St Walburga's Catholic Primary School
Year 3 – Fluency and Reasoning

Number, Place Value and Rounding

Key vocab: hundreds, three-digit, ten more, one hundred more, ten less, one hundred less, Roman numeral, numbers up to 1000

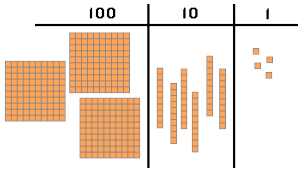
NC Objectives:

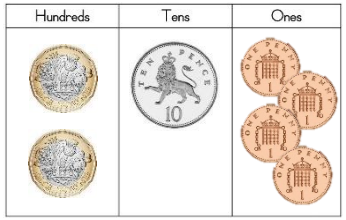
- Identify, represent, and estimate numbers using different representations.
- Read and write numbers to at least 1000 in numerals and words.
- Recognise the place value of each digit in a 3-digit number.
- Solve number problems and practical problems that involve place value.

Concrete

= 245

Two hundred and forty five

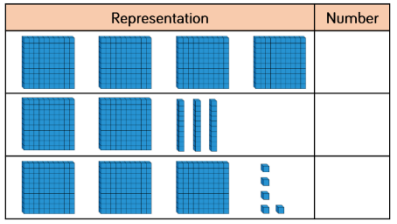


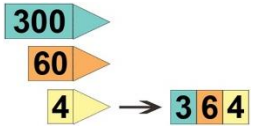


Use different concrete apparatus to make 3-digit numbers.

Pictorial

Write down the number represented with Base 10 in each case.



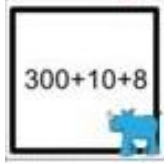


Use <, > or = to make the statement correct.

Mo is drawing numbers. Can you complete them for him?

246 390 706

Abstract



154 50 447 7 843 800

345 ____ 894 ____ 334 ____

____ 700 + 70 + 9

____ 200 + 10 + 9

____ 600 + 50 + 7

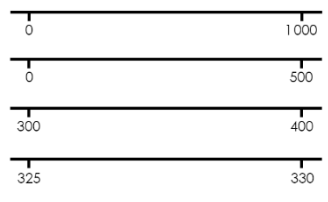
____ 700 + 10 + 6

____ 100 + 20 + 2

____ 300 + 60 + 3

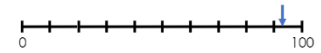
Number lines

Show the position of **328** on each number line.



Estimate

Estimate the position of the arrow.



Reasoning

Do, then explain

Show the value of the digit 3 in these numbers?

341 503 937

Explain how you know.

How many ways?

You have a pile of 100 coins and a pile of 10 coins.

Make 230

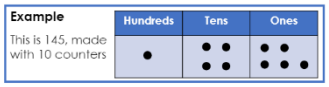
Level 1: I can find a way
Level 2: I can find different ways
Level 3: I know how many ways there are

How many ways?

Put exactly 10 counters on a hundreds, tens, units mat to make a number.

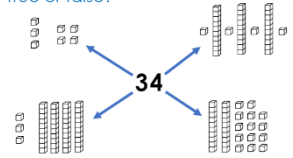
The difference between your number and 500 must be less than 150.

Your number must be odd.

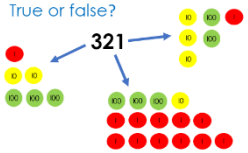


Level 1: I can find a way
Level 2: I can find different ways
Level 3: I know how many ways there are

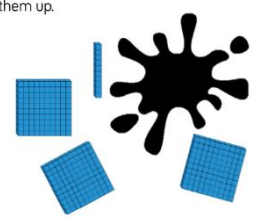
True or false?



True or false?



Teddy has used Base 10 to represent the number 420. He has covered some of them up.

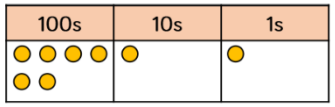


Work out the amount he has covered up.

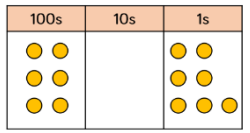
How many different ways can you make the missing amount using Base 10?

Eva

The number in the place value grid is the greatest number you can make with 8 counters.



Do you agree? Explain your answer.



Dora

The place value chart shows 607

Jack

I think it shows 670

Who is correct? Explain your reasoning.

Number, Place Value and Rounding

Key vocab: hundreds, three-digit, ten more, one hundred more, ten less, one hundred less, Roman numeral, numbers up to 1000

NC Objectives:

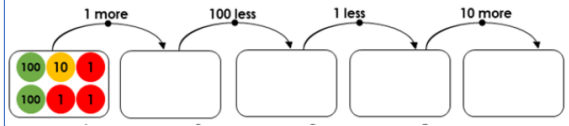
- Find 10 or 100 more or less than a given number.
- Count from 0 in multiples of 50 and 100.

Concrete

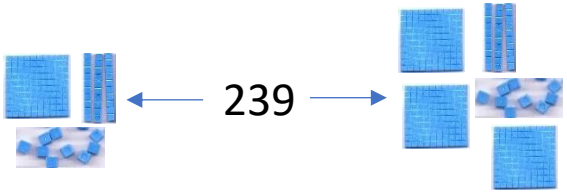
Show ten more and ten less than the following numbers using Base 10 and place value counters.

550 724 302

Put the correct place value counters in the boxes to match the labels.

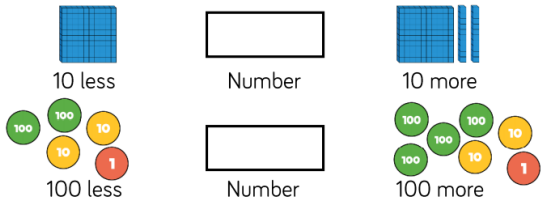


Use place value counters and Base 10 to show one hundred more and less than different 3-digit numbers.



Pictorial

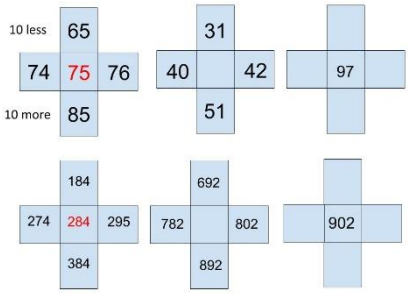
Put the correct number in each box.



Complete the table.

100 less	Number	100 more

Abstract



Complete the number tracks.

50		150	200			350		450	
	750	700	650			500			350

Complete the number tracks.

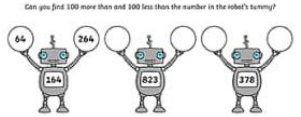
200	300		500			800	
	900	800			500		

Circle and explain the mistake in each sequence.

50, 100, 105, 200, 250, 300 ...

990, 950, 900, 850, 800 ...

100 More, 100 Less



Number	10 More	10 Less	100 More	100 Less
123				
947				
667				
325				
578				
324				
896				

Reasoning

Spot the mistake: 50,100,115,200
What is wrong with this sequence of numbers?

Different ways

To turn **180** into **210** you can...

add ___ tens

OR add ___ ones

OR add ___ tens and ___ ones

OR add ___ hundred and subtract ___ tens

A counter is missing on the place value chart.

Hundreds	Tens	Ones

What number could it have been?

Which is quicker: counting to 50 in 10s or counting to 150 in 50s?

Explain your answer.

10 more than my number is the same as 100 less than 320

What is my number?

Explain how you know.

Write your own similar problem to describe the original number.

I think of a number, add ten, subtract one hundred and then add one.

My answer is 256

What number did I start with?

Explain how you know.

What can you do to check?

Number, Place Value and Rounding

Key vocab: hundreds, three-digit, ten more, one hundred more, ten less, one hundred less, Roman numeral, numbers up to 1000

NC Objectives:

- Compare and order numbers up to 1000.

Concrete

Represent and compare the numbers using place value counters.

100s	10s	1s

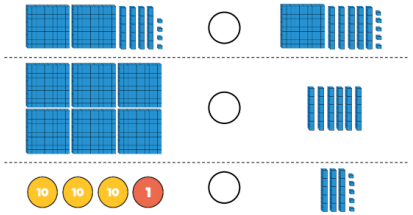
452 542

_____ is greater than _____

Use Base 10 and place value counters to make different 3-digit numbers. Order the amounts from smallest to largest, or from largest to smallest.

Pictorial

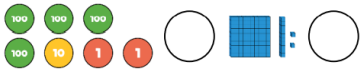
Use <, > or = to make the statements correct.



Draw objects to make the statement true.

<

Use the symbols <, > or = to make the statement correct.



102

Abstract

Circle the greatest number in each pair.

Nine hundred and two	920
500 and 63	568
7 hundreds and 6 ones	76 tens

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

399 ◯ 501

800 ◯ 80 tens

Complete the statements.

600 + 70 + 4 > 600 + _____ + 4

Two hundred and five < _____

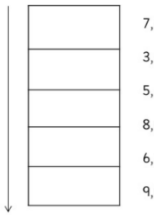
Order the following numbers from smallest to greatest.

456	790	750	123	▶	123	456	750	790
366	550	909	120	▶				

Place these numbers in ascending order:

343	677	672	574	427

Put these numbers into order starting from smallest.



642 ◯ 499

534 ◯ 821

901 ◯ 899

608 ◯ 806

Reasoning

Do, then explain

835 535 538 388 508

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

Explain how you ordered the numbers.

Make up an example Create numbers where the digit sum is three.

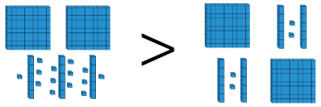
E.g., 120, 300, 210

What is the largest/smallest number?

True or False?

When ordering numbers you only need to look at the place value column with the highest value.

True or False?



Explain your answer.

Whitney has six different numbers.

She put them in ascending order then accidentally spilt some ink onto her page. Two of her numbers are now covered in ink.

214, 243, 256, 289

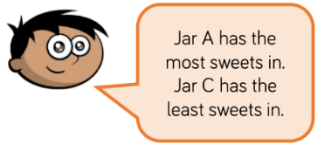
What could the hidden numbers be?
Explain how you know.

Amir has 3 jars of sweets.

A B C

Jar A contains 235 sweets.

Jar C contains 175 sweets.



How many sweets could be in jar B?
Explain how you know.

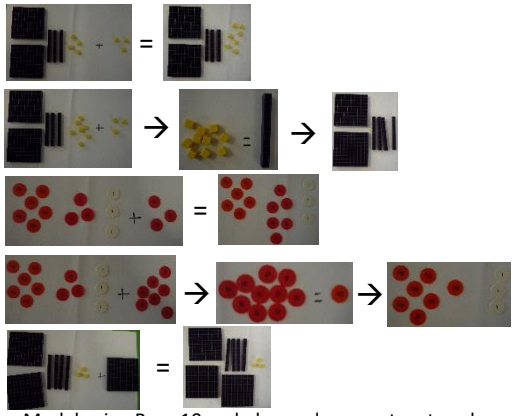
Addition and Subtraction

Key vocab: three-digit number hundreds, estimate, number facts

NC Objectives:

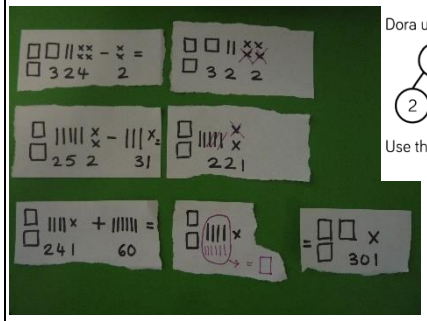
- Add and subtract numbers mentally, including:
  - 3-digit number & ones
  - 3-digit number & tens
  - 3-digit number & hundreds
- Estimate the answer to a calculation and use the inverse operations to check answers.
- Solve problems, including missing number problems, number facts, place value and more complex addition and subtraction.

Concrete



Model using Base 10 and place value counters to solve subtraction calculations as well, including changing one ten into ten ones and one hundred into ten tens.

Pictorial

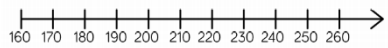


Dora uses the part-whole model and number line to solve 132 – 4

Use this method to calculate:

132 – 8 123 – 8 123 – 5

Count back in tens to solve 240 – 70

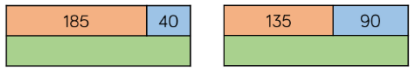


Hundreds	Tens	Ones

Use the place value grid to complete the calculations.

214 – 3 = ___ 214 + 3 = ___

Complete the bar models.



What do you notice?

Abstract

Complete:

356 – 5 =	356 – 5 =	356 – 5 =
357 – 5 =	356 – 4 =	366 – 5 =
358 – 5 =	356 – 3 =	376 – 5 =
359 – 5 =	356 – 2 =	386 – 5 =

Jack has 534 team points and gets four more.
Tommy has 534 team points and loses four of his.
How many team points does each person have?
Who has the most?

Calculate:
253 + 2
253 + 20
253 + 100

What is the same and what is different about each calculation?

Amir calculates 425 – 90 by subtracting 100 and then adding 10

425 – 100 = 325

325 + 10 = 335

Use Amir's method to solve:

386 – 90 574 – 90 212 – 90

Reasoning

True or false?

Are these number sentences true or false? 597 + 7 = 614

804 – 70 = 744

768 + 140 = 908

Give your reasons.

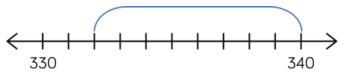
Rank by difficulty

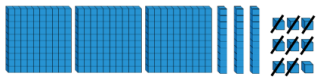
49 + 48

56 + 42

73 + 49

Which image does not represent 339 – 8?





Alex thinks the chart shows 456 – 4

Do you agree?

Hundreds	Tens	Ones

Explain why.

Rank by difficulty

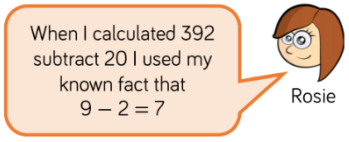
137 – 56

163 – 59

187 – 56

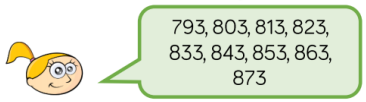
Spot the Mistake

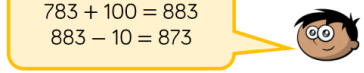
What should the answer be?



Explain Rosie's method.

Eva and Amir are calculating 783 + 90





Whose method do you prefer?
Explain why.

Complete the missing digits.

13□ – 50 = 85

334 – □0 = 294

545 = 6□5 – 70

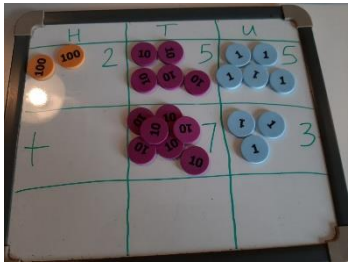
Addition and Subtraction

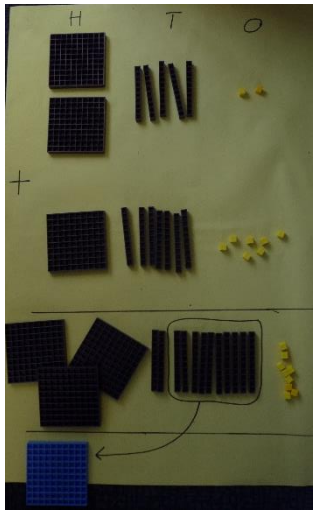
Key vocab: three-digit number hundreds, estimate, number facts

NC Objectives:

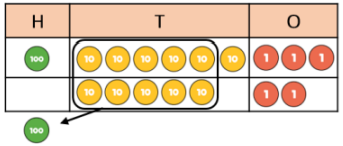
- Add numbers with up to 3 digits, using formal written methods of columnar addition.

Concrete

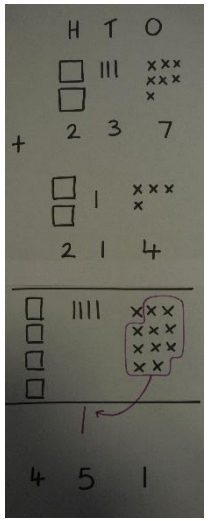




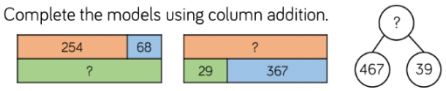
Use Base 10 and place value counters to show exchanging and carrying of ones, tens, and hundreds.



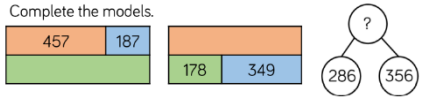
Pictorial



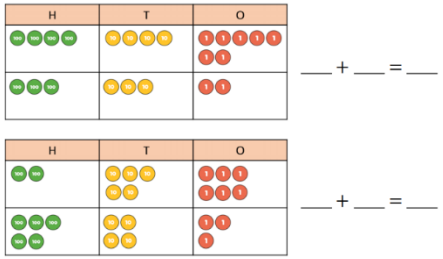
Complete the models using column addition.



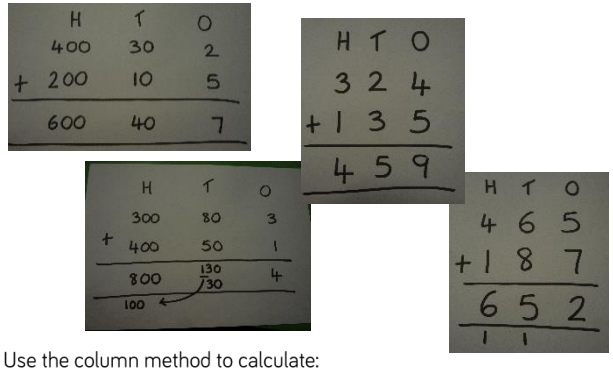
Complete the models.



Complete the calculations.



Abstract



Use the column method to calculate:

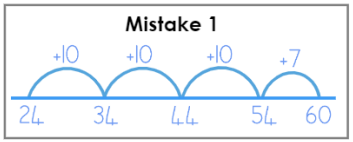
- Three hundred and forty-five add two hundred and thirty-six.
- Five hundred and sixteen plus three hundred and sixty-two.
- The total of two hundred and forty-seven and four hundred and two.

Reasoning

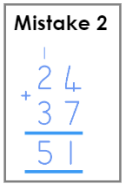
Explain the mistakes

24 + 37

Mistake 1



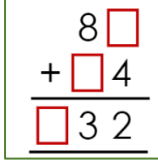
Mistake 2



Mistake 3

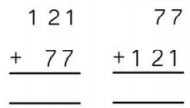
24 + 37 = 511

Missing digits



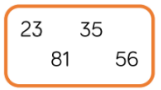
Fill in the missing digits.

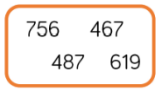
Rosie has 77 sweets.
Mo has 121 sweets.
Which addition will find how many sweets they have altogether?



Explain your answer.

Choose one 2-digit and one 3-digit number.
Write additions that have an exchange in the ones and the tens columns.



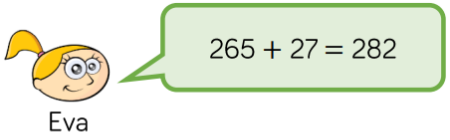


Sort the additions into the table.

No exchange	Exchange 10 ones	Exchange 10 tens

375 + 18
910 + 79
456 + 72
456 + 27
912 + 79
342 + 35

Can you write 2 more additions in each column?



Here is her working out:

	2	6	5
+		2	7
	2	8	2

Is she correct? Explain why.

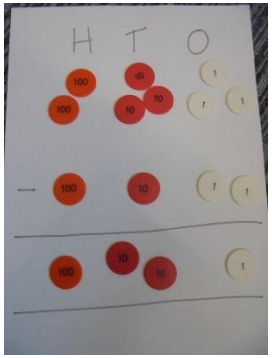
Addition and Subtraction

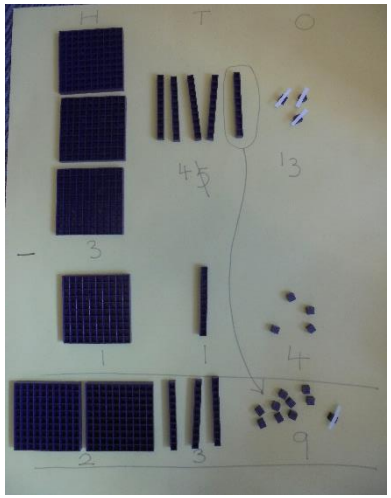
Key vocab: three-digit number hundreds, estimate, number facts

NC Objectives:

- Subtract numbers with up to 3 digits, using formal written methods of columnar subtraction.

Concrete





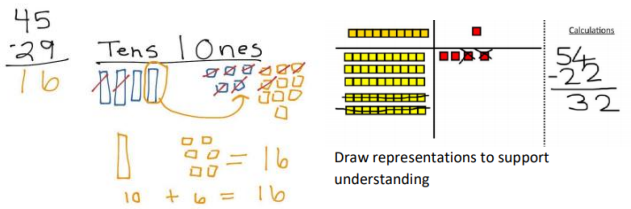
Pictorial

Mo uses Base 10 to subtract 142 from 373

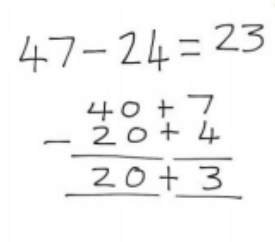
H	T	O
▮▮▮	▮▮▮▮▮	•••

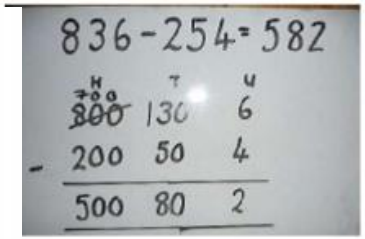
Use Mo's method to calculate:

565 – 154 565 – 145 565 – 165



Abstract





	3	7	3
–	1	4	2

Reasoning

Is it the same?

63 take away 20, add 2

63 take away 20, take away 2

Is **63 – 18** the same as...

2 + 43

65 – 20

Explain the mistakes

628 – 56

Mistake 1

628
- 56
632

Mistake 2

628
-56
068

Mistake 3

628
- 56
582

Rosie thinks 352 – 89 = 337

	H	T	O
	3	5	2
–		8	9
	3	3	7

Is she correct?
Explain why.

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

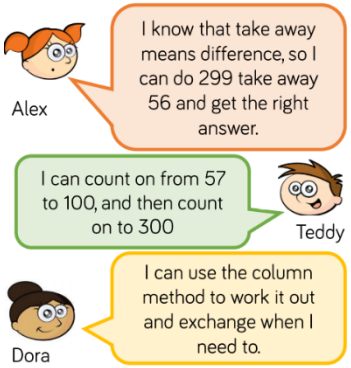
234 – 47 ◯ 234 – 57

472 – 84 ◯ 473 – 84

406 – 89 ◯ 416 – 99

Alex, Teddy and Dora are trying to work out 300 – 57

Who has the most efficient way of working it out?
Explain how you know.

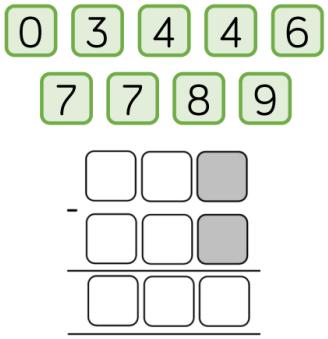


Work out the missing digits.

	H	T	O
	5	?	3
–	2	1	8
	3	1	5

	H	T	O
	?	0	?
–	2	?	8
	2	4	6

Use the digit cards to complete the calculation.



The digits in the shaded boxes are odd.

Is there more than one answer?

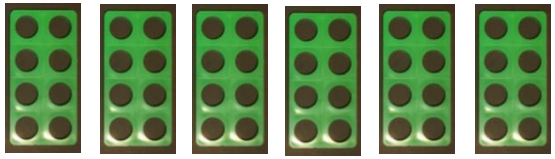
Multiplication and Division

Key vocab: missing number problem, estimate, inverse, formal written method, mathematical statement, recall, integer, one-digit, two-digit

NC Objectives:

- Count from 0 in multiples of 4 and 8.
- Recall and use multiplication and division facts for the 3, 4, 8 times tables.

Concrete



8 16 24 32 40 48

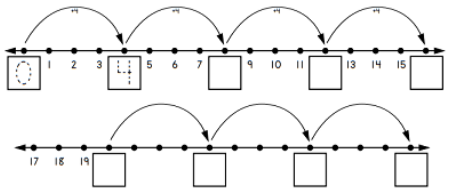
4
8
12
16
20
24

Make piles of objects and use to support counting in 3s, 4s and 8s.

3
6
9

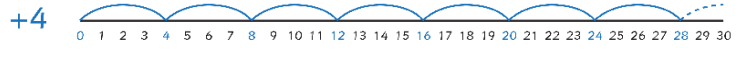
12
15
18

Pictorial



Colour in the multiples of 4
What pattern 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 legs altogether do four spiders have?
There are ___ legs on each spider.
___ + ___ + ___ + ___ = ___
___ × 8 = ___
If there are ___ spiders, there will be ___ legs altogether.

How many dots are there altogether?

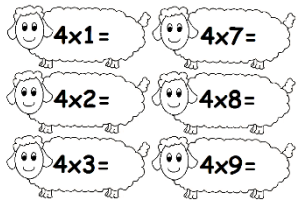
There are ___ dice with ___ dots on each.
There ___ fours.
___ × ___ = ___ dots.

Abstract

Count by 4 to make 100.

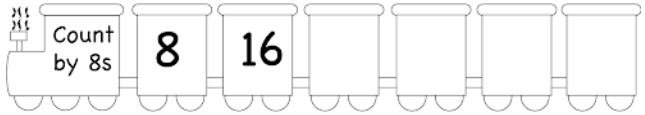
4			16	
	28			
		52		60
64				
			96	

3 x 8 = ☐
4 x 8 = ☐
5 x 8 = ☐



Count out loud in multiples of 3, 4 and 8.

64 56 ___ 40 ___ 24
___ 100 150 200 ___ 300
900 ___ ___ 600 500 400



Reasoning

True or False?
38 is a multiple of 8?

Which numbers can be divided by 8 without a remainder?

64 32 800
18 200 42

Missing numbers
24 = ☐ x ☐
Which pairs of numbers could be written in the boxes?

Making links
Cards come in packs of 4. How many packs do I need to buy to get 32 cards?

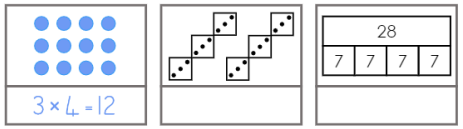
If 5 × 3 = 15, which number sentences would find the answer to 6 × 3?

- 5 × 3 + 6
- 5 × 3 + 3
- 15 + 3
- 15 + 6
- 3 × 6

Explain how you know.

Which number sentence?

Write a multiplication number sentence for each example. One has been done for you.



Here is a blue strip of paper.

An orange strip is four times as long.

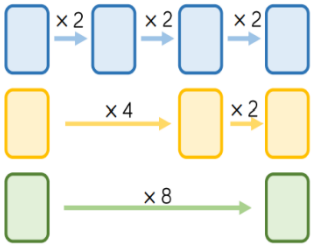
The strips are joined end to end.

How long is the blue strip?

How long is the orange strip?

Explain how you know.

Start each function machine with the same number.



What do you notice about each final answer?

Multiplication and Division

Key vocab: missing number problem, estimate, inverse, formal written method, mathematical statement, recall, integer, one-digit, two-digit

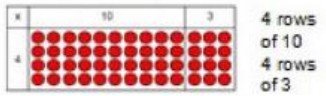
NC Objectives:

- Write and calculate mathematical statements for multiplication using the multiplication tables they know, including for 2-digit numbers times 1-digit numbers, using mental methods and formal written methods.

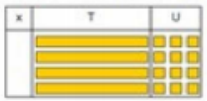
Concrete

Use objects to show links with arrays and to introduce the grid method:

13 x 4 =



Next, use Base 10 to move towards a more compact method, carrying a 10 if needed:



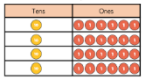
Jack uses Base 10 to calculate 24 × 4

	T	O
	2	4
×		4
	9	6

1

Use Jack's method to solve:
13 × 4
23 × 4
26 × 3

Amir uses place value counters to calculate 16 × 4

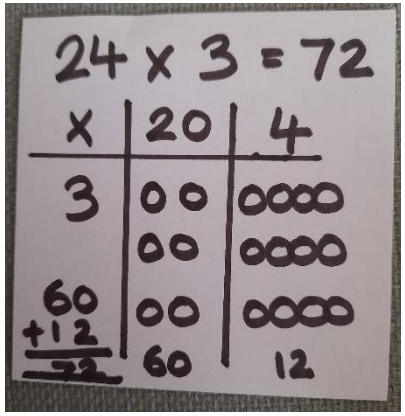


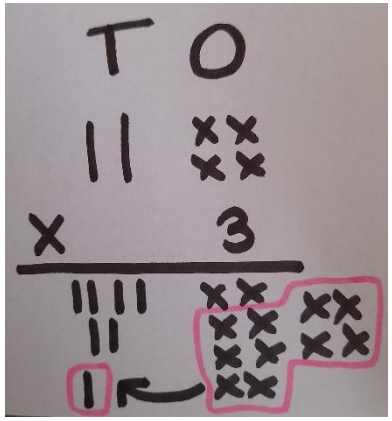
	T	O
	1	6
×		4
	6	4

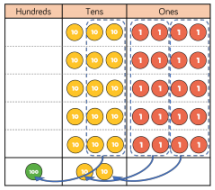
2

Use Amir's method to solve:
16 × 6
17 × 5
28 × 3

Pictorial







	T	O
	3	4
×		5
1	7	0

1 2

Use Amir's method to solve:
36 × 6
48 × 4

Abstract

×	30	5
7	210	35

210 + 35 = 245

There are 27 sweets in a bag.
I buy 3 bags.
How many sweets do I have in total?

There are 32 capsules in a bottle.
If there are 2 bottles,
how many capsules are there in total?

41 × 6 = ____

57 × 9 = ____

36 × 1 = ____

72 × 5 = ____

49 x 3	8 x 75
71 x 8	8 x 31
The product of 8 and 83	46 x 4
94 x 3	67 x 4

Reasoning

Use a fact

20 x 3 = 60.

Use this fact to work out

21 x 3 = 22 x 3 =

23 x 3 = 24 x 3 =

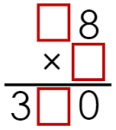
Prove It

What goes in the missing box?

x	?	?
4	80	12

Prove it.

Missing digits



Fill in the missing digits.

Dexter says,

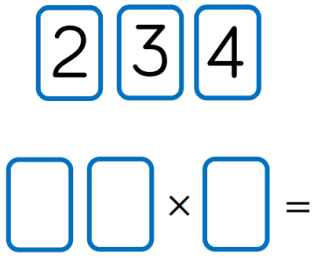
4 × 21 = 2 × 42

Is Dexter correct?

Explain the mistake.

H	T	O
	2	7
×		3
6	2	1

How close can you get to 100?
Use each digit card once in the multiplication.



Always, Sometimes, Never?

A two-digit number multiplied by a one-digit number has a two-digit product.

Multiplication and Division

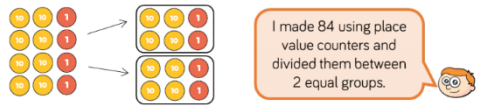
Key vocab: missing number problem, estimate, inverse, formal written method, mathematical statement, recall, integer, one-digit, two-digit

NC Objectives:

- Write and calculate mathematical statements for division using the multiplication tables they know, using mental methods.
- Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.
- Estimate the answer to a calculation and use the inverse operations to check answers.

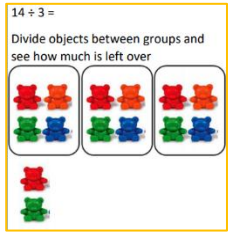
Concrete

Ron uses place value counters to solve 84 ÷ 2

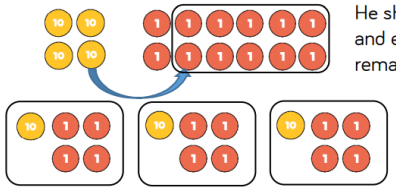


Use Ron's method to calculate:

84 ÷ 4 66 ÷ 2 66 ÷ 3



Ron uses place value counters to divide 42 into three equal groups.



He shares the tens first and exchanges the remaining ten for ones.

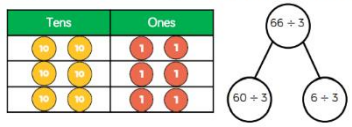
Then he shares the ones.

42 ÷ 3 = 14

Use Ron's method to calculate 48 ÷ 3 , 52 ÷ 4 and 92 ÷ 8

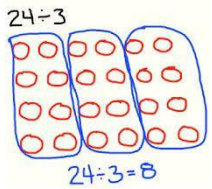
Pictorial

Eva uses a place value grid and part-whole model to solve 66÷ 3

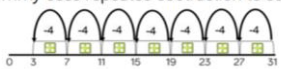


Use Eva's method to calculate:

69 ÷ 3 96 ÷ 3 86 ÷ 2



Tommy uses repeated subtraction to solve 31 ÷ 4



31 ÷ 4 = 7 r 3

Use Tommy's method to solve 38 divided by 3

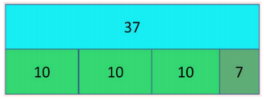
In a playground there are 3 times as many girls as boys.

Which bar model represents the number of boys and girls? Explain your choice.

Draw a bar model to represent this situation.

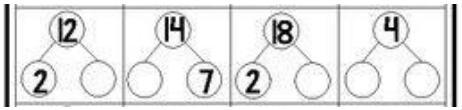
In a car park there are 5 times as many blue cars as red cars.

Use bar models to show division with remainders.



Abstract

There are 35 children at a concert.
3 times as many adults are at the concert.
How many people are at the concert in total?



35 ÷ □ = 7

□ × 4 = 24

16 ÷ 3 = r

18 ÷ 8 = r

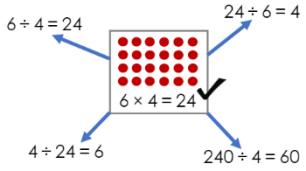
26 ÷ 3 = r

Complete written divisions and show the remainder using r.

29 ÷ 8 = 3 REMAINDER 5

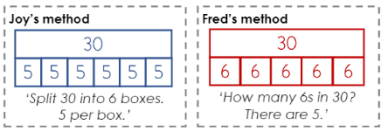
Reasoning

True or false?



Explain

30 ÷ 6



I agree with Joy I agree with Fred I agree with both

Explain:

Alex uses place value counters to help her calculate 63 ÷ 3

Tens	Ones
10	10 1
10	10 1
10	10 1

She gets an answer of 12
Is she correct?

Dora thinks that 88 sweets can be shared equally between eight people.

Is she correct?

Teddy answers the question 44 ÷ 4 using place value counters.

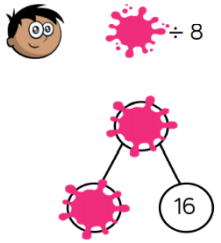
Tens	Ones
10 10	1 1
10 10	1 1

Is he correct?
Explain your reasoning.

Amir partitioned a number to help him divide by 8

Some of his working out has been covered with paint.

What number could Amir have started with?



Which calculation is the odd one out?
Explain your thinking.

64 ÷ 8 77 ÷ 4

49 ÷ 6 65 ÷ 3

Compare the statements using <, > or =

48 ÷ 4 ◯ 36 ÷ 3

52 ÷ 4 ◯ 42 ÷ 3

60 ÷ 3 ◯ 60 ÷ 4

Fractions, Decimals and Percentages

Key vocab: tenths, unit fractions, non- unit fractions numerator, denominator, compare, order, add, subtract, solve problems

NC Objectives:

- Recognise, find, and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators.
- Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators.
- Recognise and show, using diagrams, equivalent fractions with small denominators.

Concrete

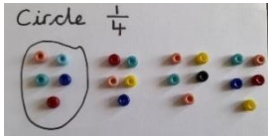
The pink Cuisenaire rod is worth 1 whole.

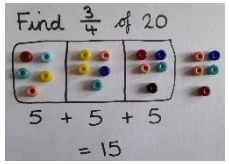
Which rod would be worth $\frac{1}{4}$?

Which rods would be worth $\frac{2}{4}$?

Which rod would be worth $\frac{1}{2}$?

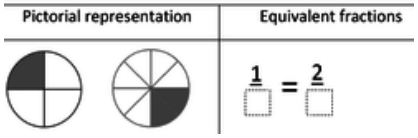
Use Cuisenaire to find rods to investigate other equivalent fractions.





Use two strips of equal sized paper. Fold one strip into quarters and the other into eighths. Place the quarters on top of the eighths and lift up one quarter, how many eighths can you see? How many eighths are equivalent to one quarter? Which other equivalent fractions can you find?

Pictorial



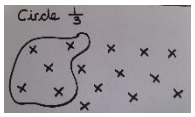
Use the models on the number line to identify the missing fractions. Which fractions are equivalent?

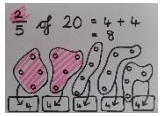
Complete the missing equivalent fractions.

Using squared paper, investigate equivalent fractions using equal parts. e.g. $\frac{\square}{4} = \frac{\square}{8}$

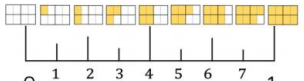
Start by drawing a bar 8 squares along. Label each square $\frac{1}{8}$

Underneath compare the same length bar split into four equal parts. What fraction is each part now?





Complete the missing equivalent fractions.



Find $\frac{2}{3}$ of Tia's marbles.

I have divided the marbles into 3 equal groups.

There are ☐ marbles in each group.

$\frac{2}{3}$ of Tia's marbles is ☐ marbles.

Abstract

$\frac{1}{3}$ of 9 = ☐

$\frac{1}{4}$ of 20 = ☐

What is $\frac{2}{5}$ of 20?

20 ÷ 5 = ☐

2 x ____ = ☐

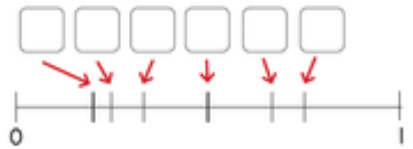
$\frac{2}{5}$ x 20 = ☐

$\frac{3}{4} = \frac{\square}{8}$

$\frac{11}{2} = \frac{33}{\square}$

$\frac{\square}{14} = \frac{16}{28}$

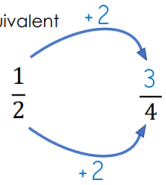
1) Write these fractions on the number line: $\frac{1}{2}, \frac{1}{3}, \frac{2}{3}, \frac{1}{4}, \frac{3}{4}, \frac{1}{5}$.



Reasoning

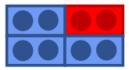
Explain the mistake

One-half is equivalent to how many quarters?



Explain

What fraction of the shape is blue?



Kam

$\frac{6}{8}$ as 6 out of 8 circles are blue

Jack

$\frac{3}{4}$ as 3 out of 4 rectangles are blue

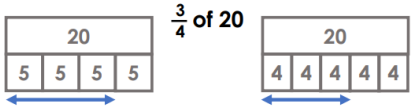
I agree with Kam **I agree with Jack** **I agree with both**

Explain:

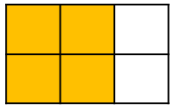
Which method?

Which bar model represents the question correctly?

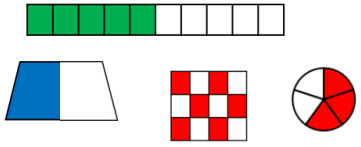
$\frac{3}{4}$ **of 20**



Explain how the diagram shows both $\frac{2}{3}$ and $\frac{4}{6}$



Which is the odd one out? Explain why



Ron is thinking of a number.

One third of his number is greater than 8 but smaller than 12.

What could his number be?

Dora has shaded a fraction.

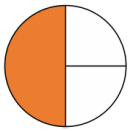
She says,

I am thinking of an equivalent fraction to the shaded fraction where the numerator is 9

Is this possible?
Explain why.

Whitney says:

I have shaded a third of my shape.



Do you agree?
Explain why.

Why do you think Whitney thinks this?

Fractions, Decimals and Percentages

Key vocab: tenths, unit fractions, non- unit fractions numerator, denominator, compare, order, add, subtract, solve problems

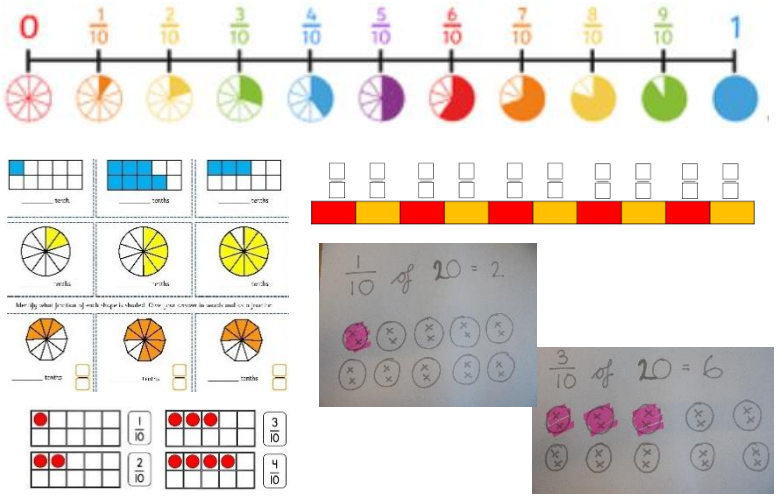
NC Objectives:

- Recognise that tenths arise from dividing an object into 10 equal parts and in dividing 1-digit numbers or quantities by 10.
- Count up and down in tenths.

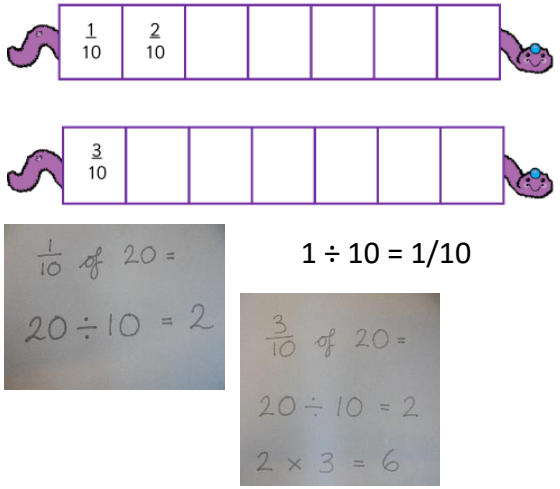
Concrete

Use Cuisenaire rods, fraction walls and other objects to show 10 tenths make one whole. Use these objects to then aid counting forwards and backwards in tenths.

Pictorial



Abstract



Reasoning

Joanne is thinking of a tenth.

My numerator is an even number.

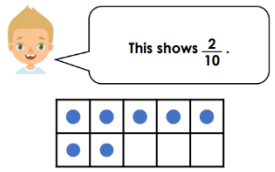
My fraction is a non-unit fraction.

The numerator is a multiple of two.

What could Joanne's fraction be?

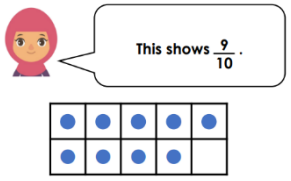
Write three possibilities in words.

Stephen is using a ten frame and counters to represent tenths.



Is he correct? Explain your answer.

Tara is using a ten frame and counters to represent tenths.



Is she correct? Explain your answer.

Ethan is thinking of a tenth.

The denominator is equal to the number of vases.

The numerator is greater than the number of plant pots but less than 10.

What could Ethan's fraction be?

Write two possibilities.

Olivia is thinking of a tenth.

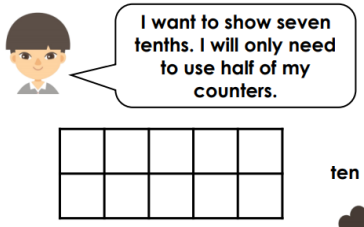
The numerator is less than the number of keys.

The denominator is equal to the number of fans.

What could Olivia's fraction be?

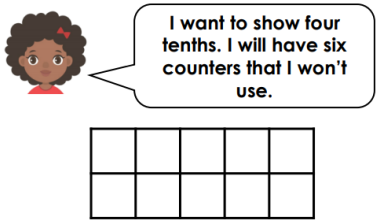
Write two possibilities.

Duncan is using a ten frame and ten counters.



Is he correct? Explain your answer.

Alexandra is using a ten frame and ten counters.



Is she correct? Explain your answer.

Fractions, Decimals and Percentages

Key vocab: tenths, unit fractions, non- unit fractions numerator, denominator, compare, order, add, subtract, solve problems

NC Objectives:

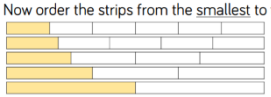
- Compare and order unit fractions, and fractions with the same denominators.

Concrete

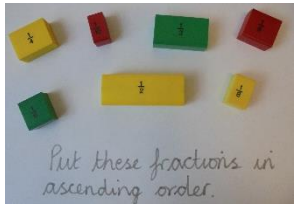
Use paper strips to compare the fractions using >, < or =

$\frac{3}{4} \bigcirc \frac{1}{4}$ $\frac{1}{6} \bigcirc \frac{5}{6}$ $\frac{3}{8} \bigcirc \frac{5}{8}$

Divide strips of paper into halves, thirds, quarters, fifths and sixths and colour in one part of each strip.
Now order the strips from the smallest to the largest fraction.



When the numerators are the same, the _____ the denominator, the _____ the fraction.



Pictorial

Colour the boxes according to its fraction. Which fraction is greater?

$\frac{3}{7}$

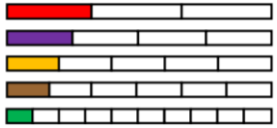
$\frac{6}{7}$

_____ is the greater fraction.

$\frac{5}{8}$ $\frac{3}{4}$

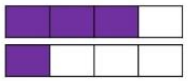
_____ is the greater fraction.

Use >, < or = to compare the fractions.



$\frac{1}{10} \bigcirc \frac{1}{4}$ $\frac{1}{3} \bigcirc \frac{1}{6}$ $\frac{1}{5} \bigcirc \frac{1}{4}$

$\frac{3}{4} \bigcirc \frac{1}{4}$



$\frac{5}{8} \bigcirc \frac{7}{8}$

$\frac{6}{9} \bigcirc \frac{4}{9}$

Abstract

Order these fractions from the smallest.

$\frac{3}{6}$ $\frac{1}{6}$ $\frac{5}{6}$ $\frac{2}{6}$ $\frac{4}{6}$ _____

$\frac{1}{11} \square \frac{6}{11}$

Order these fractions from the biggest.

$\frac{4}{12}$ $\frac{6}{12}$ $\frac{8}{12}$ $\frac{10}{12}$ $\frac{11}{12}$ _____

$\frac{1}{12} \square \frac{2}{12}$

Place the fractions on the number line.

$\frac{2}{4}$ $\frac{3}{4}$ $\frac{1}{4}$

$\frac{6}{8}$ $\frac{3}{8}$ $\frac{5}{8}$

_____ > _____ > _____

$\frac{1}{4} \bigcirc \frac{1}{5}$ $\frac{2}{4} \bigcirc \frac{1}{4}$

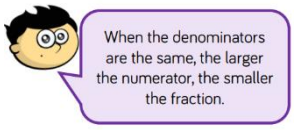
Reasoning

Here are three fractions.

$\frac{3}{8}$ $\frac{3}{5}$ $\frac{1}{8}$

Which fraction is the largest? How do you know?

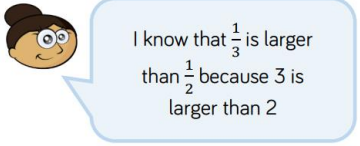
Which fraction is the smallest? How do you know?



Is Jack correct?
Prove it.

Complete the missing denominator.
How many different options can you find?

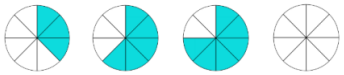
$\frac{1}{2} > \frac{1}{\square} > \frac{1}{10}$



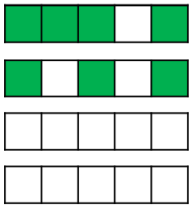
Do you agree with Dora?
Explain how you know.

Shade the blank diagrams so the fractions are ordered correctly.

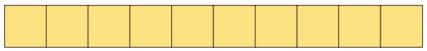
Fractions in ascending order



Fractions in descending order



What fraction of the bar does each section represent?



Draw two more bars of the same size and divide one into eighths and the other into sixths.

Which number is greater, a tenth, an eighth or a sixth?

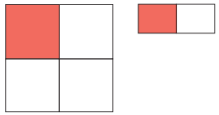
How do the bars help you to explain your reasoning?

Six girls share three bars of chocolate equally.
Four boys share two bars of chocolate equally.

Does each girl get more chocolate, less chocolate or the same amount of chocolate as each boy?
Draw a picture to show that your reasoning is correct.

sa says the diagrams below show that $\frac{1}{4} > \frac{1}{2}$.
ou agree?

Explain why.



Fractions, Decimals and Percentages

Key vocab: tenths, unit fractions, non- unit fractions numerator, denominator, compare, order, add, subtract, solve problems

NC Objectives:

- Add and subtract fractions with the same denominator within one whole.
- Solve problems that involve fractions.

Concrete

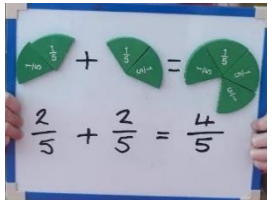
Take a paper circle. Fold your circle to split it into 4 equal parts. Colour one part red and two parts blue. Use your model to complete the sentences.

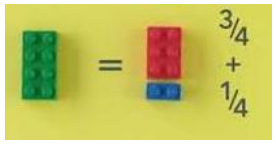
_____ quarter is red.

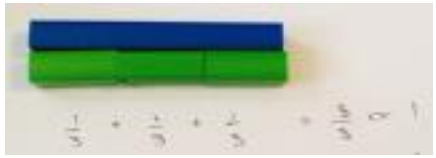
_____ quarters are blue.

_____ quarters are coloured in.

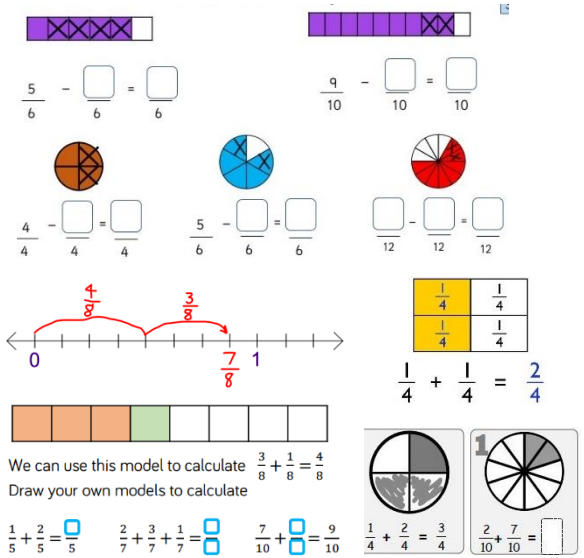
Show this as a number sentence. $\square_4 + \square_4 = \square_4$







Pictorial



Abstract

$\frac{2}{5} + \frac{1}{5} = \frac{\square}{5}$

$\frac{2}{7} + \frac{4}{7} = \frac{\square}{7}$

$\frac{3}{5} - \frac{1}{5} = \frac{\square}{5}$

$\frac{2}{9} + \frac{3}{9} = \square$

Eva eats $\frac{5}{12}$ of a pizza and Annie eats $\frac{1}{12}$ of a pizza. What fraction of the pizza do they eat altogether?

$\frac{2}{4} + \frac{3}{4} = \frac{2+3}{4} = \frac{5}{4}$

$\frac{5}{7} - \frac{3}{7} = \frac{5-3}{7} = \frac{2}{7}$

1. $\frac{4}{12}$ $\frac{2}{12}$ $\frac{2}{12}$

2. $\frac{2}{9}$ $\frac{1}{9}$ $\frac{3}{9}$

3. $\frac{3}{8}$ $\frac{2}{8}$ $\frac{2}{8}$

Reasoning

Find the missing fractions:

$\frac{7}{7} - \frac{3}{7} = \frac{2}{7} + \frac{\square}{7}$

$\frac{\square}{9} - \frac{5}{9} = \frac{4}{9} - \frac{2}{9}$

What fraction of the shape is red?
What fraction of the shape is blue?

red =

blue =

Rosie and Whitney are solving:

$\frac{4}{7} + \frac{2}{7}$

Rosie says,

The answer is $\frac{6}{7}$

Whitney says,

The answer is $\frac{6}{14}$

Who do you agree with?
Explain why.

Fill the gaps

$\frac{3}{8} \square \frac{2}{8} = \frac{5}{8}$

$\frac{3}{8} + \frac{\square}{8} = 1$

$\frac{3}{8} - \frac{2}{\square} = \frac{\square}{8}$

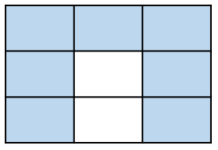
How many ways?

Fill in the missing numbers:

$\frac{6}{7} - \frac{\square}{7} = \frac{\square}{7} + \frac{2}{7}$

Level 1: I can find a way
Level 2: I can find different ways
Level 3: I know how many ways there are

How many fraction addition and subtractions can you make from this model?



Jo ate ¼ of a pizza and Sam ate ½ of what was left.
Mike ate the rest of the pizza.
Draw a diagram to show how much pizza Jo, Sam and Mike each ate.

Mo and Teddy share these chocolates.

They both eat an odd number of chocolates.
Complete this number sentence to show what fraction of the chocolates they each could have eaten.

$\frac{\square}{\square} + \frac{\square}{\square} = \frac{12}{12}$

Measurement

Key vocab: duration, time taken, nearest minute, record, seconds, a.m., p.m., noon, midnight, kilometre, add, subtract, millimetres, perimeter, analogue clock, digital clock, Roman numerals, 12-hour, 24-hour, leap year

NC Objectives:

- Add and subtract amounts of money to give change, using both £ and p in practical contexts.

Concrete

- Use coins to make/add amounts of money.

  £1 and 25p + 46p = £1 and 71p

- Role play giving change from different amounts.

  £1 and 71p – How much change from £2?

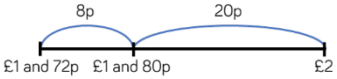
Pictorial

What is the total of the coins shown?

Can you group any of the coins to make 100 pence?
How many whole pounds do you have?
How many pence are left over?
So there is £____ and ____ p.

Write the amounts in pounds and pence.

Tommy has £1 and 72p. Rosie has £2
How much more money does Rosie have than Tommy?



Rosie has ____ p more than Tommy.

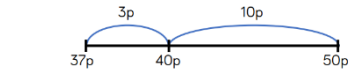
Mo uses a part-whole model to add money.

£____ and ____ p + £____ and ____ p
There is £____ and 105p.
105p= £____ and ____p
Altogether there is £_____ and ____p.

Use Mo's method to find the total of:

£10 and 35p and £4 and 25p £10 and 65p and £9 and 45p

Mo buys a chocolate bar for 37p. He pays with a 50p coin. How much change will he receive?



Mo will receive ____ p change.

What calculation does the bar model show?
Find the total amount of money.

Abstract

Write each amount in pounds and pence.

165p 234p 199p 112p 516p

- Ron has £1. He buys a lollipop for 55p. How much change will he receive?
- Whitney has £5. She spends £3 and 60p. How much change will she receive?

A book costs £5 and 99p.
A magazine costs £1 and 75p.
How much do the book and magazine cost altogether?

A T-shirt costs £7 and 20p.
In a sale, the T-shirt costs £5 and 40p.

How much has the cost of the T-shirt been reduced by?

Reasoning

Explain

Sometimes when I am paying for something that costs £6 I pay with a £10 **and a £1 coin.**

Why might I do this?

Different answers

I have less than 50p.
You need at least 5 coins to make this amount of money.

How much money do I have?

Level 1: I can find a possible amount
Level 2: I can find different possible amounts
Level 3: I have found all the possible amounts

How many ways?

I spend 70p at the shop.
I pay with exactly 5 coins.

Which coins do I use?

Level 1: I can find a way
Level 2: I can find different ways
Level 3: I know how many ways there are

Rosie has 5 silver coins in her purse.

She can make 40p with three coins.

She can also make 75p with three coins.

How much money does Rosie have in her purse?

Dexter has 202 pence.

He has **one** pound coin.

Show five possible combinations of other coins he may have.

Dora spends £7 and 76p on a birthday cake.

She pays with a £10 note.
How much change does she get?

The shopkeeper gives her six coins for her change.
What coins could they be?

Dora thinks there is more than £5 but less than £6
Is Dora correct?

Convince me.

Amir has 5 different coins in his wallet.

What is the greatest amount of money he could have in his wallet?
What is the least amount of money?

Three children are calculating £4 and 20p subtract £1 and 50p.

£4 – £1 = £2
20p – 50p = 30p
£1 + 30p = £1 and 30p Annie

Teddy

The difference is £2 and 70p.

£4 and 20p – £2 = £2 and 20p
£2 and 20p + 50p = £2 and 70p Eva

Who is correct? Who is incorrect?
Which method do you prefer?

Measurement

Key vocab: duration, time taken, nearest minute, record, seconds, a.m., p.m., noon, midnight, kilometre, add, subtract, millimetres, perimeter, analogue clock, digital clock, Roman numerals, 12-hour, 24-hour, leap year

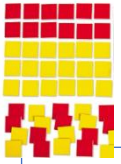
NC Objectives:

- Measure, compare, add, and subtract:
  - Lengths (m/cm/mm)
  - Mass (kg/g)
  - Volume/capacity (l/ml)
- Measure the perimeter of simple 2D shapes.

Concrete

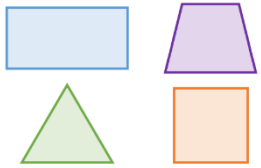


Use measuring scales, rulers and measuring jugs to measure and compare length, mass, and capacity.




Use tiles/multilink/Lego to explore and measure perimeter.

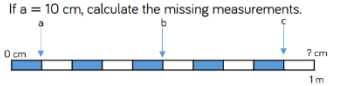
Use a ruler to measure the perimeter of the shapes.



Using your finger, show me the perimeter of your table, your book, your whiteboard etc.

Pictorial

If a = 10 cm, calculate the missing measurements.



b = ___ cm c = ___ cm 1 metre = ___ cm

Eva uses this diagram to convert between centimetres and metres.

Use Eva's method to convert:

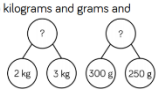
- 130 cm
- 230 cm
- 235 cm
- 535 cm
- 547 cm

120 cm	
100 cm	20 cm
1 m	20 cm
1m 20 cm	

Amir uses a part-whole model to add 2 kg and 300 g to 3 kg and 250 g. He partitions each mass into kilograms and grams and calculates them separately.

Use Amir's method to calculate:

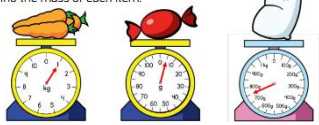
3 kg and 450 g + 4 kg and 200 g
4 kg and 105 g + 2 kg and 300 g
4 kg and 400 g – 2 kg and 100 g
8 kg and 600 g – 1 kg and 550 g



Tick the images where you can find the perimeter.

Explain why you can't find the perimeter of some of the images.

Find the mass of each item.



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

Choose an appropriate approach to solve:

- $7\text{ kg} - \square = 5\frac{1}{2}\text{ kg}$
- $3\text{ kg and }200\text{ g} + \square = 4\frac{1}{2}\text{ kg}$
- $4\text{ kg} + \square - 1\frac{1}{2}\text{ kg} = 3\text{ kg}$

Can you match the equivalent measurements?

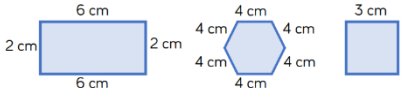
100 cm	9 m
5 m	200 cm
300 cm	500 cm
2 m	1 metre
900 centimetres	3 m

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

The jar of cookies has a mass of 800 g. The empty jar has a mass of 350 g. How much do the cookies weigh?

Whitney has 3 bottles of water with 500 ml in each.
Sophie has one bottle of water with 1 and a half litres in it.
Who has the most water?
Can you prove it?

Calculate the perimeter of the shapes.



Can you find more than one way to calculate the perimeter?

Reasoning

Explain

Circle the unit(s) of measure that may be used to measure each item:

The classroom bin → **mm cm m kg ml litres**
A letter → **mm cm m g kg ml**
A bath → **mm cm m kg litres**

Estimate

Estimate the perimeter:

True or false?

8cm = 80 mm
60mm = 600 cm
500m = 5 km
30cm = 3 m
30cm = 300 mm

Amir is measuring the shape below.
He thinks the perimeter is 7 cm.

Can you spot his mistake?

Three children measured the same toy car.

Eva says that the car is 6 cm and 5 mm

Dexter says the car is 5 cm

Annie says the car is 4 cm 5 mm

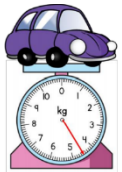
Who is correct?
Who is incorrect?
Explain why.

Ron is thinking of a measurement.
Use his clues to work out which measurement he is thinking of.

- In mm, my measurement is a multiple of 2
- It has 8 cm and some mm
- It's less than 85 mm
- In mm, the digit sum is 12

Tommy is weighing a toy car.

Use this to work out what the other children's cars weigh.



Alex: My car weighs 1 kg more than Mo's.

Mo: My car weighs 200 g less than Tommy's.

Dexter: My car weighs 1 kg and 300 g less than Alex's.

True or False?

The tallest container has the largest capacity.

Use containers to decide whether the statement is true or false.

Record the capacity of the different containers in a table.

Measurement

Key vocab: duration, time taken, nearest minute, record, seconds, a.m., p.m., noon, midnight, kilometre, add, subtract, millimetres, perimeter, analogue clock, digital clock, Roman numerals, 12-hour, 24-hour, leap year

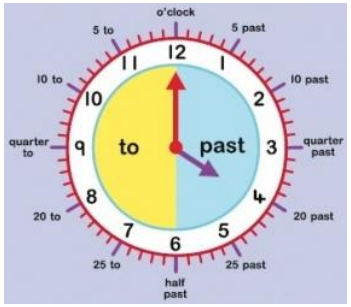
NC Objectives:

- Know the number of seconds in a minute and the number of days each month, year, and leap year.
- Compare durations of events, for example, to calculate time taken by events or tasks.
- Tell and write the time from an analogue clock, including using Roman numerals from I to XII and 12-hour and 24-hour clocks.
- Read Roman Numerals to 12.
- Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, and hours.

Concrete

- Get children to sit for a minute to understand the duration. Repeat, counting the seconds to make the minute.
- Children time themselves performing different tasks.

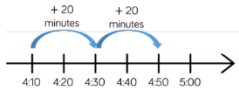
Pictorial



A 40 minute TV programme starts at the time shown. What time does it finish?

We can use a number line to work out the end time.
Use this method to work out:

- The end time of a 25 minute lesson starting at 2.15 p.m.
- The start time if a 1 hour 10 minute journey ended at 4 o'clock.



Abstract

Sort the times from latest to earliest.

5:30 p.m.	9:45 a.m.	9:45 p.m.	10:23 a.m.
7:31 a.m.	10:13 p.m.	8:30 a.m.	6:32 a.m.
12:24 a.m.	8:55 p.m.	2:11 a.m.	7:40 a.m.

Dora is telling the time from an analogue clock.

The hour hand is pointing to XI
the minute hand is pointing to XII

What time is it?

Complete the statements.

1 day	=	24 hours	___ days	=	120 hours
2 days	=	___ hours	___ days	=	60 hours
___ days	=	240 hours	20 days	=	___ hours

Amir gets on a bus at 15:23
It arrives at 16:22
How long was the bus journey?
How many ways can you find to work out the answer?

Use the numbers to fill in the gaps in the sentences.

There are _____ days in a year.
There are _____ months in a year.
There are _____ days in a leap year.
There are _____ days in a week.
Leap years happen every _____ years.

7 365 4 366 12

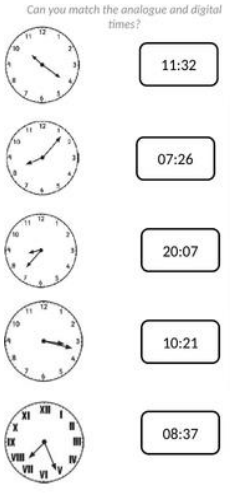
Calculate the duration of the TV programmes.

TV Programme	Start Time	Finish Time	Duration
Pals	06:30	07:30	
Dennis the explorer	15:15	18:15	
The football show	12:00	14:00	
An adventure	10:40	12:40	

Draw the hands on the clock to show the time:

25 minutes to 6

Can you match the analogue and digital times?

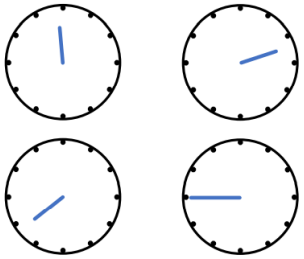


11:32
07:26
20:07
10:21
08:37

Reasoning

Estimate

There is a hand missing from each clock.
For each clock, what time could it be?



Whitney asks Rosie and Jack a question.

Some months have 31 days, some months have 30 days. How many months have 28 days?

Only February has 28 days.

Rosie

Every month has 28 days.

Jack

Who do you agree with? Explain your thinking.

Is Teddy correct?
Prove it.

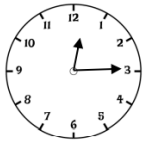
If the time has an 8 in it, it has to be 8 o'clock.

Teddy

True or False?

- 3 minutes 5 seconds < 190 seconds
- 4 minutes = 204 seconds

Lunchtime begins at:



Lunchtime ends at:

1:10

Teddy and Rosie are working out how long lunchtime lasts for.

Teddy

I did three quarters of an hour then added 10

I did 1 hour take away 5 minutes

Rosie

Whose method is correct?

Geometry

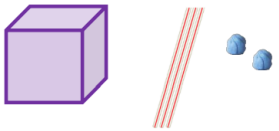
Key vocab: angle, turn, right angles, quarter of a turn, half-turn, three quarters of a turn, complete turn, horizontal lines, vertical lines, perpendicular lines, parallel lines

NC Objectives:

- Recognise 3D shapes in different orientations and describe them.
- Draw 2D shapes and make 3D shapes using modelling materials.

Concrete

Use straws and Play-Doh to create a model of a cube.



What other 3-D shapes can you create?

Children make a 3-D shape using Play-Doh/clay/plasticine/ polydron.
Ask them to make a different one to their partner.
Write down the similarities and differences between them.
Discuss what the properties of each shape are.

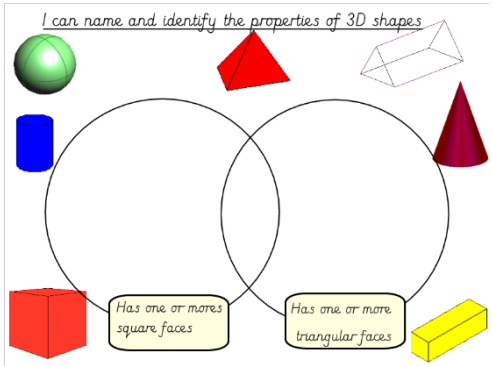
Cut and fold these into 3-D shapes.

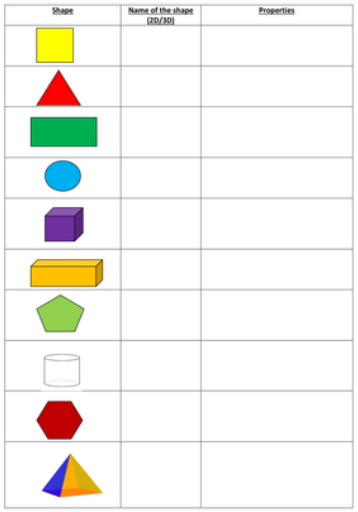
What shapes have you created?

Pictorial

Draw the following shapes.

- A square with sides measuring 2 cm
- A square that is larger the one you have just drawn
- A rectangle with sides measuring 4 cm and 6 cm
- A triangle with two sides of equal length





Describe this 3-D shape.

This shape is a _____.
It has ____ faces.
It has ____ edges.
It has ____ vertices.

Choose one of these 3-D shapes and describe it to a friend thinking about the number and shape of faces it has and the number of edges and vertices. Can your friend identify the shape from your description?

What is the same and what is different about these two shapes?

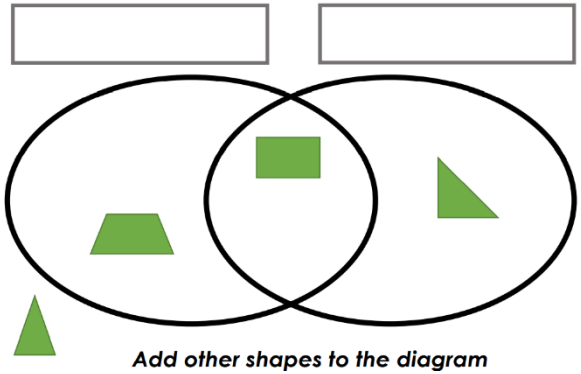
Choose two other shapes and say what is the same and what is different about them.

Abstract

Reasoning

Explore

Write the headings for the Venn diagram



Add other shapes to the diagram

Two ways

One more square needs adding to each net to complete the net of a cube.

Complete in two ways.

What is the same and what is different about these shapes?

Rosie describes a 2-D shape.

My shape has 2 pairs of parallel sides. The lengths of the sides are not all equal.

Draw the shape that Rosie is describing.

Could this square be Rosie's shape?

Explain why.

Alex says,

All 3-D shapes are prisms.

Do you agree with Alex?
Explain why.

Mo has a 3-D shape, he says,

One face of my 3-D shape is a square.

What could Mo's shape be?

Geometry

Key vocab: angle, turn, right angles, quarter of a turn, half-turn, three quarters of a turn, complete turn, horizontal lines, vertical lines, perpendicular lines, parallel lines

NC Objectives:

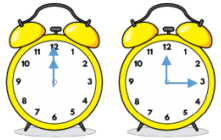
- Recognise angles as a property of shape or a description of a turn.
- Identify right angles. Recognise that two right angles make a half turn, three make three quarters and four a complete turn.
- Identify whether angles are greater than or less than a right angle.

Concrete

Take children outside or into the hall where they can practice moving in turns themselves. Label 4 walls/points (for example: North, South, East, West).

Give children instructions to encourage them to make $\frac{1}{2}, \frac{1}{4}, \frac{3}{4}$ and whole turns from different starting points. Allow children the opportunity to give instructions too.

Give children a clock each so they can practice making turns. Start with the hands showing 12 o'clock, move the minute hand one quarter of a turn.



The angle between the hands is called a _____ angle.
One quarter turn is equal to a _____ angle.

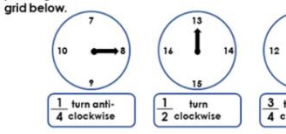
Children can create a 'Right Angle Tester'.

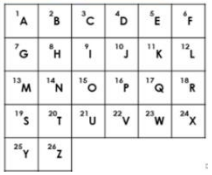
They can then go on a right-angle hunt around school.

Find and draw at least 3 right angles you have seen around your school.

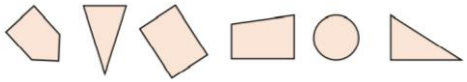
Pictorial

1. Investigate what the code word is by working out which number each arrow will be pointing to after it has made its turn. Each number has a letter which is shown in the grid below.





Sort the shapes based on the number of right angles they have. Record your answer in a table.

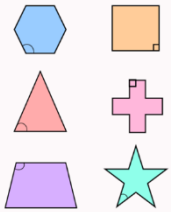


Describe this quadrilateral.

It has _____ angles.
It has _____ right angles.
It has _____ obtuse angle.
It has _____ acute angle.
It has _____ lines of symmetry.

Using the labelled angles only, sort the shapes into the table.

Acute Angle	Right Angle	Obtuse Angle

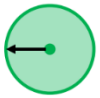


Abstract

Reasoning

The arrow on a spinner started in this position.

After making a turn it ended in this position.



Jack says,

The arrow has moved a quarter turn anti-clockwise.

Alex says,

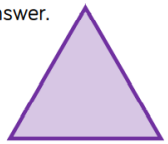
The arrow has moved a three-quarter turn clockwise.

Who do you agree with?

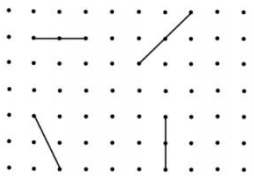
True or False?

This shape has two right-angles.

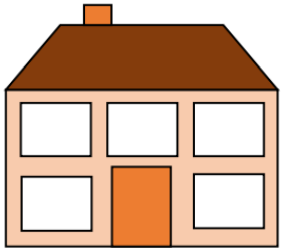
Explain your answer.



Draw a line along the dots to make a right-angle with each of these lines:

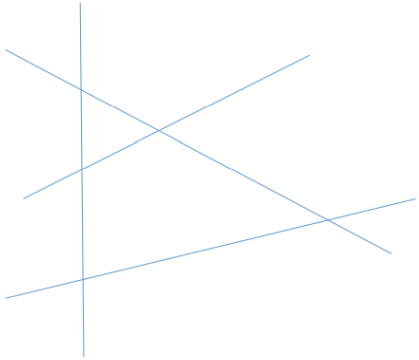


How many right angles can you see in this image?



Can you create your own image with the same number of right angles?

Label the acute angles (A) and obtuse angles (O) on the diagram below



Teddy describes a shape.

My shape has 3 right angles and 2 obtuse angles.

What could Jack's shape look like?

Describe a shape in terms of it's angles for a friend to draw.

Geometry

Key vocab: angle, turn, right angles, quarter of a turn, half-turn, three quarters of a turn, complete turn, horizontal lines, vertical lines, perpendicular lines, parallel lines

NC Objectives:

- Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.

Concrete

- Go on a hunt around the classroom/school to find examples of parallel and perpendicular lines in objects.
- Use objects to make examples of parallel and perpendicular lines.

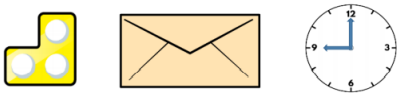
Pictorial

Lines that never meet are called _____ lines.

Straight lines that meet at a right angle are called _____ lines.

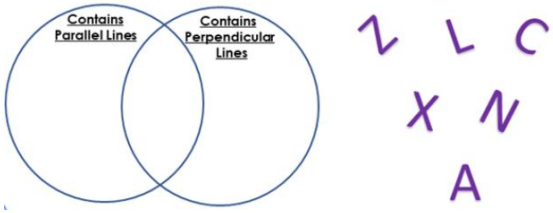
. Circle the objects which contain parallel lines.

Label the horizontal and vertical lines in each of these images.



Sort the shapes/symbols/letters depending on whether they have a horizontal line of symmetry, a vertical line of symmetry or both.

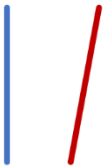
. Sort the capital letters into the Venn diagram below.



Abstract

Reasoning

Agree or disagree?

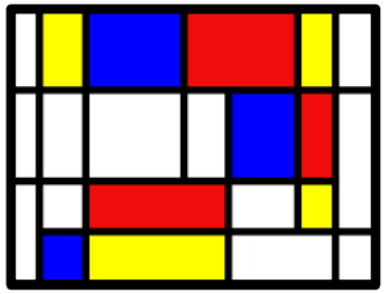


The blue line is vertical

The blue line and the red line are parallel as they never meet

Mark 3 sets of parallel lines and 3 sets of perpendicular lines in this flag.

Design your own flag containing parallel and perpendicular lines.



How many horizontal and vertical lines can you spot in this image by Mondrian?

Create your own piece of art work using only horizontal and vertical lines.

Horizontal line of symmetry	Vertical line of symmetry	Horizontal and vertical lines of symmetry

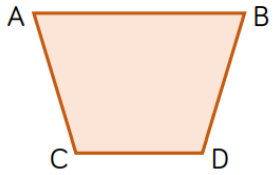
Eva completes the table by drawing shapes.

Can you spot and correct her mistake?

These lines are NOT parallel.

Convince me.

True or False?



Line AB is parallel to line CD.
Line AC is parallel to line BD.
Line AC is perpendicular to line CD.

Redraw the shape so that line BD is perpendicular to line CD.

Statistics

Key vocab: present, presented, graph, statistics, bar charts, tables, solve, one- step questions, two- step questions, information, scale

NC Objectives:

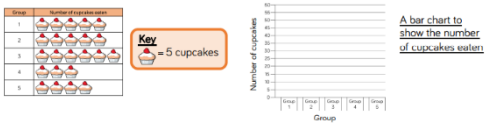
- Interpret and present data using:
  - Bar charts
  - Pictograms
  - Tables
- Solve one-step and two-step questions such as 'How many more?' and 'How many fewer?' using information presented in scaled bar charts, pictograms, and tables.

Concrete

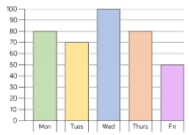
- Use multilink or other objects to create bar charts and pictograms.
- Children ask questions about each other's charts.

Pictorial

Use the information from the pictogram to complete the bar chart.



The bar chart shows how many children attend after school clubs.

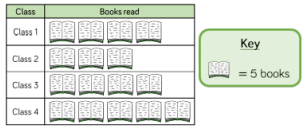


Which day is the most popular?
Which day is the least popular?
What is the difference between the number of children attending on Tuesday and on Thursday?
What information is missing from the bar chart?

Here is a tally chart showing the number of children in each sports club.
Draw a bar chart to represent the data.

Sport	Tally	Total
Football	15	
Tennis	9	
Rugby	13	
Cricket	7	
Basketball	3	

4 classes are recording how many books they read in a week.
Here are the results of how many books they read last week.

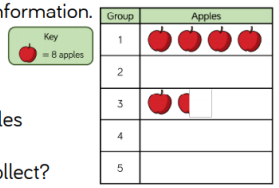


- Which class read the most books?
- Which class read the least books?
- How many more books did Class 4 read than Class 2?

Complete the pictogram using the information.

- Group 2 collected 40 apples.
- Group 4 collected half as many apples as Group 1
- Group 5 collected 20 more apples than Group 3

How many apples did each group collect?



Abstract

The table shows which sports children play.

	Whitney	Jack	Eva	Mo	Teddy	Annie
Football	✓		✓	✓		✓
Rugby			✓		✓	
Tennis	✓	✓		✓		✓
Cricket			✓		✓	
Basketball		✓	✓	✓		✓

How many children play tennis?
Which sports does Mo play?
Which children play football and tennis?
Which child plays the most sport?

The table shows the increase in bus ticket prices.

1st January	
2016	2017
44p	49p
56p	60p
64p	69p
76p	85p
85p	93p
98p	£1.03
£1.05	£1.11

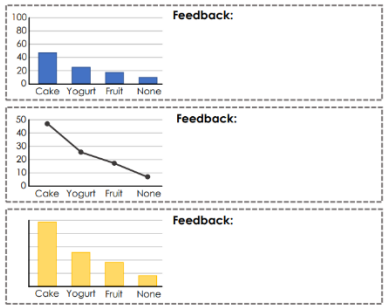
- The cost of Ron's new ticket is 60p. How much was his ticket last year? How much has the price increased by?
- Which ticket price has increased the most from 2016 to 2017? Which ticket price has increased the least?

Reasoning

Mark the work

Cake	48
Yogurt	26
Fruit	18
None	8

The table shows the puddings that 100 children ate at school.
Mrs Yates asked her class to create a graph using this data.
Mark their work: find good things, suggest improvements.



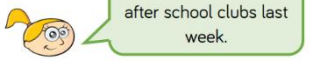
How many questions can you create for your partner about this table?

Day	Number of hours shop is open
Monday	8
Tuesday	8
Wednesday	4
Thursday	10
Friday	7
Saturday	12

Eva has created a table to show how many boys and girls took part in after school clubs last week.

Day	Boys	Girls
Monday	11	9
Tuesday	18	12
Wednesday	13	11
Thursday	8	8
Friday	9	7

Eva says,

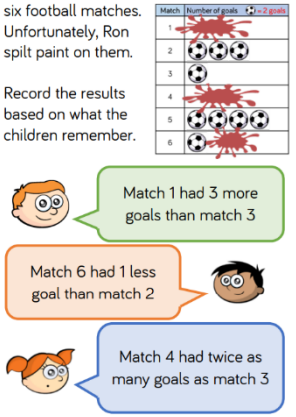


Is Eva correct?

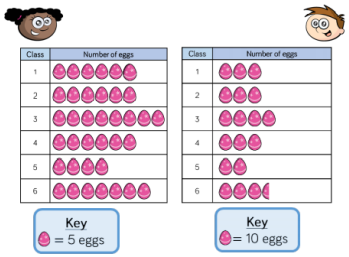
Explain why.

Ron, Amir and Alex record the scores of six football matches. Unfortunately, Ron spilt paint on them.

Record the results based on what the children remember.



Whitney and Teddy are making pictograms to show how many chocolate eggs each class won at the school fair.



What's the same and what's different about their pictograms?
Whose pictogram do you prefer and why?