Bathwick St Mary Progression and Calculation Document—Overview **Year Three**

NC Learning Objectives: Key Skills

The following documents are used to provide us with a long term planning structure for teaching an learning over the year. We use the combination alongside our own teacher judgement and remain flexible for several reasons, taking into account:

- The pace of the children's understanding in line with our whole class teaching for mastery approach
- The small steps and depth of learning required to master certain topics

Year 3 – Yearly Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number – Place Value			Number – Addition and Subtraction					Number – Multiplication and Division			Consolidation
Spring	Number - Multiplication and Division			Measurement: Money	Statistics		Measurement: length and perimeter			Number - Fractions		Consolidation
Summer	Number – fractions			Measurement: Time			Geometry – Properties of Shapes		Measurement: Mass and Capacity			Consolidation

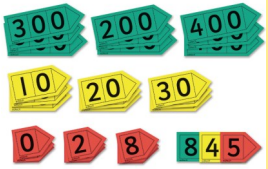
Bathwick St Mary Church School — Progression and Calculation Document— place value Year Three

NC Learning Objectives and Skills

- Identify, represent and estimate numbers using different representations.
- Find 10 or 100 more or less than a given number
- Recognise the place value of each digit in a three-digit number (hundreds, tens, ones).
- Compare and order numbers up to 1000
- Read and write numbers up to 1000 in numerals and in words.
- Solve number problems and practical problems involving these ideas.

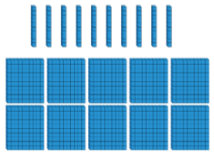
Concrete

Place value arrow



digit cards

Dienes

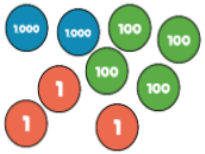


___ tens make ___ hundred.

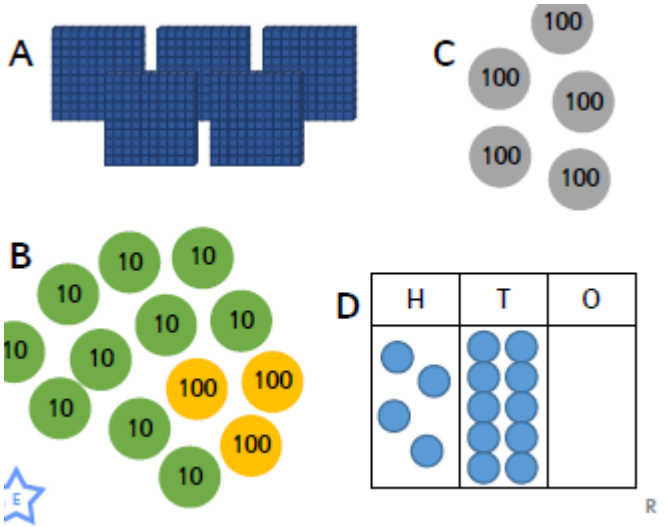
___ h
thous

Money

Place value counters



Pictorial

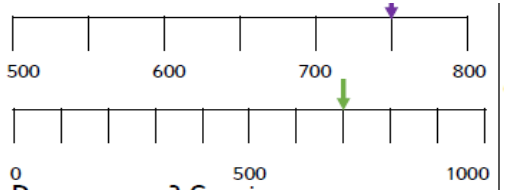


Draw counters and dienes and bars in books

Abstract

Hundred	Ten	Unit
1	4	7
One hundred	forty	seven
One hundred and forty-seven		

Hundred	Ten	Unit
4	0	9
Four hundred		nine
Four hundred and nine		



- Write numbers lining up the digits

Hundred	Ten	Unit
1	4	7
6	3	2
1	7	6
1	6	2

Key Vocabulary: hundreds, tens, ones, units, place, zero, dienes, count, column. Fifty pence, counting

STEM Sentences:

5) Using four counters and the place value grid, how many different numbers can you make? E.g. 211

100s	10s	1s
● ●	●	●

Additional Knowledge Covered in this area of Maths:

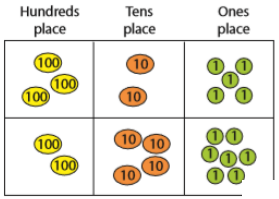
Place in here any additional Knowledge you think appropriate in each element having reviewed the knowledge organiser for your year group for each of the strands of maths.

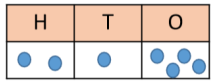
Bathwick St Mary Church School	Progression and Calculation Document— Addition and Subtraction	Year Three

NC Learning Objectives: Key Skills

- Number – Addition and Subtraction Add and subtract numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three digit number and hundreds.
- Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.
- Estimate the answer to a calculation and use inverse operations to check answers.
- Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.

Concrete





Use the place value counters to complete thenumber sentences.

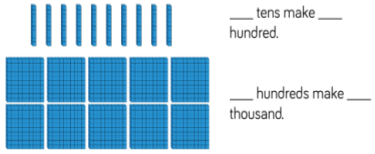
214 – 3 = ☐ 214 + 3 = ☐

Digit cards

Place value counters

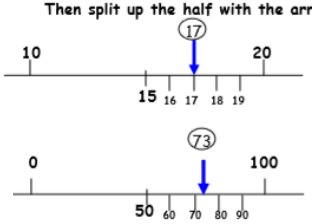
Rulers

dienes

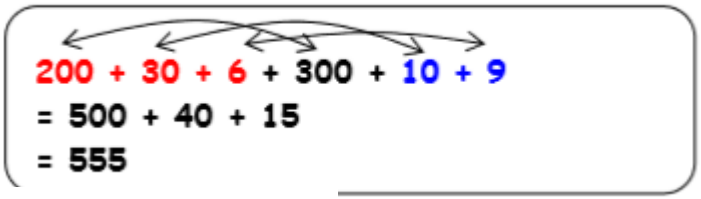


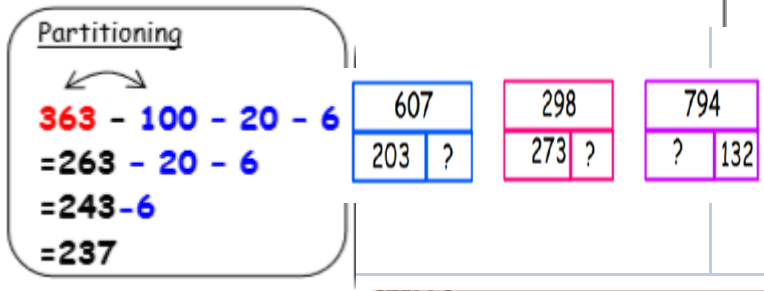
Pictorial

- Estimate on a number line
- Fill in the half way number first
- Then split up the half with the arrow

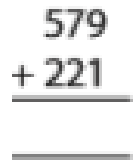


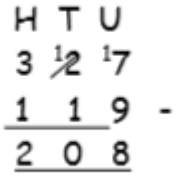
Calculate it	Build it and draw it
Five hundred and forty-six subtract six	
Write it as a calculation	**Explain it**





Abstract





Key Vocabulary:

Key Vocabulary: add, total, sum, altogether, carry, digit,

subtract difference, place value, exchange, regroup,

STEM Sentences:

STEM Sentenc-es:

☐ ☐ ☐ + ☐ ☐ ☐ =

Throw a 1 to 6 dice and each time record the digit in one of the place holders.
The aim is to get the sum as low as possible. Repeat to find different answers.
Could you have done it in a different way?
Compete against a friend and compare your answers.

Additional Knowledge Covered in this area of Maths:

Place in here any additional Knowledge you think appropriate in each element having reviewed the knowledge organiser for your year group for each of the strands of maths.

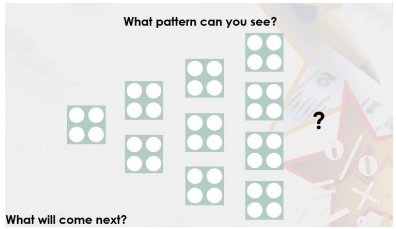
Bathwick St Mary Church School — Progression and Calculation Document— Multiplication and division Year Three

NC Learning Objectives:

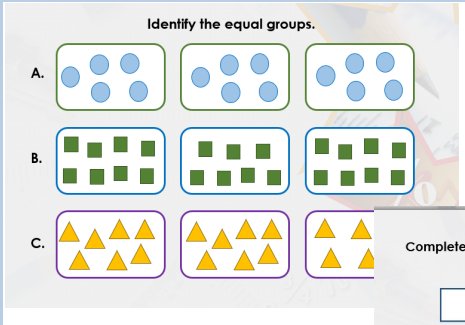
- Number – Multiplication and Division
- Count from 0 in multiples of 4, 8, 50 and 100
- Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables.
- Write and calculate mathematical statements for multiplication and division using the multiplication tables they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.

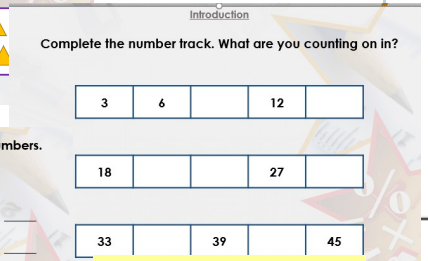
Concrete

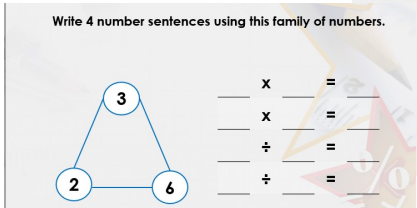
1	x	3	=	3
2	x	3	=	6
3	x	3	=	9
4	x	3	=	12
5	x	3	=	15
6	x	3	=	18
7	x	3	=	21
8	x	3	=	24
9	x	3	=	27
10	x	3	=	30
11	x	3	=	33
12	x	3	=	36

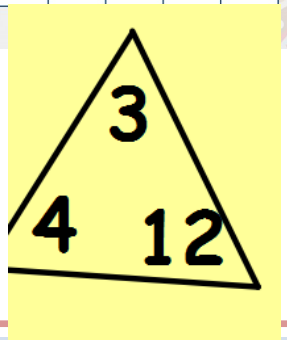


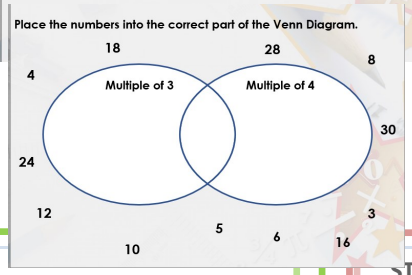
Pictorial











Abstract

2 × 3 4 × 3
2 × 30 4 × 30
20 × 3 40 × 3
20 × 3 × 10 40 × 3 × 10

Column method

3 8
× 3
1 1 4
2

- Look for connections between two sums
- Remember the fact family for x/÷

Example: 6 x 4 = 24 (x10) So **60** x 4 = 240
So 240 ÷ 4 = 60

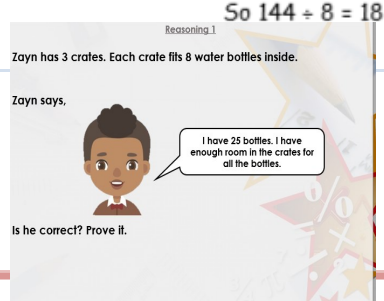
Example: 9 x 8 = 72 (x2) So 18 x 8 = 144
So 144 ÷ 8 = 18

Key Vocabulary

Key Vocabulary: multiply, divide, carry, formal, column, partition, group, divide, families, times tables, grids, inverse

STEM Sentences:

STEM Sentences:



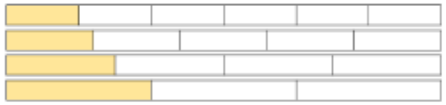
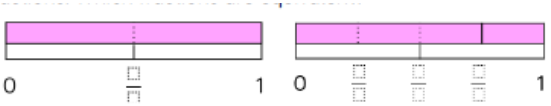
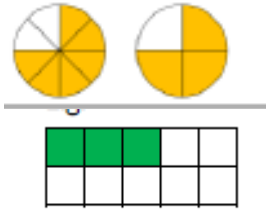
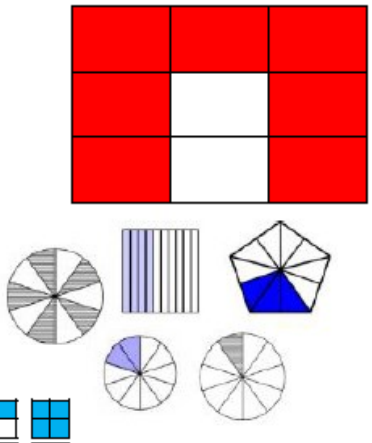
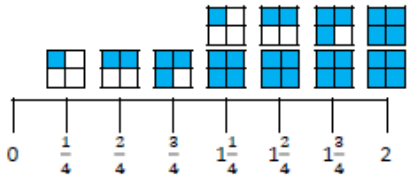
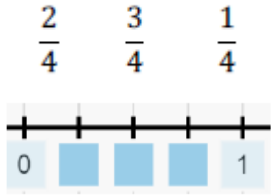
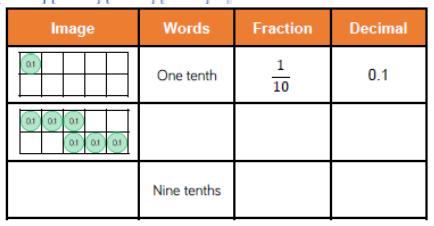
Additional Knowledge Covered in this area of Maths:

Place in here any additional Knowledge you think appropriate in each element having reviewed the knowledge organiser for your year group for each of the strands of maths.

Bathwick St Mary Church School — Progression and Calculation Document— Fractions Year Three

NC Learning Objectives:

- count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10
- 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
- add and subtract fractions with the same denominator within one whole [for example, 5/7 + 1/7 = 6/7]
- compare and order unit fractions, and fractions with the same denominators
- solve problems that involve all of the above.

Concrete	Pictorial	Abstract
Fraction wall   1 hour = ☐ minutes $\frac{1}{3}$ of ☐ minutes = ☐ $\frac{2}{3}$ of ☐ minutes = ☐ Split strips of paper into halves, thirds, quarters, fifths and sixths and colour in one part of each strip. Now order the strips from smallest to largest.  Complete the sentences to describe the apples.  ☐/☐ of the apples are red. ☐/☐ of the apples are green. ☐/☐ and ☐/☐ make one whole.	  Three tenths  	 Sort the fractions into the table. $\frac{3}{4}$ $\frac{3}{5}$ $\frac{1}{3}$ $\frac{1}{4}$ $\frac{2}{2}$ $\frac{4}{4}$ $\frac{2}{5}$ $\frac{1}{2}$ $\frac{1}{12}+\frac{11}{12}$ $\frac{3}{12}+\frac{9}{12}$ $\frac{5}{12}+\frac{7}{12}$ 

	Fractions equal to one whole	Fractions less than one whole
Unit fractions		
Non-unit fractions		

Image	Words	Fraction	Decimal
	One tenth	$\frac{1}{10}$	0.1
	Nine tenths		

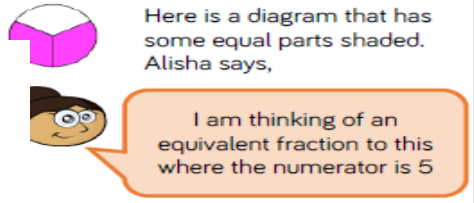
Key Vocabulary: numerator

Denominator Unit fraction Equal parts

Divide group equivalent equal whole part equal to 1

STEM Sentences:

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



Is this possible? Explain why.

Additional Knowledge Covered in this area of Maths:

Place in here any additional Knowledge you think appropriate in each element having reviewed the knowledge organiser for your year group for each of the strands of maths.

Bathwick St Mary Church School Progression and Calculation Document— Measurement Year Three

NC Learning Objectives:

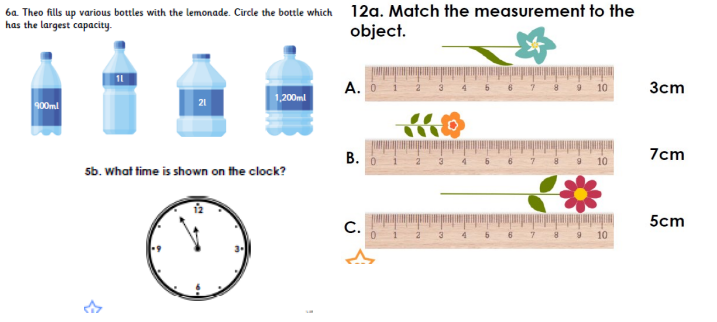
- measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)
- measure the perimeter of simple 2-D shapes
- add and subtract amounts of money to give change, using both £ and p in practical contexts
- tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks
- estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight
- know the number of seconds in a minute and the number of days in each month, year and leap year
- compare durations of events [for example to calculate the time taken by particular events or tasks].

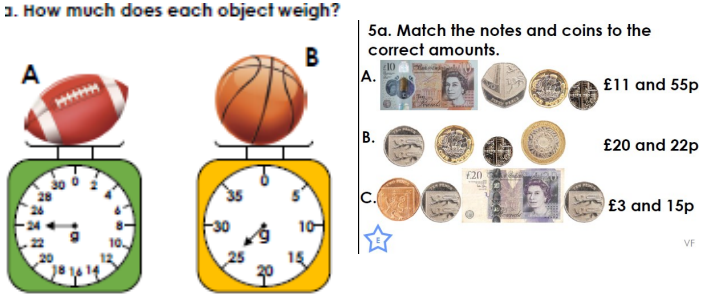
Concrete





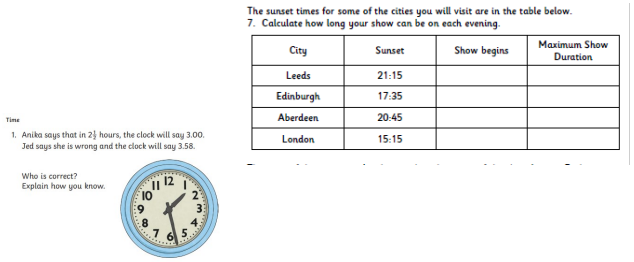
Pictorial





Abstract

Lila is making necklaces. She uses 12cm of string for each necklace. If she has 48cm of string. How many necklaces does she make?



A cake weighs half a kg. I decorate the cake with icing which weighs 100g and candles which weigh 250g. How much does the fully decorated cake now weigh?

Key Vocabulary:

Measure, compare,, weight, mass, length, time, money, capacity, holds more/holds most, short, shorter, shortest, tall, taller, tallest, light, lighter, lightest, full, empty, centimetre (cm), metre (m), millimetre (mm), kilometre (km), minute, second, hour, day, month, year, millilitres (ml), litres (l), grams (g), kilograms (kg), pounds, pence, change, decimal, convert, equivalent

STEM Sentences:

Explain how you know that…
Find the equivalent of…
Is it possible to…?

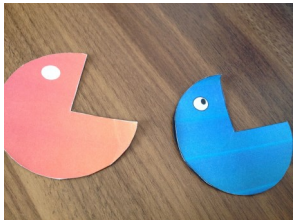
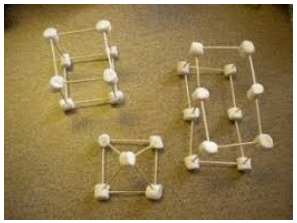
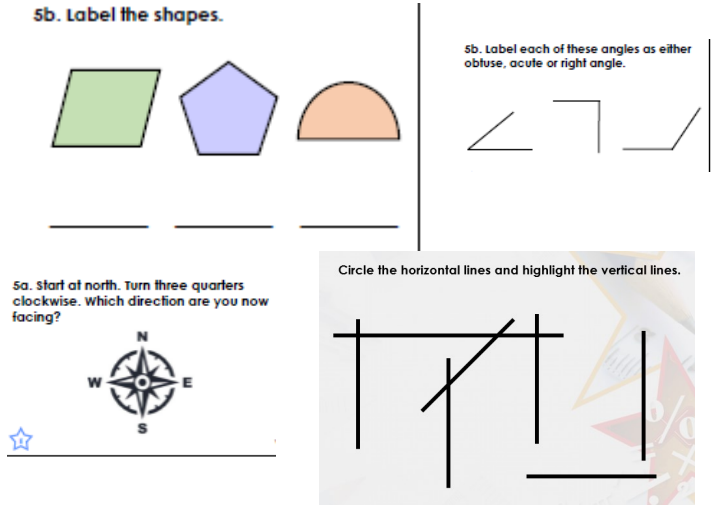
Additional Knowledge Covered in this area of Maths:

Place in here any additional Knowledge you think appropriate in each element having reviewed the knowledge organiser for your year group for each of the strands of maths.

Bathwick St Mary Church School — Progression and Calculation Document— Geometry Properties of Shapes Year Three

NC Learning Objectives:

- draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them
- 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 of a turn and four a complete turn; identify whether angles are greater than or less than a right angle
- identify horizontal and vertical lines and pairs of perpendicular and parallel lines.

Concrete	Pictorial	Abstract
   		6a. Draw the shapes below in your book. Use a ruler. • A quadrilateral with no right angles. • A rectangle where the length is double the width. Quadrilaterals are always symmetrical. Is this true? Explain your answer. 8b. I have 1 set of perpendicular lines. I have fewer than 4 sides. I have 2 acute angles. I am a _____. Now draw me in your book. 8a. Use >, < or = to complete the statements below. number of vertices on a cube ☐ number of faces on a cube number of edges on a cylinder ☐ number of vertices on a sphere

Key Vocabulary:

3-D, three dimensional, 2-D, two dimensional, net, construct, regular, irregular, make, build, draw, curved, straight, hollow, solid, flat, side, corner, point, face, edge, side, round, angle, right angle, acute, obtuse, whole-turn, half-turn, quarter-turn, right, left, position, direction, horizontal, vertical, diagonal, parallel, perpendicular, intersecting, polygon, triangle, quadrilateral, pentagon, hexagon, heptagon, octagon, nonagon, decagon, cone, sphere, cylinder, cube, cuboid, prism, pyramid

STEM Sentences:

Is it possible to… ?
Explain why … always / never…
How many different ways can you…?
Prove that...

Additional Knowledge Covered in this area of Maths:

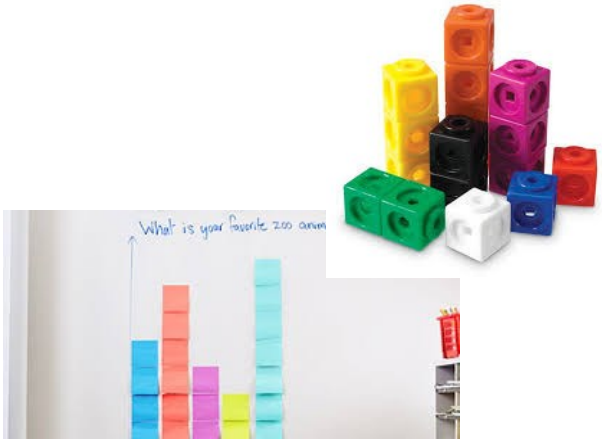
Place in here any additional Knowledge you think appropriate in each element having reviewed the knowledge organiser for your year group for each of the strands of maths.

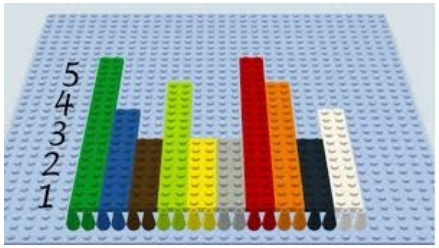
Bathwick St Mary Church School — Progression and Calculation Document— Statistics Year Three

NC Learning Objectives/Key Skills

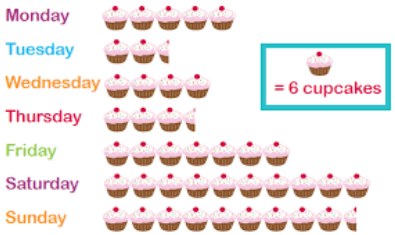
- interpret and present data using bar charts, pictograms and tables
- solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.

Concrete



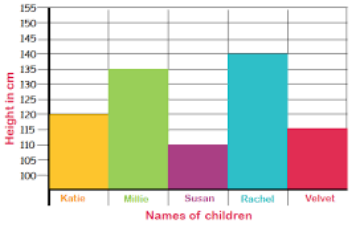


Pictorial



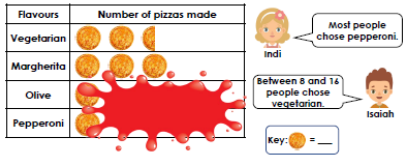
What kind of chocolate is your favourite?

Chocolate	Tally	Frequency
Milk	𝍸 𝍸 𝍸 𝍸 ||	
Dark	𝍸	
White	𝍸 𝍸 |||	
	Total	40



Abstract

2. Indi and Isaiah spill pizza sauce on the pictogram below. They know that in total, more than 70 but less than 100 pizzas were made.



Use the clues to investigate what each pizza is worth and how many people chose olive and pepperoni pizzas.

6. Use your completed table to answer the questions below about the trip to the seaside.

When are the most expensive tickets sold? ____

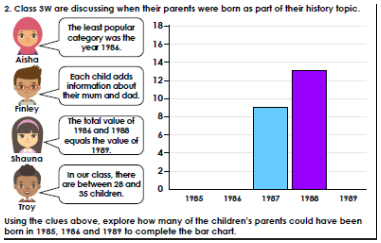
What is the difference in price between an adult and child ticket on Thursday? ____

How much will it cost for 10 adults to accompany Year 3 on a trip on Tuesday? ____

According to Ms Hawkins, on what days can the trip take place? ____

____

2. Class 3W are discussing when their parents were born as part of their history topic.



Using the clues above, explore how many of the children's parents could have been born in 1985, 1986 and 1989 to complete the bar chart.

Key Vocabulary:

Information, data, graph, block, graph, pictogram, diagram, list, chart, table, label, title, scale, interval, bar chart, tally, chart, survey, questionnaire, collect, organise, compare, order, sort, group, classify, same, different, property, represent, interpret

STEM Sentences:

Explan how you know that…?

Prove …

Justify...

Explain the difference between...

Additional Knowledge Covered in this area of Maths:

Place in here any additional Knowledge you think appropriate in each element having reviewed the knowledge organiser for your year group for each of the strands of maths.