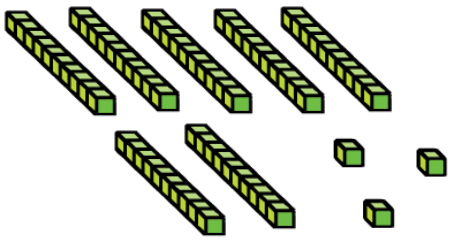
T

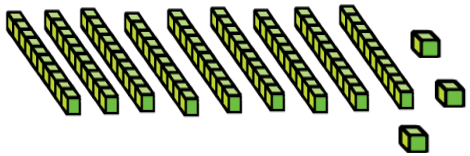
Always, Sometimes, Never

When finding 1 less the tens digit stays the same.

Sometimes. If the number has 0 ones, the tens number will change.

Iqra started with this number.





Has Iqra shown the correct amount? Explain how you know.

Iqra is not correct. Iqra has shown 10 more by adding another rod instead of 1 more and adding another cube.

Block Diagrams

Notes and Guidance

Children use their knowledge of number lines to link to the idea of a scale up the side of a block diagram. They read the scale on the bar chart to work out what each block represents.
Children ask and answer questions using their addition, subtraction, multiplication and division skills.
Moving from concrete to pictorial, children build block diagrams using cubes and then move to drawing and interpreting block diagrams.

Mathematical Talk

Can you use data to draw a block diagram? What will each block be worth?

Can you make a block diagram about favourite colours about your own class?

Can you colour in the blocks on the axis to represent the data?

Can you create your own questions to ask about the block diagram?

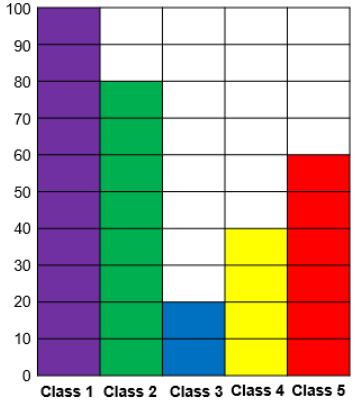
Varied Fluency

1 Class 4 are collecting data about favourite colours.

Colour	Number of children
Red	5
Green	8
Blue	7
Yellow	2

Make a block diagram using cubes to represent the data.
Can you now draw the block diagram? Remember to label the blocks and draw a clear scale.

2 5 classes collected their house points.
Here are their results.
Which class collected the most house points?
Which class collected the fewest house points?
How many more points did Class 2 get than Class 4?
How many fewer points did Class 3 get than Class 5?
How many points did Class 2 and Class 3 get altogether?

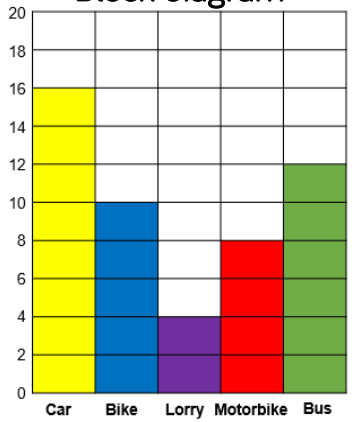


Block Diagrams

Reasoning and Problem Solving

Which one is the odd one out?
Explain why.

Block diagram



Pictogram

= 10

Transport	Number
Car	
Bike	
Lorry	
Motorbike	
Bus	

Tally Chart

Transport	Number
Car	𝍸 𝍸 𝍸 I
Bike	𝍸 𝍸
Lorry	II
Motorbike	IIII
Bus	𝍸 𝍸 II

Possible answer
The pictogram is the odd one out because the information is different from the other two sets of data. The block diagram and the tally chart match each other perfectly.

Split into groups.
Everyone needs to write their name on a post it note.
Using a blank axis of a block diagram, use your post it notes to find the answers to the following questions:

- How many boys and how many girls are there in your group?
- Which month has the most birthdays for your group?
- How old are the children in your group?