St Walburga's Catholic Primary School
Year 2 – Fluency and Reasoning

Number, Place Value and Rounding

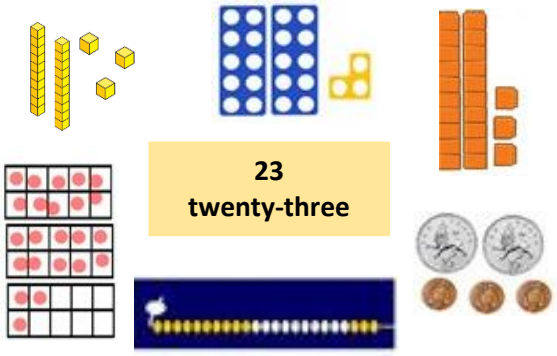
Key vocab: ones, tens, two-digit, estimate, place value, solve, problems, greater than (>), less than (<), nearest ten, number facts, partition, count in steps, zero, compare, determine, value

NC Objectives:

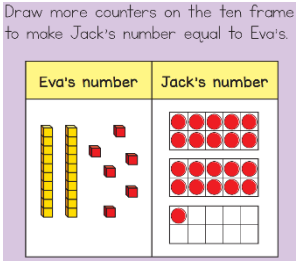
- Read and write numbers to at least 20 in numerals and words.
- Read and write numbers to at least 100 in numerals and words.
- Identify, represent, and estimate numbers using different representations, including a number line.

Concrete

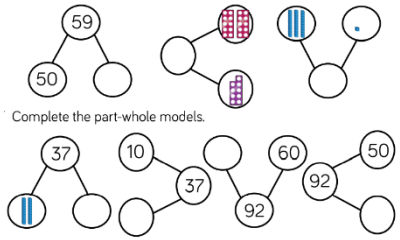
- Use different objects to make given numbers (numerals and words), for example, Numicon, Base 10/Dienes, ten frames, bead strings, counters:



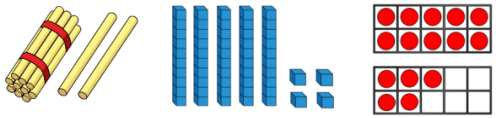
Pictorial



Draw pictures to complete the part-whole models.



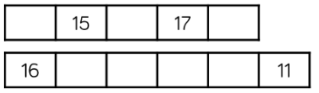
What numbers are represented below?
Write your answer in numerals and words.



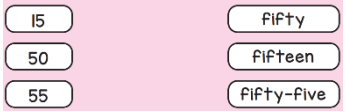
Draw pictures to represent different numbers up to 100.

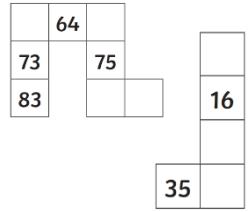
Abstract

Fill in the missing numbers.

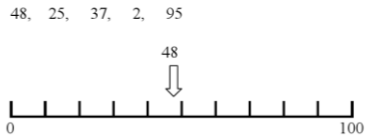


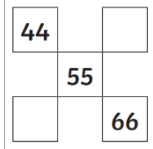
Match the numerals to the words.





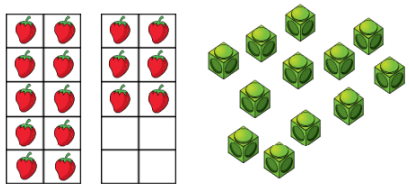
This line shows the numbers up to 100 divided into tens. Draw an arrow to show the following numbers approximately (the first has been done for you).





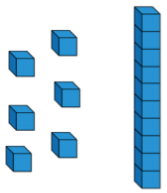
Reasoning

Here are two sets of objects.



Which are easier to count?
Explain your answer.

Jack says he has 61
Is he correct?



Explain your reasoning.

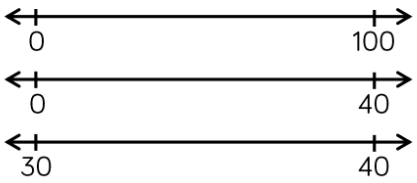
How many two digit numbers can you make using the digit cards?

What is the largest number?
Prove it by using concrete resources.

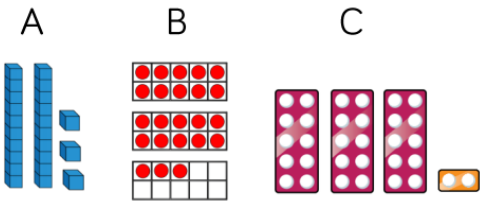
What is the smallest number?
Prove it by using concrete resources.

Why can't the 0 be used as a tens number?

Where would 36 go on each of the number lines?



One of these images **does not** show 23
Can you explain the mistake?



Number, Place Value and Rounding

Key vocab: ones, tens, two-digit, estimate, place value, solve, problems, greater than (>), less than (<), nearest ten, number facts, partition, count in steps, zero, compare, determine, value

NC Objectives:

- Compare and order numbers from 0 up to 20; use <, > and = signs.
- Compare and order numbers from 0 up to 100; use <, > and = signs.

Concrete

Use different types of objects, e.g., counters, Numicon, cars, multilink, to group together.

Ask the children to compare and order the groups of objects.

Create a tower using different coloured cubes.
Describe the order of the colours using 'first', 'second' 'third' and 'last' etc.
Can you give your partner accurate instructions so that they can create the same tower?

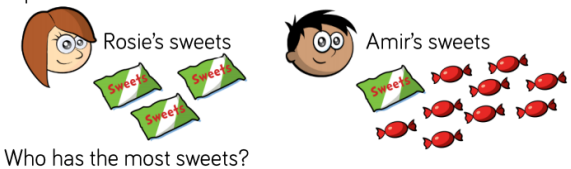
Use cubes to show that:

- Eleven is less than fifteen
- 19 is greater than 9
- 2 tens is equal to 20

Use Base 10 to make the numbers sixty, sixteen and twenty-six.
Write the numbers in order starting with the greatest number.

Pictorial

A packet of sweets contain 10 sweets.

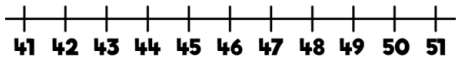


Who has the most sweets?

Draw counters in each box to make the increasing pattern correct.

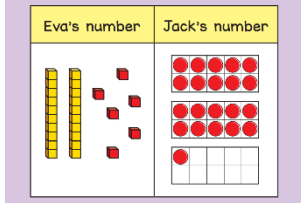
Smallest → Greatest

Circle the numbers 48, 43 and 50 on the number line.

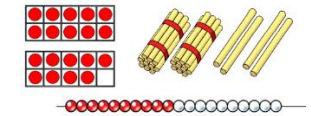


Put the numbers 48, 43 and 50 in order starting with the smallest.

Draw more counters on the ten frame to make Jack's number equal to Eva's.



The diagrams represent different numbers.



Circle the greatest number.
Circle the smallest number.

Abstract

Put <, > or = in each circle to make the statements correct.

28 ◯ 30
90 ◯ 70 + 28
30 + 23 ◯ 40 + 13
20 + 14 ◯ 24

Use a number line or 1-50 grid to compare:

fifteen ◯ 50 48 ◯ 39
28 ◯ 29 2 tens < ☐

Use <, >, or = to compare.

80 ◯ 32 56 ◯ 37 25 ◯ 93
45 ◯ 62 74 ◯ 74 68 ◯ 34

Put the numbers in order.

30, 58, 26, 42
—, —, —, —
52, 25, 93, 47
—, —, —, —

Circle to make it true.

35 is greater than less than equal to 56
49 is greater than less than equal to 24

Reasoning

Do, then explain

37 13 73 33 3

If you wrote these numbers in order starting with the smallest, which number would be third?
Explain how you ordered the numbers.

Dora compares the two values.

23 < 3 tens and 3 ones

Change one thing in the values so they are equal.

True or False?

One ten and twelve ones is bigger than 2 tens.

Explain how you know.

How many different numbers can go in the box?

13 < ☐ < 20

Rosie and Amir are comparing numbers they have made.

Rosie's number

Amir's number

My number is greater because I have more objects.

Is Rosie correct?

Explain your answer.

Mo has written a list of 2-digit numbers.

The digits of each number add up to five.
None of the digits are zero.

Can you find all the numbers Mo could have written?

Write the numbers in order from smallest to largest.

What strategy did you use?

Number, Place Value and Rounding

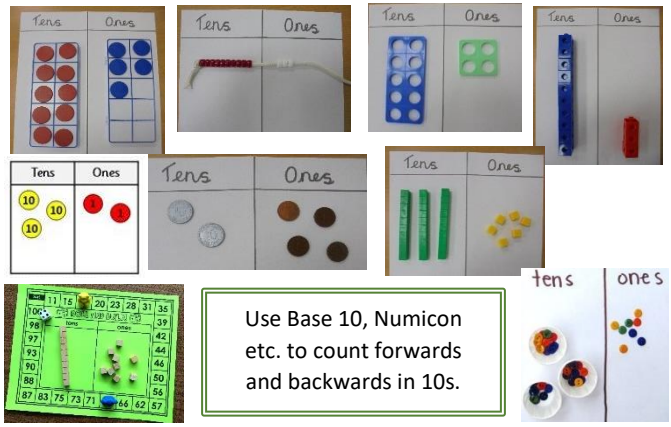
Key vocab: ones, tens, two-digit, estimate, place value, solve, problems, greater than (>), less than (<), nearest ten, number facts, partition, count in steps, zero, compare, determine, value

NC Objectives:

- Recognise the place value of each digit in a 2-digit number (tens, ones).
- Count in 10s from any number, forward and backward.
- Use place value and number facts to solve problems.

Concrete

- Use different objects to make 2-digit numbers, clearly showing the place value of the digits.



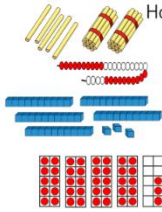
Use Base 10, Numicon etc. to count forwards and backwards in 10s.

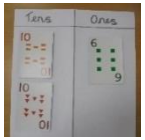
Pictorial

Match the pictures and words.

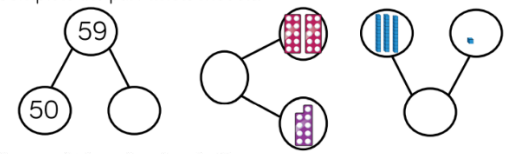
- Four tens and three ones
- Two tens and five ones
- Three tens and four ones
- Three ones and five tens

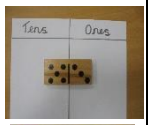
How many?





Complete the part-whole models.





How many birds are there altogether?

There are ____ birds in each tree.
There are ____ trees.
There are ____ birds altogether.

Abstract

What number is represented in the place value chart?

Tens	Ones
9	1

Write two different number sentences for this number.

____ + ____ = ____
____ = ____ + ____

23 = ___2___ tens ___3___ ones

36 = _____ tens _____ ones

61 = _____ tens _____ ones

1)

10		30			60		80

2)

20	30			60		80	

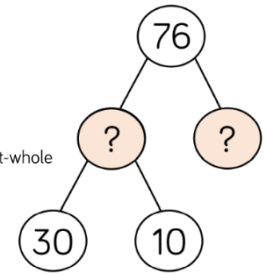
Reasoning

Make up an example

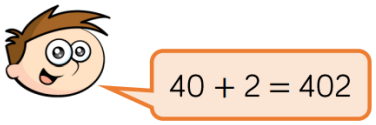
Create numbers where the units digit is one less than the tens digit. What is the largest/smallest number?

Steve says, 'My number has two tens and five ones.'
What is Steve's number?
Amy has two more tens than Steve. What is her number?
Sam says, 'My number has five tens.'
What numbers **can** it be?
What numbers **can't** it be?

Complete the extended part-whole model.



Teddy thinks that,



Explain the mistake he has made.

Can you show the correct answer using concrete resources?

Do both place value charts show the same value?

A

Tens	Ones

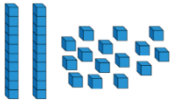
B

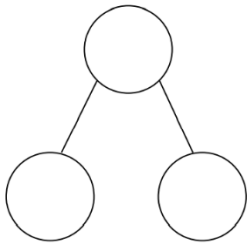
Tens	Ones

What is the same?

What is different?

How many ways can you complete the part-whole model to show numbers up to 20, using the Base 10 equipment – you do not have to use it all.





Jemima is counting in 10s on part of 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?

Number, Place Value and Rounding

Key vocab: ones, tens, two-digit, estimate, place value, solve, problems, greater than (>), less than (<), nearest ten, number facts, partition, count in steps, zero, compare, determine, value

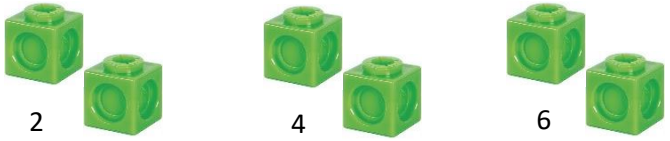
NC Objectives:

- Count in steps of 2, 3 and 5 from 0.

Concrete

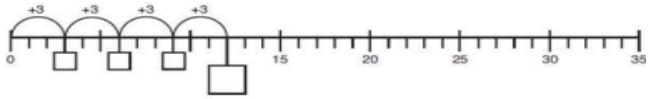
- Put objects into pairs/groups of 3/groups of 5 and use these to count from 0.

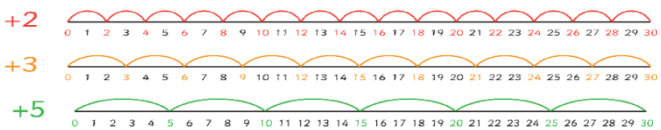
3 6 9 12 15 18 21



2 4 6

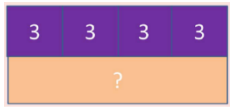
Pictorial





Continue colouring in 2s on the grid. What do you notice?

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



How many socks are there?

There are ___ socks in total.

Abstract

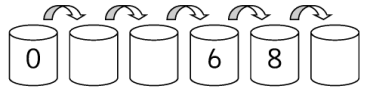
Count in multiples of a number aloud.

Write sequences with multiples of numbers.

0, 2, 4, 6, 8, 10

0, 3, 6, 9, 12, 15

0, 5, 10, 15, 20, 25 , 30



$4 \times 3 = \square$

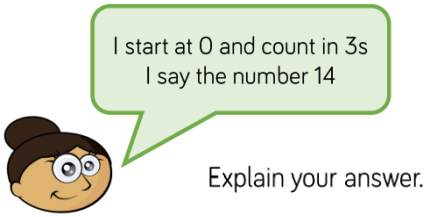
Reasoning

mistake:
45,40,35,25
What is wrong with this sequence of numbers?

True or False?
I start at 3 and count in threes. I will say 13?

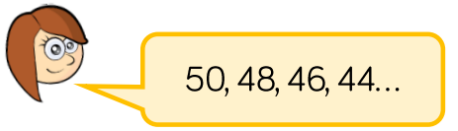
What comes next?
41+5=46
46+5=51
51+5=56

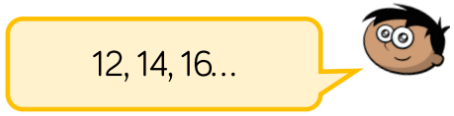
True or False?



Explain your answer.

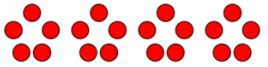
Rosie counts back from 50 in 2s.
Amir counts up from 12 in 2s.



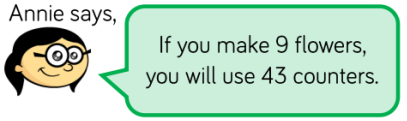


They say their numbers together.
Who will say 30 first.

Amir is making this flower pattern with counters.

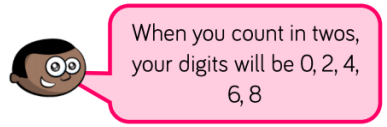


Annie says,



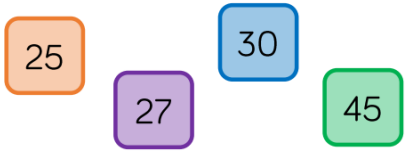
Do you agree with Annie?
Explain your answer.

Always, sometimes, never...



Prove it!

Odd One Out



Which is the odd one out? Explain your answer.

Addition and Subtraction

Key vocab: columnar addition, columnar subtraction, tens, order, inverse relationship, calculation, solve problems, missing number problems, quantities, measures, formal written method, mental method, method, operation, apply, whole number, sum

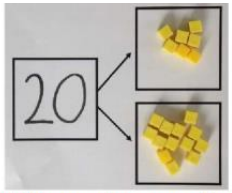
NC Objectives:

- Recall and use addition and subtraction facts to 20 fluently and derive and use related facts up to 100.
- Read, write, and interpret mathematical statements involving + - = signs.
- Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot.
- Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.

Concrete

50 = 30 + 20

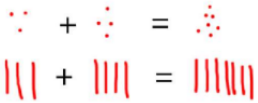
Model using dienes and bead strings



Children explore ways of making numbers within 20

Use different apparatus to show fact families.

Pictorial



Visually exploring the link between number bonds to 10 and number bonds to 100.

Look at the bar model below.
Can you write all of the number sentences in the fact family?

Use number lines and other visual representations to show that addition can be done in any order.

Abstract

Explore commutativity of addition by swapping the addends to build a fact family.
Explore the concept of the inverse relationship of addition and subtractions and use this to check calculations.

20 + 30 = 50

70 = 50 + 20

40 + □ = 60

□ + 1 = 16 16 – 1 = □

1 + □ = 16 16 – □ = 1

Find the missing numbers in the related facts.

5 + 4 = 9 8 = 3 + 5 4 = 10 – 6

50 + 40 = _____ 80 = 30 + _____ 40 = _____ – 60

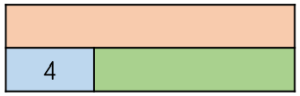
Reasoning

Continue the pattern
90 = 100 – 10
80 = 100 – 20
Can you make up a similar pattern starting with the numbers 74, 26 and 100?

Fact families
Which four number sentences link these numbers?
100, 67, 33

What else do you know?
If you know this:
87 = 100 – 13
what other facts do you know?

Here is an incomplete bar model.
The total is greater than 10 but less than 20
What could the missing numbers be?
How many different combinations can you find?



8 – 5 = 3
8 – 3 = 5
8 = 5 – 3
3 = 8 – 5

Rosie says,

I think that all of these facts are correct because the numbers are related

Ron disagrees.
Who is correct? Can you prove it?

Eva did the following calculation:

12 – 8 = 4

She checked it by using the inverse.

She did 12 + 8 = 20 and said that her first calculation was wrong.

What advice would you give her?

Addition and Subtraction

Key vocab: columnar addition, columnar subtraction, tens, order, inverse relationship, calculation, solve problems, missing number problems, quantities, measures, formal written method, mental method, method, operation, apply, whole number, sum

NC Objectives:

- **Add** numbers using concrete objects, pictorial representations, and mentally, including:
  - Adding three 1-digit numbers.
  - 2-digit number & ones
  - 2-digit number & tens
  - Two 2-digit numbers
- Find 10 more or less than a given number.
- Solve problems with addition.

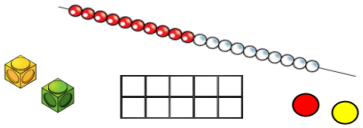
Concrete

- Combine groups of different objects to find a total amount.
- Regroup objects to make 10 to find a total amount.
- Use Base 10/Dienes to add 2-digit numbers together:

Use concrete objects to check and prove whether the calculations are correct.

$12 - 4 = 8$

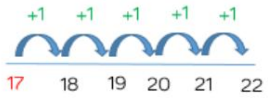
$7 + 8 = 15$

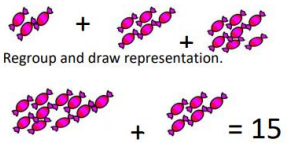


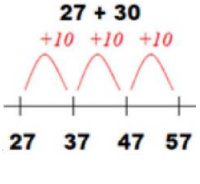
Model using Dienes, place value counters and Numicon.

Pictorial

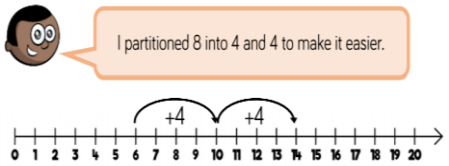
$17 + 5 =$







Mo has used a number line to calculate 6 + 8

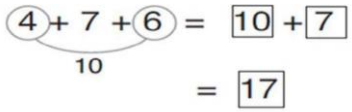


Abstract

Complete the sentences.

1 more than 48 is ☐

10 less than ☐ is 83



Combine the two numbers that make/ bridge ten then add on the third.

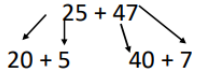
Complete the missing numbers.

$5 + 3 = 6 + \_\_\_\_$

$5 + 3 = \_\_\_\_ + 6 = 7 + \_\_\_\_$

$\_\_\_\_ + 3 = \_\_\_\_ + 4 = 5 + 5$

Can you put the larger number in your head and count on the smaller number? Start at 17 and count on 5



$20 + 40 = 60$

$5 + 7 = 12$

$60 + 12 = 72$

Reasoning

Hard and easy questions

Which questions are easy / hard?

$23 + 10 =$

$93 + 10 =$

$54 + 9 =$

$54 + 1 =$

Explain why you think the hard questions are hard?

Other possibilities

☐ + ☐ + ☐ = 14

What single digit numbers could go in the boxes? How many different ways can you do this?

Always, sometimes, never

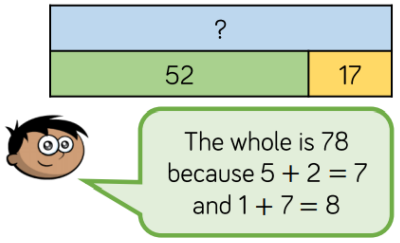
Is it always, sometimes, or never true that if you add three numbers less than 10 the answer will be an odd number?

Annie has 12 marbles.

Ron has 13 marbles more than Annie.

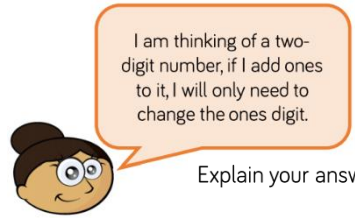
How many marbles do they have altogether?

Amir has been asked to complete the bar model.



Explain to Amir what he has done wrong. How could you help him work out the correct total?

Always, Sometimes, Never



Explain your answer.

What digits could go in the boxes?

☐ 2 + ☐ 5 = 87

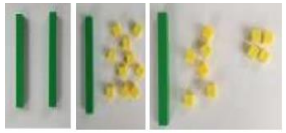
Addition and Subtraction

Key vocab: columnar addition, columnar subtraction, tens, order, inverse relationship, calculation, solve problems, missing number problems, quantities, measures, formal written method, mental method, method, operation, apply, whole number, sum

NC Objectives:

- **Subtract** numbers using concrete objects, pictorial representations, and mentally, including:
  - 2-digit number & ones
  - 2-digit number & tens
  - Two 2-digit numbers
- Find 10 more or less than a given number.
- Solve problems with subtraction.

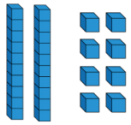
Concrete



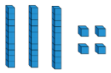
Use a PV chart to show how to change a ten into ten ones, use the term 'take and make'

Use different apparatus to

Subtract 13 from 28



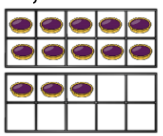
Tommy is making 100 with Base 10
How much more does he need if he has:

- 
- 5 tens and 3 ones
- 37

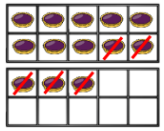
Children could place their Base 10 on top of a 100 piece to help them calculate.

Pictorial

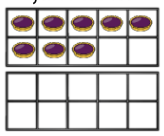
First there were 13 jam tarts

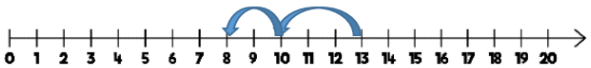


Then 5 were eaten

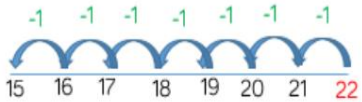


Now there are 8 jam tarts.





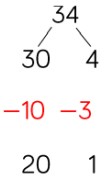
22 – 7 =



20 – 4 =

Abstract

34 – 13 = ____



- Partition the number 34.
- Partition 13 and subtract the ones and the tens.
- Place the partitioned number back together.

78 minus 34 = ____

8 ones – 4 ones = ____

7 tens – 3 tens = ____

We have _____ tens and _____ ones.

Can you put the larger number in your head and count back the smaller number? Start at 22 and count back 7

Reasoning

True or false?

Are these number sentences true or false?

98 – 18 = 70

92 – 67 = 35

Give your reasons.

Mo is counting back to solve 35 – 7

He counts

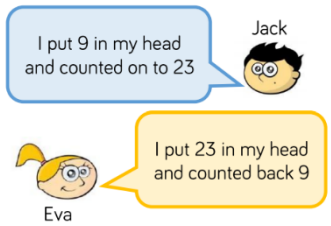
35, 34, 33, 32, 31, 30, 29

Is Mo correct?

Explain your answer.

Jack and Eva are solving the subtraction 23 – 9

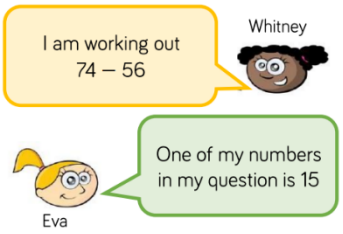
Here are their methods:



Who's method is the most efficient?

Can you explain why?

Eva and Whitney are working out some subtractions.



Whitney's answer is double Eva's answer.

What could Eva's subtraction be?

Find the greatest whole number that can complete each number sentence below.

45 – 17 > 14 + ___

Explain your answer.

26 + 15 < 60 – ___

Annie has 33 stickers.

Dexter has 54 stickers.

How many more stickers does Dexter have?

What method did you use to solve the problem?

Multiplication and Division

Key vocab: multiplication facts, division facts, multiplication tables, odd numbers, even numbers, equally, repeated addition, calculate

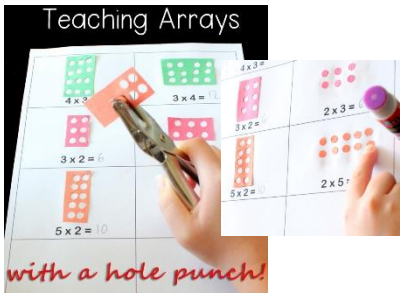
NC Objectives:

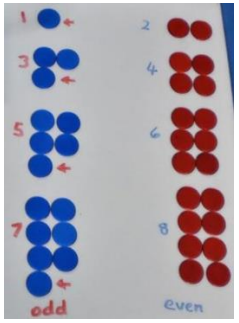
- Solve problems involving arrays and repeated addition.
- Count in steps of 2, 5, 10 and 3.
- Recall and use multiplication and division facts for the 2, 5 and 10 times tables, including recognising odd and even numbers.

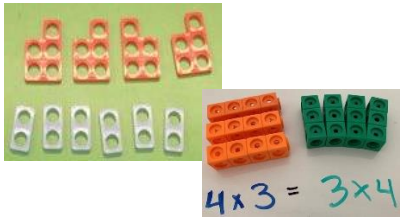
Concrete

- Use different objects to create arrays – link to repeated addition and use vocab, including 'groups of' or 'lots of'









Pictorial

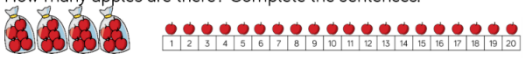
How many wheels altogether?

2 + 2 + 2 + 2 + 2 =

How many fingers altogether?

5 + 5 + 5 =

How many apples are there? Complete the sentences.



5 + 5 + 5 + 5 = ___

There are ___ apples.

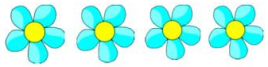
There are ___ groups of ___ apples which is equal to ___

How many crayons are there altogether?

There are ___ crayons altogether.

___ × 10 = ___

How many petals altogether?



Write the calculation.

Abstract

Circle the number that is even.

2 7	3 4
9 6	10 7

Use <, > or = to make the statements correct.

2 × 5 ◯ 5 × 2

3 × 2 ◯ 4 × 5

10 × 5 ◯ 5 × 5

Show this in the table.

5 11 6 3 10 8 4 7 9 12 2 1	Odd	Even

Think of a multiplication fact for 10s to go in each box.

2 × 10		9 × 10	0 × 10		2 × 10
smallest		greatest	smallest		greatest
	1 × 10	6 × 10		5 × 10	
smallest		greatest	smallest		greatest

Reasoning

Missing numbers

10 = 5 x ■

What number could be written in the box?

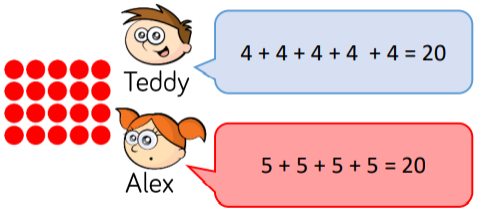
Making links

I have 30p in my pocket in 5p coins. How many coins do I have?

True or false?

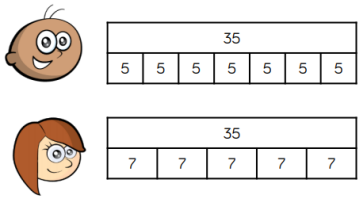
When you count up in tens starting at 5 there will always be 5 units.

Teddy and Alex are writing number sentences to describe the array.



Who do you agree with? Explain why.

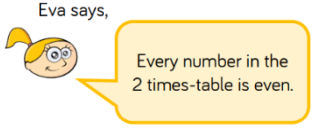
Tommy and Rosie have both drawn bar models to show 7 × 5



What's the same and what is different about their bar models?

Draw your own bar model to represent 4 × 5

Eva says,



Is she correct? Explain your answer.

Part of this array is hidden.

The total is less than 16

What could the array be?

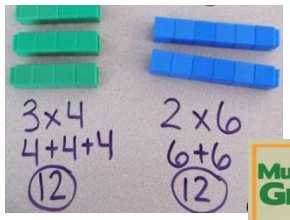
Multiplication and Division

Key vocab: multiplication facts, division facts, multiplication tables, odd numbers, even numbers, equally, repeated addition, calculate

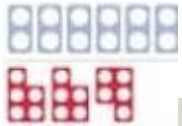
NC Objectives:

- Solve problems involving **multiplication** using materials and pictures.
- Calculate the mathematical statements for multiplication (linked to pictures) within the multiplication tables and write them using x ÷ = signs.
- Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.
- Solve problems involving multiplication, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

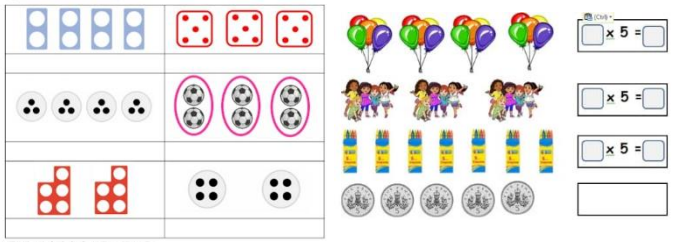
Concrete

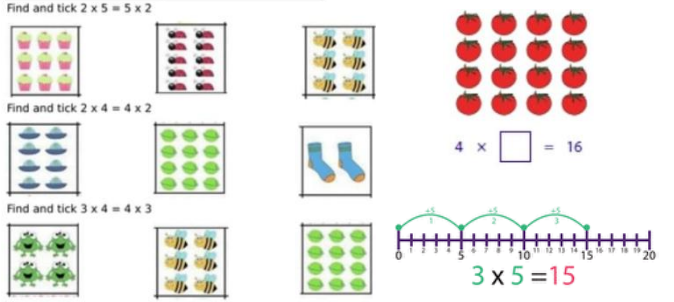


Use different objects to represent and solve multiplication calculations.



Pictorial





Abstract

Complete the table by doubling each number.

1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

2 x ____ = 8

2 x ____ = 2

2 x ____ = 12

2 x ____ = 18

7 x 1 = ☐

5 x 2 = ☐

3 x 2 = ☐

11 x 1 = ☐

7 x 3 = ☐

10 x 3 = ☐

Addition	Multiplication	Story
10 + 10 + 10		
	6 x 5	

Reasoning

There are four baskets.

There are three dolls in each basket.

How many dolls are there altogether?

Draw an image and write a calculation to represent the problem.

6 + 6 + 6 > ___ x ___

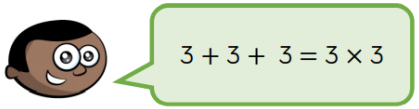
The total is 12, what could the addition and multiplication be?

Use <, > or = to make the statements correct.

3 × 5	◯	5 + 5 + 5 + 5
2 × 2	◯	2 + 2
10 × 2	◯	5 + 5 + 5

Write a story for the calculation 4 × 10

Draw an image to illustrate your story.



Is Mo correct? Explain why.

Draw an image to help you.

Sort into equal and unequal groups.

Equal Groups	Unequal Groups

Create your own picture to go in each column.

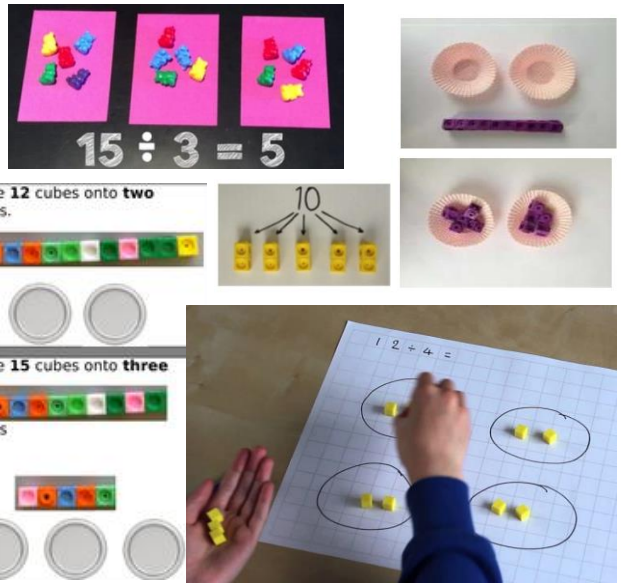
Multiplication and Division

Key vocab: multiplication facts, division facts, multiplication tables, odd numbers, even numbers, equally, repeated addition, calculate

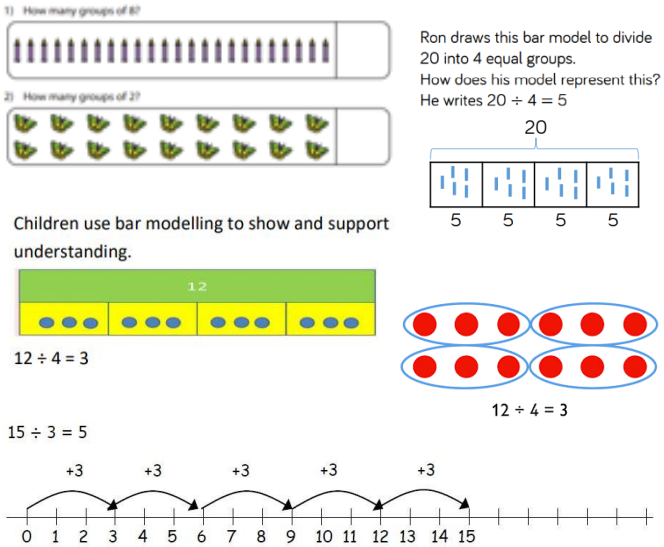
NC Objectives:

- (Division as sharing) Calculate the mathematical statements for multiplication and division within the multiplication tables and write them using x ÷ = signs.
- Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot.
- Solve problems involving **division**, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.

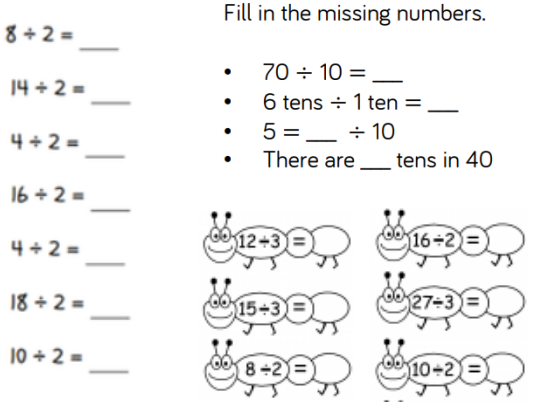
Concrete



Pictorial



Abstract



Reasoning

Use the inverse

Use the inverse to check if the following calculations are correct:

12 ÷ 3 = 4

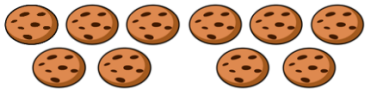
3 x 5 = 14

You have 30 counters.

How many different ways can you put them into equal groups?

Write down all the possible ways.

Dora has 10 biscuits.



She wants to share them equally at her party.

How many people could be at the party?

I am thinking of a number between 20 and 30

I can only make equal groups of 5

What must my number be?

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

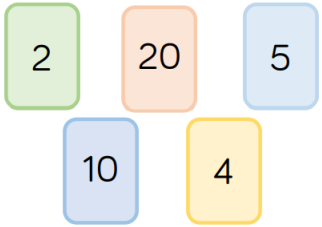
What happens when I try to make groups of 10 with it?

Tommy and Jack each have the same number of sweets.

Tommy has 5 equal groups of 2
Jack has 1 equal group.
How many sweets are in Jack's group?

Use the number cards to make multiplication and division sentences.

How many can you make?



Fractions, Decimals and Percentages

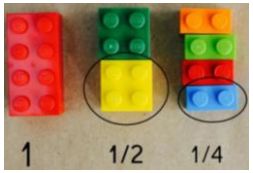
Key vocab: simple fractions, equivalent, equivalence, count

NC Objectives:

- Count in fractions up to 10.
- Recognise, find, name, and write fractions $^1/_3$, ¼, $^2/_4$, and ¾ of a length, shape, set of objects or quantity.
- Write simple fractions, e.g., ½ of 6 = 3 and recognise the equivalence of ½ and $^2/_4$.

Concrete

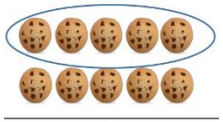
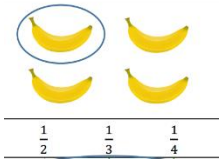
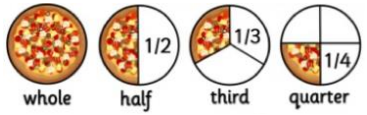




Share 20 beanbags equally between two containers, then complete the stem sentences.

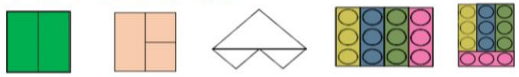
The whole is ____. Half of ____ is ____.

Pictorial

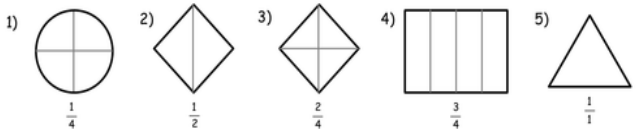
Circle half the cakes.

Look at the representations. Decide which show equal parts and which show unequal parts.



Can you make some of your own representations of equal and unequal parts?

Shade fractions of shapes



Abstract

$\frac{1}{4}$ of 24 = ☐
$\frac{2}{4}$ of 24 = ☐
$\frac{3}{4}$ of 24 = ☐
$\frac{4}{4}$ of 24 = ☐

$\frac{1}{4}$ of 4 = ☐
$\frac{3}{4}$ of 4 = ☐
$\frac{1}{4}$ of 8 = ☐
$\frac{3}{4}$ of 8 = ☐

$\frac{1}{4}$ of ☐ = 5
$\frac{3}{4}$ of ☐ = 15
$\frac{1}{4}$ of ☐ = 2
☐/4 of 8 = 6

Comparing fractions of amounts.

Mark whether the fractions are; more than (>), less than (<) or equal to (=) each other.

1/2 of 12 ☐ 1/4 of 12
1/4 of 8 ☐ 1/2 of 12
1/4 of 4 ☐ 1/3 of 3
2/4 of 12 ☐ 1/2 of 12

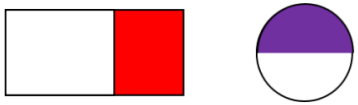
Reasoning

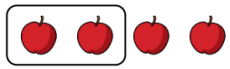
Spot the mistake
7, 7 ½ , 8, 9, 10
8 ½, 8, 7, 6 ½,
… and correct it

What comes next?
5 ½, 6 ½ , 7 ½ , …., ….
9 ½, 9, 8 ½, ……, …..

What do you notice?
¼ of 4 = 1
¼ of 8 = 2
¼ of 12 = 3
Continue the pattern
What do you notice?

Odd One Out





$\frac{1}{2}$

One half

Which is the odd one out?
Explain your answer.

Who has more? Explain why.

I have $\frac{1}{4}$ of £8

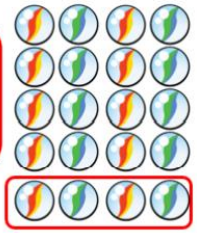
Rosie

I have $\frac{1}{2}$ of £6

Whitney

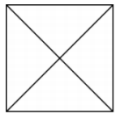
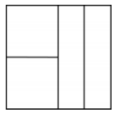
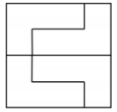
Eva says,

I have $\frac{1}{4}$ because I have 4 marbles.

Do you agree? Explain why.

Three children are splitting a square equal parts.

Teddy

Alex

Mo


Who has split the square into equal parts? Explain why.

Measurement

Key vocab: greater than >, less than <, equals =, intervals, standard units, estimate, direction, temperature, unit, scales, rulers, thermometers, measuring vessels, metres, centimetres, kilograms, grams, degrees Celsius, litres, millilitres, symbols, money, pounds (£), pence (p), different, combinations, change, five past, ten past, quarter past, twenty past, twenty-five past, half past, twenty-five to, twenty to, quarter to, ten to, five to

NC Objectives:

- Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value.
- Find different combinations of coins that equal the same amounts of money.
- Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change.

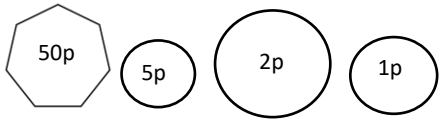
Concrete

Use coins to make amounts of money:
58p

Use role play to pay for items with coins and introduce giving change.

Pictorial

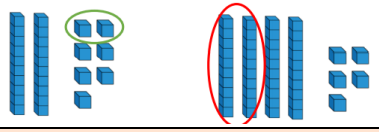
Draw coins to make different amounts of money:
58p



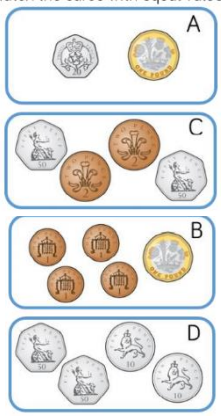
How much money is there altogether?

There is £____ and ____p.

The Base 10 represents money. What coin is represented by each circle?



Match the cards with equal value



Abstract

How can you make different amounts of money?

58p = 50p + 5p + 2p + 1p

Fill in the gaps to make the statements correct.

- £10 + £5 + 50 p = £____ and ____p
- £20 + £2 + 10 p + 10 p + 2 p = £____ and ____p
- £5 + £___ + 50 p + 20 p + 20 p + 1 p = £10 and ____p

Amir buys bread and eggs.


49 p


30 p

How much does he spend?

Ron spends 65 p in the shop.
He pays with a £1 coin.

How much change will he receive?

Reasoning

Possibilities

How many different ways can you make 63p using only 20p, 10p and 1p coins?

Jack selects four of these coins.

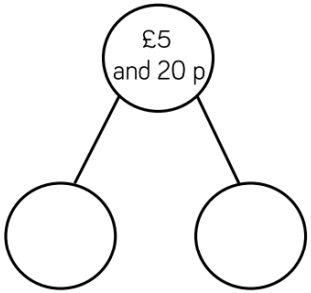
He can use the coins more than once.

What total could he make?

What is the lowest total?

What is the greatest total?

How many ways can you complete the part-whole model by drawing money?



I paid for my shopping with one coin.

Here is my change.

What could I have paid with and how much would the item have been?

Mo has the following coins.

He thinks he has 51 p.

Explain his mistake.

Annie and Ron both claim to have 90 p.

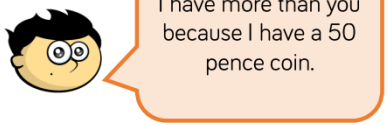
Annie has 3 coins and Ron has 4 coins.

Could they be correct?

Which coins could they have?

Annie has three coins in her hand.

Jack says,



Is he correct?

Explain why.

Measurement

Key vocab: greater than >, less than <, equals =, intervals, standard units, estimate, direction, temperature, unit, scales, rulers, thermometers, measuring vessels, metres, centimetres, kilograms, grams, degrees Celsius, litres, millilitres, symbols, money, pounds (£), pence (p), different, combinations, change, five past, ten past, quarter past, twenty past, twenty-five past, half past, twenty-five to, twenty to, quarter to, ten to, five to

NC Objectives:

- Choose and use appropriate standard units to estimate and measure:
  - Length/height in any direction (m/cm)
  - Mass (kg/g)
  - Temperature (°C)
  - Capacity (l/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.
- Compare and order lengths, mass, volume/capacity and record the results using >, < and =.

Concrete

- Use scales to measure the mass of objects – discuss which objects are heaviest or lightest.
- Use measuring jugs to order different volumes of liquid from least to most.

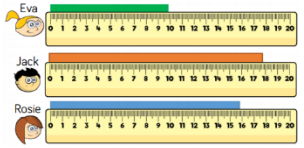
Choose three objects. Use the balance scales to order them from heaviest to lightest?

The _____ is heavier than the _____ but lighter than the _____.
The _____ is lighter than the _____ but heavier than the _____.

Show three different containers. Which container has the largest capacity? Using water or rice, make each container:
one quarter full, half full, three-quarters full.

Pictorial

Eva, Jack and Rosie are comparing the length of ribbons.
Complete the sentences.

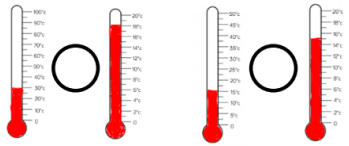


_____ has the longest ribbon.
_____ has the shortest ribbon.
_____'s ribbon is shorter than _____'s.
_____'s ribbon is longer than _____'s.

Find the mass of the sweets and the beans.

The sweets weigh ___kg
The beans weigh ___g.

Compare the temperatures using <, > or =



Complete the sentences using the words 'less', 'more' or equal'.

Container A has _____ than container B.

Container C has _____ than container B.
Container A has _____ than container C but _____ than container B.

Abstract

Use < , > or = to complete the statements.

7 metres	◯	17 metres
18 cm	◯	18 m
32 cm	◯	32 centimetres

Measure the length of the school hall.
Record the length in metres and centimetres, e.g. 15 metres and 13 centimetres.

Draw a line that is:

- 5 cm long
- 8 cm long
- Longer than 4 cm but shorter than 7 cm.

Reasoning

Put these measurements in order starting with the smallest.
75 grammes
85 grammes
100 grammes
Explain your thinking

Position the symbols
Place the correct symbol between the measurements > or <
36cm ▯ 63cm
130ml ▯ 103ml
Explain your thinking

A green pencil is twice as long as a blue pencil.

Using this, complete the statements using **longer than**, **shorter than** or **equal to**.

3 green pencils are _____ 2 blue pencils

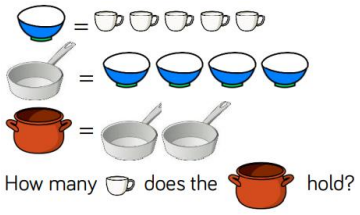
2 green pencils are _____ 5 blue pencils

4 green pencils are _____ 8 blue pencils

One pear weighs 10 cubes.
How many cubes will balance one pineapple?
Explain how you know.

Always, sometimes or never true?

The larger the box, the heavier it is.



How many ☕ does the 🍲 hold?

Measurement

Key vocab: greater than >, less than <, equals =, intervals, standard units, estimate, direction, temperature, unit, scales, rulers, thermometers, measuring vessels, metres, centimetres, kilograms, grams, degrees Celsius, litres, millilitres, symbols, money, pounds (£), pence (p), different, combinations, change, five past, ten past, quarter past, twenty past, twenty-five past, half past, twenty-five to, twenty to, quarter to, ten to, five to

NC Objectives:

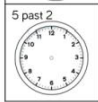
- Know the number of minutes in an hour and the number of hours in a day.
- Tell the time to five minutes, including quarter past/to the hour and draw the hands on a clock to show these times.
- Write the time to five minutes, including quarter past/to the hour and draw the hands on a clock to show these times.
- Compare and sequence intervals of time.

Concrete

- Encourage children to sit for 1 minute etc. so they gain an understanding of its length.

Pictorial and Abstract

Complete the table.

Start	End	Time passed	Duration
			___ minutes
			___ minutes
5 past 2 	5 to 3 		___ minutes

Complete the tables.

5 o'clock	
	

Half past 4	
1 o'clock	
	

Draw hands on clocks and read times from analogue clock faces. Use mini clocks to make different times.

Using the clock, show how many minutes there are in 1 hour.
1 hour = _____ minutes
How many minutes would there be in 2 hours?

Match the bars to the times.

60 minutes	90 minutes
60 minutes | 60 minutes	70 minutes
60 minutes |	120 minutes
60 minutes | 10 |	2 hours
	1 hour

Use the table to complete the sentences.

TV Show	Starts	Ends
Pop World	3 o' clock	Twenty to 4
Animal Patrol	Half past 6	Five to 7
Super Cars	Quarter past 8	Five past 9

_____ is the shortest TV show.
_____ is longer than _____ and _____

Joe works from half past 10 until 3 o' clock.
Emma works from 9 o' clock until half past 12
Who works the longest amount of time?

Reasoning

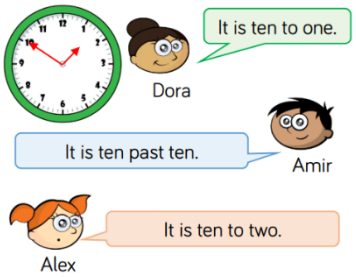
Undoing
The film finishes two hours after it starts. It finishes at 4.30. What time did it start?
Draw the clock at the start and the finish of the film.

Explain thinking
The time is 3:15pm.
Kate says that in two hours she will be at her football game which starts at 4:15.
Is Kate right? Explain why.

Do you agree with Teddy?
Explain why.

How many quarters of an hour are between 7 o'clock and 9 o'clock.

Explain how you found the answer.



Who is correct? Explain your answer.

Geometry

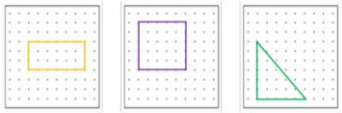
Key vocab: properties, common, line symmetry, vertical line, edges/faces/vertices, pentagon, hexagon, heptagon, octagon, kite, rhombus, polygon, square-based pyramid, triangular pyramid, triangular prism, rectangular prism, pentagonal prism, hexagonal prism, octagonal prism, rotation, right angle, clockwise/anti-clockwise, order/arrange/sequence

NC Objectives:

- Identify and describe the properties of 2D shapes, including the number of sides and symmetry in a vertical line.
- Identify and describe the properties of 3D shapes, including the number of edges, vertices and faces.
- Identify 2D shapes on the surface of 3D shapes.
- Compare and sort common 2D and 3D shapes and everyday objects.

Concrete

Use a geoboard to make different 2-D shapes. Can you make a rectangle? Can you make a square? Can you make a triangle?

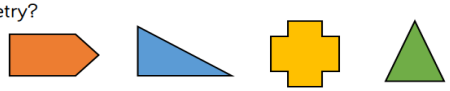


Put a combination of 3-D shapes in a feely bag. Can you find the cube, the cone, the cylinder? What do you notice about each shape?

How did you know that was the right shape?

What were you feeling for?

Can you fold these shapes to find a vertical line of symmetry?



Could you group them in a different way?

Sort the 3-D shapes on your table.
Label the groups.
Can you find more than one way?
Remove the labels. Can someone guess how you sorted?

Go on a shape hunt around school.
Create a tally of the shapes you see.
Can you see any pentagons?
Can you see any octagons?
Can you see any hexagons?
What was the most common shape?

Pictorial

Complete the table:

Shape	Name	Faces	Edges	Vertices
				
				
				

Complete the table.

Name	Shape	Number of sides
Pentagon		
Rectangle		
Square		
Triangle		
Hexagon		

How are these shapes grouped?

Could you group them in a different way?

Draw the vertical lines of symmetry on these shapes.

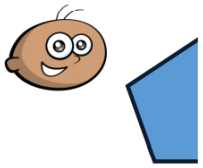
Match the names of the shapes to the pictures.

Square Triangle Rectangle Circle

Abstract

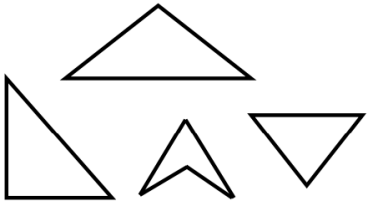
Reasoning

Tommy has placed a mirror on the vertical line of symmetry. This is what he sees:



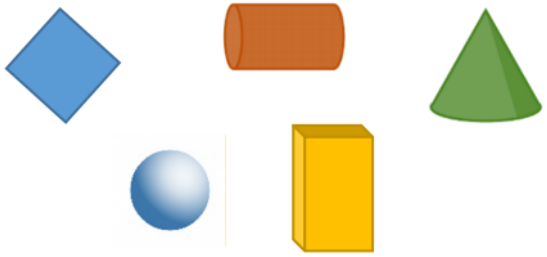
Can you complete the other half of the shape?

Which shape is the odd one out?
Explain your reasoning.



Can you draw more than one four-sided shape that has a vertical line of symmetry?

Which shape is the odd one out?
Explain why.



Dora says that the 12th shape in this pattern will be a triangle.

Is she correct?
How do you know?

Geometry

Key vocab: properties, common, line symmetry, vertical line, edges/faces/vertices, pentagon, hexagon, heptagon, octagon, kite, rhombus, polygon, square-based pyramid, triangular pyramid, triangular prism, rectangular prism, pentagonal prism, hexagonal prism, octagonal prism, rotation, right angle, clockwise/anti-clockwise, order/arrange/sequence

NC Objectives:

- Order and arrange combinations of mathematical objects in patterns and sequences.
- Use mathematical vocabulary to describe position, direction, and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half, and three-quarter turns (clockwise and anti-clockwise).

Concrete

Make a sequence of 3-D shapes.

Can you build a similar pattern with real life objects?

You could use food cans, boxes, balls, or other things in your classroom. Describe the pattern.

Turn a figure.

Ask your partner to describe the turn using the language, 'full turn', 'half turn', 'quarter turn', 'three-quarter turn', 'clockwise' and 'anticlockwise.

Using the words forwards, backwards, left and right, give your partner some instructions to follow when moving around the classroom/playground.

Pictorial

Match the turn to the description.

A full turn.

A quarter turn clockwise.

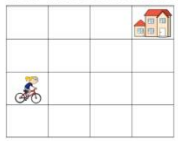
A half turn anticlockwise.

Continue this pattern:

Can you circle the set of shapes that repeat?

What is the next shape in the pattern? What is the 9th shape in the pattern?

Draw the route to show these directions.



Forward 1 square. Turn left.
Forward 1 square, quarter turn anti-clockwise.
Forward 1 square. Make a quarter turn clockwise.
Forward 1 square. Make a three quarter turn anti-clockwise. Forward 3

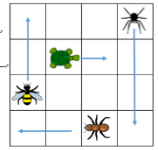
Complete the stem sentences to describe the movements made.

The  has moved 1 square _____.

The has moved ___ squares _____.

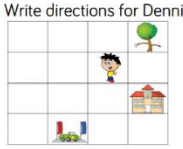
The _____ has moved 2 squares up.

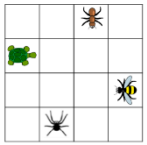
The _____ has moved ___ squares down.



Describe the turn for each pattern.

Write directions for Dennis to get to each place on the map.





Record these movements on the grid using arrows.

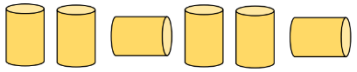
The moves 1 square right.

The moves 3 squares forward.

The moves 1 square down.

The moves 1 square up.

How many times does the pattern repeat? What will the 10th cylinder look like?



Describe how the triangle has turned each time.

The triangle has made a _____turn _____.

The triangle has made a _____ turn _____.

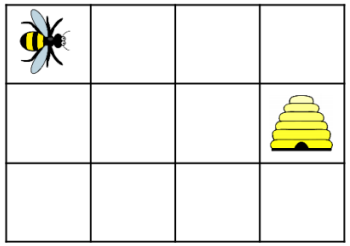
The triangle has made a _____ turn _____.

Abstract

Reasoning

How many different routes can you write for the bee to get to the hive?

Use the words forwards, backwards, left and right.



Is Whitney correct?

A quarter turn clockwise is the same as a three-quarter turn anticlockwise.

Convince me.

How many different patterns can you create using this shape?

Eva

The rule is turn the shape a quarter turn.

The rule is turn the shape three quarters.

Rosie

Who is correct?

Spot the mistake in each pattern.
Explain why they are incorrect.

Statistics

Key vocab: interpret, construct, pictogram, tally chart, block diagrams, horizontal, vertical, x- axis, y-axis, key, title, chart title, simple tables, ask, answer, questions, counting, objects, category, sort, quantity, total, compare, data

NC Objectives:

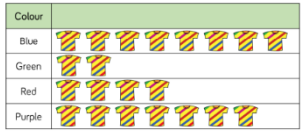
- Interpret and construct simple:
  - Pictograms
  - Tally charts
  - Block diagrams
  - Simple tables
- Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.
- Ask and answer questions about totalling and compare categorical data.

Concrete

- Use multilink and other objects to create a bar chart/pictogram.
- Place counters on pictograms to show the scale, e.g., two counters on each picture that represents two.

Pictorial

Here is a pictogram to show Class 5s favourite t-shirts.

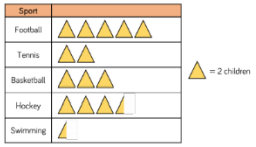


What is the most popular colour t-shirt?
What colour is the least popular t-shirt?
How many more children chose blue t-shirts than red?
How many children are in Class 5?

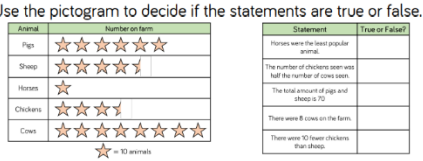
Complete the tally chart for Year 2 and Year 3

Year Group	Tally	Total
Year 1	𝍸 𝍸	10
Year 2		19
Year 3	𝍸 𝍸 𝍸 𝍸 ||	
Year 4	𝍸 𝍸 𝍸 ||	17

Which is the most popular sport?
How many children voted for football and swimming altogether?
What could the title of this pictogram be?



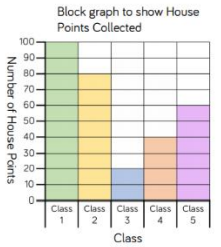
Use the pictogram to decide if the statements are true or false.



Make a tally chart about one of the following topics:

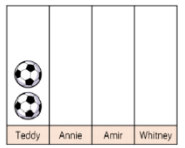
- Equipment in class (scissors, glue etc.)
- Favourite sport
- Favourite fruit
- Ways of getting to school (walk, car, cycle etc.)
- A choice of your own

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?



Complete the pictogram using the data given.

Name	Tally
Teddy	|
Annie	𝍸 |||
Amir	𝍸
Whitney	𝍸 |

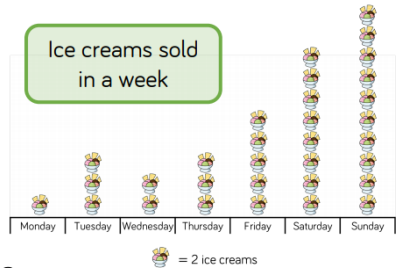


Key
= 1 goal

Abstract

Reasoning

True or false? (Looking at a simple pictogram) "More people travel to work in a car than on a bicycle".

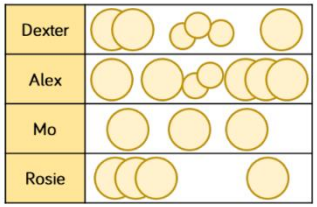


Convince me
There are more ice-creams sold at the weekend than during the rest of the week.

True or False (Why?)
Three ice creams were sold on Tuesday.

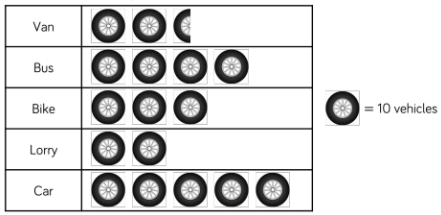
Justify
If the staff needed to pick one day to have off during the week, which would be the best day and why?

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



How could you improve the pictogram?

Jack and Whitney have carried out a traffic survey.



Jack 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.
Whitney says;
To find the total number of vehicles I need to count the symbols. There are 16 and a half vehicles.
Is she correct? Explain your answer.