Government of Western Australia
School Curriculum and Standards Authority

Western Australian Curriculum

Mathematics

Scope and sequence | Pre-primary–Year 6

Revised curriculum | For familiarisation in 2025

Acknowledgement of Country

Kaya. The School Curriculum and Standards Authority (the Authority) acknowledges that our offices are on Whadjuk Noongar boodjar and that we deliver our services on the country of many traditional custodians and language groups throughout Western Australia. The Authority acknowledges the traditional custodians throughout Western Australia and their continuing connection to land, waters and community. We offer our respect to Elders past and present.

2024/52514[v16]

Contents

Overview

The current Western Australian Curriculum: Mathematics was adopted from the Australian Curriculum version 8.1.

The revised Western Australian Curriculum: Mathematics has been adapted from the current Western Australian Curriculum, the New South Wales Curriculum and Australian Curriculum version 9, and has been contextualised for the *Western Australian Curriculum and Assessment Outline*.

Guide to reading this document

The Scope and sequence shows the **mandated** curriculum for teaching, written as **content descriptions** across year levels so that a sequence can be viewed across the years of schooling from Pre-primary to Year 10. The **examples** illustrate the content and are **not mandated**. Teachers should use examples relevant to the context of the school and needs of their students.

This Scope and sequence shows the Pre-primary to Year 6 Mathematics curriculum organised by phases of learning: Pre-primary–Year 2 and Years 3–6.

The document is organised by three Mathematics strands: Number and algebra; Measurement and geometry; and Probability and statistics.

The **Number and algebra** strand for **Pre-primary to Year 6** includes: Understanding number; Understanding equalities and inequalities; Patterns and relationships; Calculating with number; Financial mathematics; and Modelling with number.

The **Measurement and geometry** strand for **Pre-primary to Year 2** includes: Two-dimensional space and structures; Three-dimensional space and structures; and Non-spatial measurement.

The **Measurement and geometry** strand for **Years 3–6** includes: Two-dimensional space and structures; Three-dimensional space and structures; Non-spatial measurement; and Modelling with measurement and geometry (**Years 4–6** only).

The **Probability and statistics** strand for **Pre-primary to Year 6** includes: Probability and Statistics.

The tables below outline the subject organisation for the Pre-primary to Year 6 Mathematics curriculum.

Pre-primary–Year 2

Number and algebra					
Understanding number	Understanding equalities and inequalities	Patterns and relationships	Calculating with number	Financial mathematics	Modelling with number

Measurement and geometry		
Two-dimensional space and structures	Three-dimensional space and structures	Non-spatial measurement

Probability and statistics	
Probability	Statistics

Years 3–6

Number and algebra					
Understanding number	Understanding equalities and inequalities	Patterns and relationships	Calculating with number	Financial mathematics	Modelling with number

Measurement and geometry			
Two-dimensional space and structures	Three-dimensional space and structures	Non-spatial measurement	Modelling with measurement and geometry

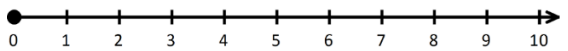
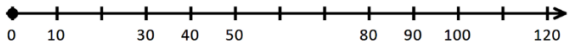
Probability and statistics	
Probability	Statistics

Pre-primary–Year 2

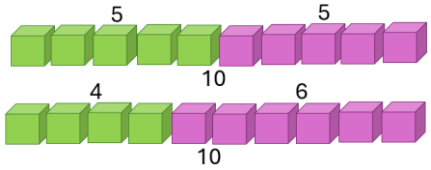
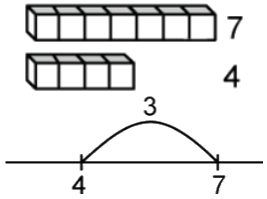
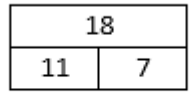
Strand: Number and algebra

Sub-strand: Understanding number

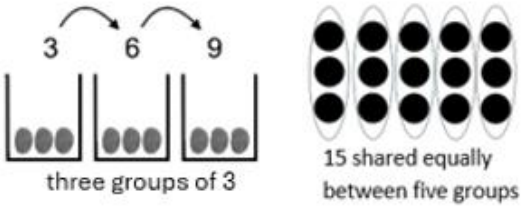
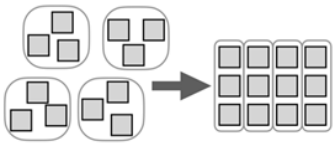
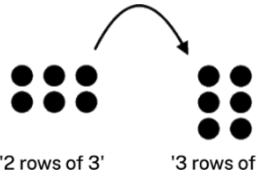
Pre-primary	Year 1	Year 2
Say, read, write and order numbers up to 20, from any starting point. Count collections up to 20 For example: • Counting for a purpose, such as counting how many children are in a group so the correct number of items can be collected • Counting forwards and backwards by ones from a given number • Internalising the principles of counting, including each object must be touched or included exactly once as the numbers are said once in order, the objects can be touched in any order from any starting point and the arrangement does not affect the count, and the last number tells 'how many' in the whole collection and does not describe the last object touched • Recognising that numbers represent quantities and 'zero' is the same as 'no	Say, read, write and order numbers to 120 and recognise the repetition of the 0–9 sequence of digits. Skip count collections by twos, fives and tens from zero For example: • Counting forwards and backwards by ones from a given number noticing that counting forward by ones is adding one each count, and counting backwards by ones is subtracting one each count • Identifying the number before and after a two-digit number	Read, write and order numbers to at least 1020, including on a number line. Recognise the repetition of the 0–99 sequence of digits, and the role of zero. Skip count forwards and backwards by twos, threes, fives and tens from any starting point For example: • Comparing different hundreds charts, such as 101–200 and 701–800 to identify patterns • Identifying the number before and after a given three-digit number • Reading and ordering numbers up to four-digits, using patterns in the number system, including numbers with zeros in different places, and numbers that look and sound similar, such as 808, 880, 818 and 881 • Recognising features of number lines, such as the even spaces between the markings and the starting point at 0

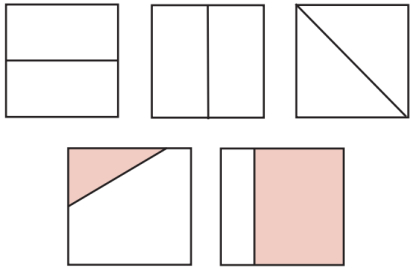
<table>
<tr><th>Pre-primary</th><th>Year 1</th><th>Year 2</th></tr>
<tr>
<td>items', and that adding one to the count is one more and removing one from the count is one less
• Identifying the number before and after a given number
• Understanding and using ordinal numbers, such as Abby will have her turn first, Ben will go second, and Jack will be third</td>
<td>• Exploring hundreds charts to recognise the repetition of digits
<table><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td></tr><tr><td>21</td><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td><td>30</td></tr><tr><td>31</td><td>32</td><td>33</td><td>34</td><td>35</td><td>36</td><td>37</td><td>38</td><td>39</td><td>40</td></tr><tr><td>41</td><td>42</td><td>43</td><td>44</td><td>45</td><td>46</td><td>47</td><td>48</td><td>49</td><td>50</td></tr><tr><td>51</td><td>52</td><td>53</td><td>54</td><td>55</td><td>56</td><td>57</td><td>58</td><td>59</td><td>60</td></tr><tr><td>61</td><td>62</td><td>63</td><td>64</td><td>65</td><td>66</td><td>67</td><td>68</td><td>69</td><td>70</td></tr><tr><td>71</td><td>72</td><td>73</td><td>74</td><td>75</td><td>76</td><td>77</td><td>78</td><td>79</td><td>80</td></tr><tr><td>81</td><td>82</td><td>83</td><td>84</td><td>85</td><td>86</td><td>87</td><td>88</td><td>89</td><td>90</td></tr><tr><td>91</td><td>92</td><td>93</td><td>94</td><td>95</td><td>96</td><td>97</td><td>98</td><td>99</td><td>100</td></tr><tr><td>101</td><td>102</td><td>103</td><td>104</td><td>105</td><td>106</td><td>107</td><td>108</td><td>109</td><td>110</td></tr><tr><td>111</td><td>112</td><td>113</td><td>114</td><td>115</td><td>116</td><td>117</td><td>118</td><td>119</td><td>120</td></tr></table>• Ordering numbers using numbered cards or number tracks, considering the size of the numbers
• Counting the same collection by ones, twos, fives or tens</td>
<td> 
• Identifying the missing numbers on the markings for a given number line, such as
  </td>
</tr>
<tr>
<td>Subitise, partition and compare small collections
For example:
• Recognising with a quick look the number of objects in a collection and saying the number without counting
• Partitioning collections of up to 10 objects in different ways, such as partitioning a</td>
<td>Explore different ways to represent and partition collections up to 100, including in groups of 10, using concrete materials
For example:
• Recognising that 10 ones is the same as one 10
• Bundling sticks in groups of 10 and combining</td>
<td>Explore different ways to represent and partition two- and three-digit numbers, including in groups of 10 and 10 groups of 10 to make 100, using concrete materials, numbers and symbols
For example:
• Counting and representing large sets of concrete materials by systematically grouping</td>
</tr>
</table>

Pre-primary	Year 1	Year 2
collection of six counters into four counters and two counters or into three counters and three counters • Comparing and describing small collections, using the language more, less and same	these with loose sticks to make two-digit numbers. Trusting that a previously prepared bundle contains 10 sticks • Using concrete materials to represent two-digit numbers, then partitioning the number in different ways, such as representing 24 as 10, 10 and 4 or 10 and 14	in tens and hundreds • Using models, such as base 10 materials and interlocking cubes to represent and explain grouping • Using concrete materials to partition, rearrange, regroup and rename three-digit numbers in different ways, such as 574 can be shown as 5 hundreds, 7 tens and 4 ones or 57 tens and 4 ones

Pre-primary	Year 1	Year 2
	Explore partitions of numbers with small collections, using part-part-whole relationships For example: • Creating, recording and recognising combinations of two numbers that add up to numbers up to 10, such as partitioning five into four and one or into three and two, including making all possible whole-number combinations • Exploring part-part-whole 10 facts by arranging collections of 10 objects in different ways  • Describing combinations for numbers using more than, less than and double, such as 'five is one more than four' or 'double two and one more'	Explore the relationship between addition and subtraction with small collections, using part-part-whole knowledge, numbers and symbols For example: • Exploring combinations of two numbers that add to numbers from 11 up to and including 20 • Representing the difference between two numbers using concrete materials and diagrams, such as the difference between 7 and 4 is 3  • Representing addition and subtraction as inverse operations using concrete materials, drawings and diagrams  $18 = 11 + 7$ and $11 = 18 - 7$

Pre-primary	Year 1	Year 2
		Recall addition and subtraction facts to 10 For example: • Recalling combinations of two numbers that add up to 10 and related subtraction facts • Using related number facts, such as $8 + 2 = 10$, so $10 - 2 = 8$ and $10 - 8 = 2$

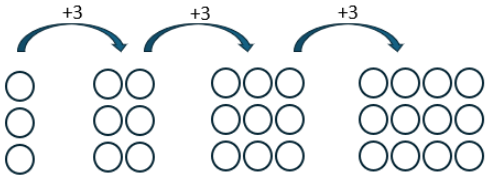
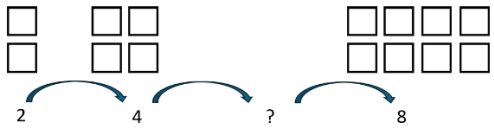
Explore grouping and sharing of small collections For example: • Role-playing equal sharing, by distributing objects one by one or in groups of two and counting the number in each group to ensure they have the same amount • Sorting collections of items, such as blocks or shells into two groups, identifying those that can be shared into equal groups and those that cannot	Explore different ways to equally group or share small collections For example: • Grouping and sharing small collections in different ways using concrete materials, drawings or diagrams, such as splitting a collection of 24 items into equal groups • Using grouping to help count large collections, such as grouping items into fives or 10s and skip counting to find the total • Recognising that the more groups to be made from a quantity, the smaller the size of each group	Explore multiplication and division using repeated addition, equal grouping and arrays For example: • Representing multiplication as repeated addition and division as sharing or equal grouping using concrete materials, drawings or diagrams  • Connecting grouping to arrays, determining and distinguishing between the number of rows/columns and the number in each row/column  • Recognising the commutative property of multiplication using an array 

Pre-primary	Year 1	Year 2
	Recognise, describe and create a half by dividing a physical whole into two equal parts or a collection into two equal quantities For example: • Describing halves in context, such as a half a sandwich and the halves of an orange • Sharing a collection of objects into two equal groups, recognising that one group is half of the whole collection • Cutting identical rectangular pieces of paper into two parts in different ways, recognising that halves must consist of two equal parts 	Recognise, describe and create halves, quarters and eighths by repeatedly halving a physical whole or a collection For example: • Describing physical representations of fractions using words and numerical representations, such as one quarter as $\frac{1}{4}$ which means one part out of four equal parts • Using repeated halving of a range of shapes, objects or collections to make halves, quarters and eighths, such as partitioning a strip of paper into two equal lengths, then halving the halves naming the four equal parts as quarters, repeating for eighths • Exploring different ways to cut paper squares into halves and quarters, considering questions, such as 'Are two quarters always the same amount as one half?' 

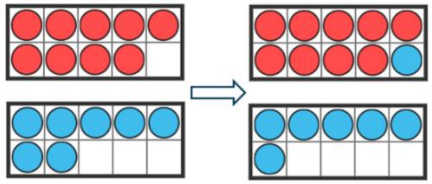
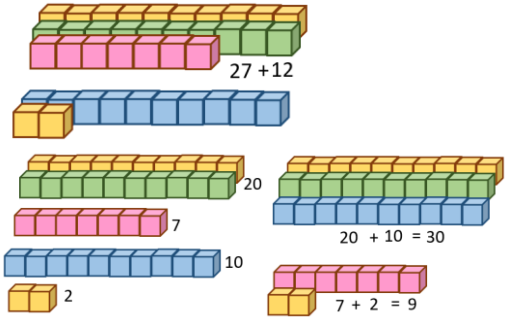
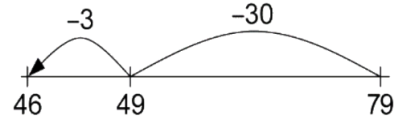
Sub-strand: Understanding equalities and inequalities

Pre-primary	Year 1	Year 2
		Use the equality symbol to indicate the same value in number sentences involving addition and subtraction For example: • Using the equality symbol to mean ‘is the same as’, such as recognising the quantities on both sides of the equal sign are the same  • Using the equality symbol to produce true number sentences, such as $5 + 2 = 3 + 4$ or $9 - 4 = 7 - 2$ • Discussing if a given number sentence is true, such as $3 = 9 - 5$

Sub-strand: Patterns and relationships

Pre-primary	Year 1	Year 2
Copy and continue repeating patterns in everyday environments using a range of materials, sounds and movement For example: • Recognising familiar patterns and repetitions in the natural world and everyday life. For instance, noticing repeated verses in a song or rhyme • Using objects, drawings, movement or sound to witness that the same pattern can be represented in different ways and used to predict what comes next  *clap, jump, jump, clap, jump, jump* 	Continue and create repeating patterns. Explore and label repeating patterns to show how many of each element is in a repeat unit (core) For example: • Identifying the repeating unit, such as there are three green beads and two orange beads, labelling with symbols, such as g, g, g, o, o  • Continuing patterns in everyday situations, such as days of the week, labelling as M, T, W Th, F, Sa, Su and recognising that there are seven days in a repeat unit • Choosing materials, such as two different types of pasta, to create a pattern that shows a provided number sequence, such as 1, 2, 1, 2, 1, 2	Recognise and continue increasing or decreasing additive patterns with collections and numbers, and identify missing elements in a pattern For example: • Identifying the changes in growing patterns, as repeated addition and making connections to skip counting. Using a calculator to enter 3 and repeatedly add 3, to model the pattern  • Identifying missing elements in a given pattern 

Sub-strand: Calculating with number

Pre-primary	Year 1	Year 2
	Manipulate collections to add and subtract quantities to 20 and beyond, exploring a range of strategies For example: • Exploring strategies, such as counting on, counting back, partitioning and part-part-whole knowledge to solve addition and subtraction problems • Using concrete materials to partition quantities to assist in addition and subtraction, such as using ten-frames to calculate $9 + 7$  • Using non-count-by-one strategies, such as using doubles for near doubles and combining numbers that add to 10, such as $4 + 5$ as double 4, add 1 • Counting back using the jump strategy for $16 - 7$ as being $16 - 6 - 1$	Add and subtract one- and two-digit numbers, using a range of strategies For example: • Selecting and applying strategies, such as counting on, partitioning, part-part-whole knowledge, rearranging, regrouping, doubles, near doubles and bridging to 10 • Partitioning and rearranging numbers using concrete and written representations  • Using number lines or hundreds charts by moving along or up and down in tens and ones to solve addition and subtraction problems, such as the jump strategy for $79 - 33$ 

Sub-strand: Financial mathematics

Pre-primary	Year 1	Year 2
Explore making purchases using coins, notes, and debit cards For example: • Recognising that money is used to buy things • Sorting coins, notes and debit cards • Using debit cards, notes and coins to role-play making purchases at a shop, including using the language of ‘dollars’ and ‘cents’	Explore different payment formats and identify Australian coins and notes, according to their value For example: • Arranging Australian coins and notes by value and counting small collections of each with the same denomination • Role-playing transactions, recognising that if you have insufficient money you can’t buy something and if you give too much money you get change	Explore and describe the relationship between dollars ($) and cents (c) and their value in the contexts of spending, saving and donating For example: • Identifying that $\$3$ is the same as 300 cents • Counting small collections of coins, using the $ and c symbols to record amounts • Discussing the benefits of saving and donating, including goals and reasons why people save and donate money • Identifying and comparing the cost of familiar items at the school canteen or stalls at a market, noticing the different ways money is represented, such as $\$5$, 35c, $\$2.40$

Sub-strand: Modelling with number

Pre-primary	Year 1	Year 2

Explore and represent familiar real-world situations involving adding, removing, grouping or sharing small collections using role-play or concrete materials
 	
For example:
• Using role-play and materials to represent mathematical relationships in stories, such as a group brings three sandwiches, and another group adds four more or students start with 10 apples but eat three during the picnic; drawing a picture and using materials to represent the situation, discussing, and recording the result of the action with a numeral
• Using objects to role-play sharing out a collection one-by-one, or handing out equal sized collections for a purpose, such as sharing art materials like crayons, markers and paper
	Represent quantities and actions in real-world situations involving adding, taking away, sharing or equal groupings using role-play, concrete materials, drawings or numbers. Describe the meaning of the representations and answers in context
	
	For example:
	• Modelling situations, such as keeping track of the number of people on a bus as it stops to pick up and drop off people on the way to Fremantle. Using role-play to represent the situation, explaining connections, such as when people are picked up the number is added to the people already on the bus and recognising the answer as the number of people on the bus when it arrives in Fremantle
		Identify and represent real-world situations involving addition, subtraction, simple multiplication or division using objects or diagrams labelled with numbers and symbols that match the actions in the situation. Interpret the meaning of answers in context
		
		For example:
		• Modelling situations, such as determining how many juice boxes priced at $2, can be purchased with 10 $1 coins. Representing the situation using concrete materials, such as grouping 10 $1 coins into pairs, explaining that each group represents the cost of one juice box, counting the groups and recognising that five groups means that five juice boxes can be purchased
		• Using familiar situations, such as
		  ▪ a fundraising activity where children collect bottles for recycling, earning 10c for each bottle
		  ▪ sharing a raffle prize of biscuits between children
		  ▪ keeping score when playing sport

Strand: Measurement and geometry

Sub-strand: Two-dimensional space and structures

Pre-primary	Year 1	Year 2
Sort, name and represent familiar two-dimensional shapes and recognise them within the environment For example: • Sorting and naming 2D shapes, such as rectangles, squares, triangles, ovals and circles, based on chosen criteria • Creating familiar shapes using groups of people, such as holding hands to form a circle	Name and classify familiar two-dimensional shapes based on sides and vertices using informal language For example: • Classifying familiar 2D shapes, such as triangles, quadrilaterals, circles and ovals according to the number of sides and vertices • Exploring the characteristics of rectangles and squares, such as  Both have four straight sides and square corners. Both shapes are rectangles. • Describing a ‘mystery’ shape, so that others can name the shape and give reasons for their choice	Identify and draw two-dimensional shapes and describe their similarities and differences using spatial terms, including opposite, parallel, curved, straight and vertices For example: • Drawing 2D shapes, such as triangles, quadrilaterals, circles and ovals, with increasing attention to accuracy • Describing 2D shapes using spatial terms, such as a square and a rectangle are similar quadrilaterals as they both have two pairs of parallel sides, but they are different because all four sides in a square are equal length • Identifying which shape ‘doesn’t belong’ to a given group, explaining the reasoning

Pre-primary	Year 1	Year 2
Explore and compare the length of everyday items to say which is longer and explain reasoning For example: • Recognising length as the measure of an object 'end to end', such as comparing two leaves side-by-side to determine which is longer • Using everyday language and phrases, such as longer than, taller than and shorter than to explain the comparisons • Explaining why the length of a piece of string remains unchanged whether placed in a straight line or a curve	Directly and indirectly compare lengths, including by counting uniform informal units For example: • Using uniform informal units as a 'go between' to indirectly compare the length of objects, such as using paper clips or connecting blocks to compare the length of a pencil and scissors • Recognising that the same informal unit must be used repeatedly and explaining the relationship between the size of a unit and the number of units needed	Estimate, measure and compare lengths, by choosing appropriate uniform informal units, and place end to end without gaps or overlaps For example: • Choosing suitable uniform informal units and explaining choices, such as using longer units to measure the width of a room • Investigating how gaps and overlaps impact accuracy  • Creating an informal unit measuring tape using matchsticks or paper clips as the unit
		Explore and directly compare the areas of two shapes by superimposing one over the other For example: • Using everyday practical situations to identify area as the total space taken up by a 2D surface, such as the area covered by a rug • Comparing the areas of two similar shapes directly by drawing, tracing, or cutting and pasting • Superimposing similar shapes to compare their areas and using everyday language to

Pre-primary	Year 1	Year 2
		explain the comparisons, such as placing a foot against the sole of a shoe or lids on jars
		Explore quarter-, half- and full-turns in everyday situations For example: • Identifying turns that happen in familiar environments, such as a spinner in a board game (full-turn) or a door opening and closing (quarter-turn) • Performing quarter-, half- and full-turns, using arms or barbecue skewers • Connecting quarter- and half-turns to the minute hand on a clock for the passing of quarter- and half-hours and the language of clockwise and anticlockwise
Show and describe position and movement in familiar locations For example: • Showing positions of people and objects in both practical and playful situations, and describing using words, such as in, out, under, next to, in between, etc. • Describing movement as part of storytelling, using everyday language	Give and follow directions within familiar locations For example: • Narrating a pathway as part of storytelling, as a sequence of steps using everyday directional language, such as left, right, forward, back, turn and familiar landmarks • Providing verbal directions to a particular point or object within the classroom or school play areas	Locate positions and pathways on simple maps of familiar locations For example: • Interpreting simple maps by identifying objects in different locations • Recognising maps as representations seen from above (bird's-eye-view) • Following a simple route on a map using landmarks and directional language, such as

Pre-primary	Year 1	Year 2
• Describing the way to a particular location or object using a sequence of steps to be followed	• Carrying out own and peer instructions to move around the school, noticing and addressing any inaccuracies	to get to the park, walk towards the pond and then take the path to the left

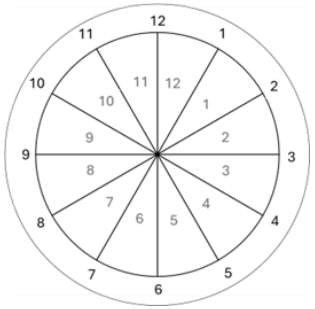
Sub-strand: Three-dimensional space and structures

Pre-primary	Year 1	Year 2
Explore familiar three-dimensional objects in the environment For example: • Spotting 3D objects and differentiating from 2D shapes • Building with 3D objects, such as construction materials, blocks or loose parts to investigate stacking and rolling	Recognise, sort and name familiar three-dimensional objects and identify the two-dimensional shapes that comprise them For example: • Naming familiar 3D objects, including cubes, cylinders, cones, spheres and rectangular prisms • Recognising 2D shapes on surfaces of 3D objects, such as a circle visible on the bottom of a glass • Selecting a set of 2D shapes from a collection to match the faces of a provided 3D object	Manipulate, visualise and name familiar three-dimensional objects, informally describe features and connect to common uses For example: • Selecting a 3D object, from a small collection inside a bag, including cubes, cylinders, cones, spheres and rectangular prisms, and describing it by feel, so that others can name the 3D object and give reasons for their choice • Considering how key features of 3D objects, such as flat or curved surfaces are related to common uses (stacking or rolling)
Explore capacity and compare containers to say which holds more and explain reasoning For example: • Using everyday playful situations to explore capacity as how much a container can hold	Directly and indirectly compare the capacities of a pair of containers For example: • Filling two different containers with liquid, then pouring their contents into two identical	Estimate, measure and compare the capacities of different containers using uniform informal units For example: • Using a uniform informal unit, such as a yoghurt cup, estimate how many yoghurt

Pre-primary	Year 1	Year 2
• Comparing two containers by filling one with liquid and then pouring it into the other, observing if it fills the second container a little bit, half full, full or overflowing	transparent containers to compare how much they hold • Exploring containers with the same capacity but different shapes to recognise that a tall narrow container may hold the same amount as a short wide container	cups of water it will take to fill larger containers, pouring water into containers and counting how many cups they can hold • Identifying that the larger the unit, the fewer number of units the container will hold (less yoghurt cups will be needed to fill a container than tablespoons) • Recognising and explaining why containers of different shapes may have the same capacity

Sub-strand: Non-spatial measurement

Pre-primary	Year 1	Year 2
Explore mass and compare everyday items to say which is heavier For example: • Directly comparing everyday items to say which is heavier or lighter, such as a tin of baked beans and a packet of marshmallows • Manipulating objects of varying sizes and weights, such as pillows and rocks to challenge the misconception that larger objects are heavier	Directly compare the masses of two objects by hefting and using balance scales For example: • Exploring the use of tools, such as pulleys, balance scales and seesaws to compare the mass of two objects • Predicting the action of balance scales before placing objects on each side of the scale • Using comparative language, such as heavier and lighter, recognising that the larger (more volume) object is not necessarily the heaviest	Estimate and compare masses of objects using balance scales and uniform informal units For example: • Placing an object on one side of the balance scale and estimating the number of counters or blocks needed on the other side of the scale to balance the object • Determining the weight of a lump of playdough using uniform informal units, then reshaping it to witness that the shape of the object does not alter the mass

Pre-primary	Year 1	Year 2
• Comparing objects of similar size but different weights, such as golf balls and ping-pong balls	• Comparing a range of objects to witness relative mass (an object may be lighter than something, but heavier than something else)	• Ordering the mass of three or more objects and using comparative language to explain the order; lightest, light, heavier, heaviest
Sequence days of the week and times of the day, making connections to routines, and compare duration of familiar events using everyday language For example: • Exploring the cyclical nature of days of the week, identifying routine days, such as 'library day' • Describing sequences of events using words, such as morning, lunchtime, afternoon, nighttime, yesterday, today and tomorrow • Sequencing familiar events, including the representation of time with pictorial timelines • Identifying time as a measurement for practical comparisons, such as noticing that eating a meal takes longer (more time) than brushing your teeth	Read the time on digital clocks and make connections to routines. Explore and describe duration informally in years, months, weeks, days, hours, minutes and seconds For example: • Exploring how time on a digital clock is read in hours and minutes, recognising that if the hour numbers are followed by 00, it is read as o'clock and if followed by numbers (minutes), it is read as nine fifteen or ten twenty-five • Discussing events and activities and deciding duration, such as having a drink of water takes seconds, recess lasts minutes and the school day lasts hours	Tell time to the hour, half- and quarter-hour, on analogue and digital clocks. Identify the date and determine the duration between two events in days using a calendar For example: • Identifying which hour has passed when the hour hand is not pointing to a numeral  • Describing the position of the minute hand on the clock for half, quarter past and quarter to, recognising that the same time can be read in different ways, such as half past four, four-thirty and thirty minutes past four • Finding specific dates on a calendar, such as birthdays and school events and determining

Pre-primary	Year 1	Year 2
		how many days are left between today and the event, including when the two dates are in different months

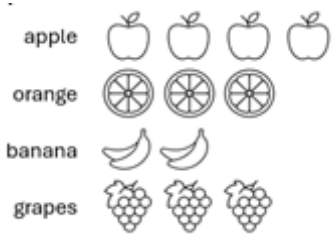
Strand: Probability and statistics

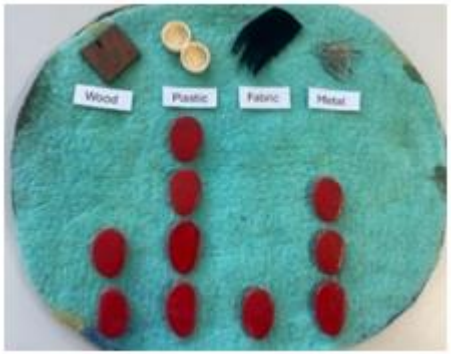
Sub-strand: Probability

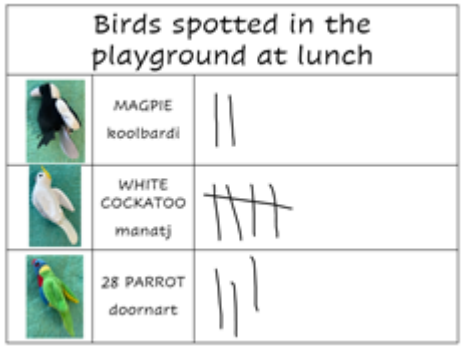
Pre-primary	Year 1	Year 2
Explore and describe familiar events using the everyday language of chance For example: • Reading a story to the students, and asking them what might happen next and what cannot possibly happen next • Describing real and imagined situations, such as 'will happen', 'can happen', 'might happen' and 'cannot happen'	Describe and reason about the likelihood of familiar events occurring, using the everyday language of chance For example: • Expressing the likelihood for events, such as 'The sun rising in the morning', 'Flying home today', or 'Rain on sports day' using terms like cannot happen, unlikely to happen, might happen, or certain to happen • Recognising times and reasoning when things don't go as expected, such as the school bell not ringing at the end of the day	Classify familiar events involving chance as being 'possible' or 'impossible' and using the everyday language of chance to compare the likelihood of them happening For example: • Distinguishing impossible from unlikely events with statements, such as 'We never go to the park after school, but it isn't impossible, as it could happen' • Comparing the likelihood of events, such as 'Are we more likely to see a bird or a kangaroo in the playground?' or 'Is it more likely we will eat lunch at school or have a picnic in the park?'

Sub-strand: Statistics

Pre-primary	Year 1	Year 2
		Describe and interpret real-life data represented in lists, tables and one-to-one block and picture graphs

Pre-primary	Year 1	Year 2
		For example: • Interpreting a picture graph and discussing questions, such as ‘Are there more grapes or more bananas?’, ‘Which fruit is there most of?’. Select a fruit not in the display (pears) and ask ‘How many people brought pears? How can you tell?’  • Interpreting a table, reading the headings and categories to determine what data is being shown and answering questions, such as ‘How many children were asked about their favourite sport?’ Favourite sport event / Number of children Long jump: 9 High jump: 3 Pass ball: 7 Running: 4 Flag relay: 7

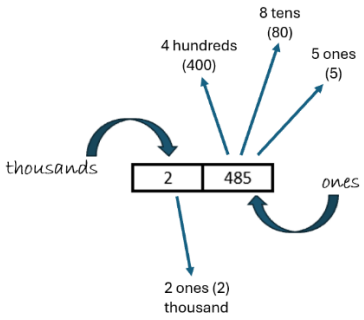
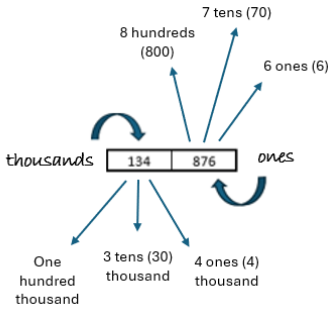
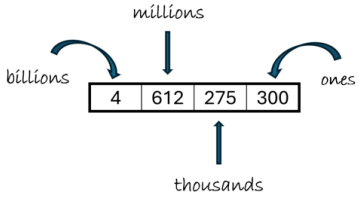
Pre-primary	Year 1	Year 2
Collect, group and compare data using objects and images to make inferences For example: • Sorting a collection of leaves from the school grounds to co-create a visual display. Making comparative statements based on the data, such as 'There are more yellow than brown leaves' • Using objects to organise data when exploring questions, such as 'Do you prefer running, riding a bike or dancing?'. Comparing the data by subitising, counting and reasoning 	Answer simple questions of interest by collecting and comparing categorical data using objects, pictures, tallies and numbers to record frequencies For example: • Exploring strategies to collect and record data, to answer a question, such as 'What is the most common material used in playground equipment?' and recording the frequency of observations 	Choose and answer simple questions of interest by collecting and comparing categorical data. Display data using lists, tables and one-to-one block and picture graphs For example: • Answering questions, such as 'Which month has the most birthdays?', recording responses and displaying this data on a class graph, recognising the need to use similar sized symbols and spacing them uniformly 

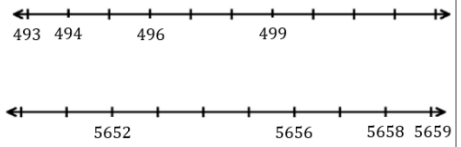
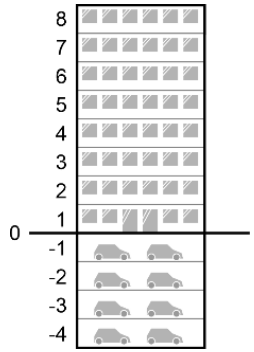
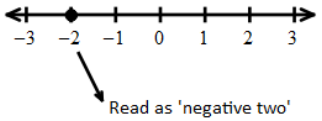
Pre-primary	Year 1	Year 2
		• Displaying data from observations in a table or list, such as 

Years 3–6

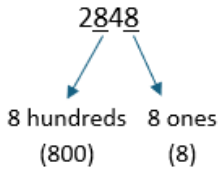
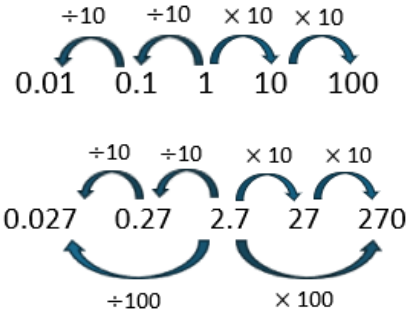
Strand: Number and algebra

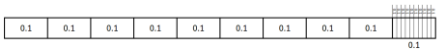
Sub-strand: Understanding number

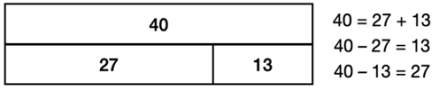
Year 3	Year 4	Year 5	Year 6
Read, write and order numbers to at least four-digits, including on a number line. Recognise the repetition of the 0–999 sequence of digits For example: • Using diagrams to support reading large numbers based on understanding of place value  • Arranging numbers in the hundreds in ascending and descending order	Read, write and order numbers to at least six-digits. Recognise the significance of the final digit to determine odd and even numbers For example: • Using diagrams to support reading of numbers to at least six-digits, recognising that the sequence of ones, tens and hundreds is repeated in the thousands  	Read, write and order seven-digit numbers and beyond For example: • Using diagrams to break apart numbers in groups of three-digits, associate them to the place value (i.e. billions, millions, etc.) and support reading  • Arranging numbers in the millions in ascending and descending order	Investigate the use of positive and negative integers to represent everyday situations. Read, write and order integers on a number line For example: • Using the term integers to describe positive and negative whole numbers and zero

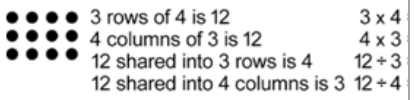
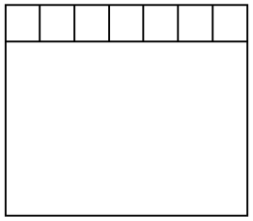
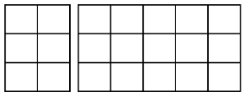
Year 3	Year 4	Year 5	Year 6
• Comparing different hundreds charts, such as 1301–1400 and 1901–2000 to identify patterns • Identifying missing numbers on the markings for a given number line 	• Arranging numbers in the thousands in ascending and descending order • Identifying that all numbers that end in the digits 0, 2, 4, 6 and 8 are even and that numbers ending in 1, 3, 5, 7 and 9 are odd		• Identifying negative integers in familiar contexts, such as temperature, sea levels, bank balances and buildings with underground parking  • Interpreting the marking of increments on the number line on both sides of the zero mark 

Year 3	Year 4	Year 5	Year 6
	Read and write decimal numbers up to two decimal places For example: • Reading decimal numbers correctly, such as 0.25 as 'zero point two five' • Express decimals as both tenths and hundredths, such as 0.25 is 2 tenths and 5 hundredths or 25 hundredths	Read, write, compare and order decimal numbers, including on a number line For example: • Comparing decimal numbers, such as $0.25 < 2.5$, $2.46 > 2$ and $1.45 < 1.54$ • Comparing and ordering decimal numbers, such as $0.5, 0.75, 0.25, 0.001$ and positioning them on a number line • Interpreting zero digit(s) at the end of a decimal, such as 0.170 recognising that 0.17 has the same value	
Explore different ways to represent and partition numbers up to four-digits, including groups of 10 (tens), 10 groups of 10 (hundreds) and beyond, using concrete materials and number sentences. Recognise that the value of a digit is determined by its place in a numeral	Represent numbers up to five-digits using place value and non-standard partitions with equations. Recognise the '10 times as many' place value relationship between adjacent places from right to left	Represent and partition numbers up to seven-digits. Use the multiplicative place value relationship between adjacent places to explain the value of a digit	Represent and explain the multiplicative place value relationship between places in any number, including decimals

Year 3	Year 4	Year 5	Year 6
For example: • Bundling materials (e.g. pipe cleaners or pop sticks) into groups of 10, 10 groups of 10 to form 100 and 10 groups of 100 to form 1000, connecting bundles to numerals • Using expanded notation to see partitions of a number, including using a calculator, such as $328 = 300 + 20 + 8$ • Exploring non-standard partitions, such as $328 = 200 + 125 + 3$ or 328 as 3 hundreds and 28 ones • Recognising the different place values of 8  	For example: • Partitioning numbers using place value, such as $1276 = 1000 + 200 + 70 + 6$ and non-standard partitions, such as $3733 = 3500 + 200 + 28 + 5$ or 3733 as 37 hundreds and 33 ones • Recognising the place value relationships 1 (ones) × 10 = 10 (tens) 10 (tens) × 10 = 100 (hundreds) 100 (hundreds) × 10 = 1000 (thousands) 1000 (thousands) × 10 = 10000 (ten thousand) • Identifying how rearranging digits changes the size of a number, such as forming the second largest number by rearranging the digits within 4321	For example: • Partitioning numbers using place value, such as $3\,487\,621 = 3\,000\,000 + 400\,000 + 80\,000 + 7000 + 600 + 20 + 1$ and non-standard partitions, such as $645\,522 = 500\,000 + 100\,000 + 45\,000 + 522$ • Identifying the place value relationships 10000 (ten thousand) ÷ 10 = 1000 (thousands) 1000 (thousands) ÷ 10 = 100 (hundreds) 100 (hundreds) ÷ 10 = 10 (tens) 10 (tens) ÷ 10 = 1 (ones)	For example: • Using calculators to explore multiplying and dividing whole numbers and decimals by powers of 10, recording results and noticing patterns  • Explaining the multiplicative place value relationship, such as ▪ 62 is 10 times as many as 6.2 because 60 is 10 times as many as 6 and 2 is 10 times as many as 0.2 ▪ 0.208 is 100 times smaller than 20.8 because 0.2 is 100 times smaller than 20 and 0.008 is 100 times smaller than 0.8

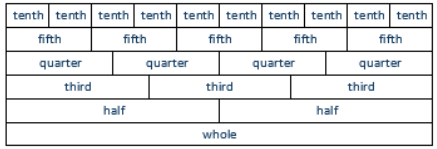
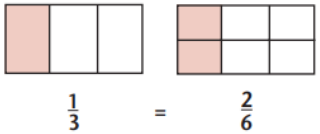
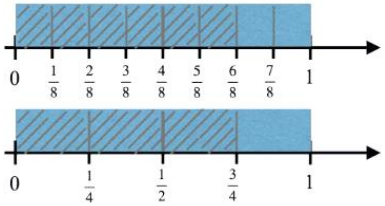
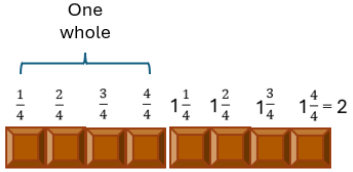
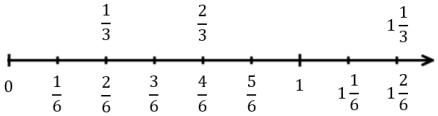
Year 3	Year 4	Year 5	Year 6
	Represent and explain the relationship between one whole being shared equally among 10 as 0.1 or $\frac{1}{10}$ and being shared equally among 100 as 0.01 or $\frac{1}{100}$ using concrete materials For example: • Cutting a long strip of paper into 10 equal parts labelled as 0.1 and repeating the process to demonstrate 0.01  • Using a calculator to perform the same process, such as $1 \div 10 = 0.1$ (recognising that 0.1 is 10 times smaller than 1) $0.1 \div 10 = 0.01$ (recognising that 0.01 is 10 times smaller than 0.1)	Represent and partition decimal numbers. Use the multiplicative place value relationship between adjacent places to explain the value of a digit For example: • Using place value to partition decimals, such as $5.37 = 5 + 0.3 + 0.07$ and 5.429 is 5 ones and 429 thousandths • Comparing the value of digits by determining numbers that are 10 times the original decimal number, such as 5.0 is 10 times 0.5 • Exploring multiplying and dividing by 10, using digital tools and explaining place value relationships, such as $492\ 731 \div 10 = 49\ 273.1$ $49\ 273.1 \div 10 = 4\ 927.31$ $4\ 927.31 \div 10 = 492.731$	

Year 3	Year 4	Year 5	Year 6
Represent and explain the relationship between addition and subtraction, using part-part-whole models and number sentences For example: • Using part-part-whole models to demonstrate how addition and subtraction are inverse operations  			
Recall addition and subtraction facts to 20 For example: • Recalling combinations of two numbers that add up to 20 and related subtraction facts • Using related number facts, such as $14 + 6 = 20$, so $20 - 6 = 14$ and $20 - 14 = 6$			

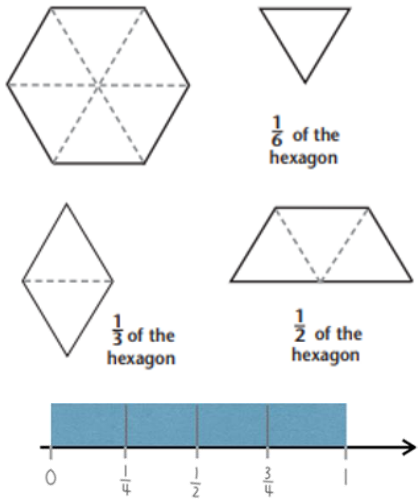
Year 3	Year 4	Year 5	Year 6
Explore the relationship between multiplication and division, using diagrams, arrays and number sentences For example: • Arranging and rearranging a collection of 12 into arrays, exploring the connection between multiplication and division, such as  3 rows of 4 is 12 3 x 4 4 columns of 3 is 12 4 x 3 12 shared into 3 rows is 4 12 ÷ 3 12 shared into 4 columns is 3 12 ÷ 4 • Investigating the result of multiplying and dividing by one and multiplying by zero • Relating doubling to multiplication facts for two and four, recognising that doubling is multiplying by two and halving is dividing by two	Represent and explain the relationship between multiplication and division, using arrays and equations For example: • Using knowledge of arrays to explain how many rows of seven are needed to make 42  ? × 7 = 42 42 ÷ 7 = ?	Explore, identify and represent factors and multiples of whole numbers in arrays and explain reasoning For example: • Using blocks or grids to form different rectangles to list all possible factors for that number, such as 12 can form the following rectangles 1×12, 2×6 and 3×4 • Demonstrating that all multiples can be formed by combining or regrouping, such as multiples of seven can be formed by combining a multiple of two with the corresponding multiple of five  3 × 2 + 3 × 5 • Identifying lowest common multiples and highest common factors of pairs or triples of whole numbers, such as the lowest common multiple of six	Explore, identify and represent square, prime and composite numbers in arrays and explain reasoning For example: • Using visual representations to explore and reason about square numbers Multiplication Facts • Using tiles, blocks or visual representations to form arrays to explore and explain what makes a number prime or composite • Recognising that a prime number, which has exactly two distinct factors, itself and one,

×	1	2	3	4	5	6	7	8	9	10
10	10	20	30	40	50	60	70	80	90	100
9	9	18							81	90
8	8	16						64		80
7	7	14					49			70
6	6	12				36				60
5	5	10	15	20	25					50
4	4	8	12	16	20					40
3	3	6	9	12	15					30
2	2	4	6	8	10	12	14	16	18	20
1	1	2	3	4	5	6	7	8	9	10

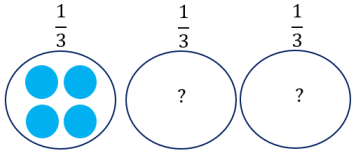
Year 3	Year 4	Year 5	Year 6
		and nine is 18 and the highest common factor is three and the lowest common multiple of three, four and five is 60 and the highest common factor is one • Creating a sequence of steps based on multiplication and division facts to determine if a number is a multiple or a factor of another number, and representing this in diagrams or flow charts	has only one row when represented as an array
Recall multiplication facts of 2, 3, 4, 5 and 10, and related division facts For example: • Recognise and use the symbols for multiplied by (×) and divided by (÷) • Using the commutative property of multiplication to extend multiplication facts, such as recognising that if $10 \times 3 = 30$ then $3 \times 10 = 30$	Recall multiplication facts up to 10×10, and related division facts For example: • Using arrays and grid paper to represent and explain patterns in the 10×10 multiplication and division facts • Using knowledge of doubles and near doubles to establish the multiplication facts, such as using doubles for 8×6 where $2 \times 6 = 12$ doubles to $4 \times 6 = 24$ doubles to $8 \times 6 = 48$		

Year 3	Year 4	Year 5	Year 6
	• Recognising the distributive property of multiplication, such as when finding 6×7, knowing that 7 is made up of 2 and 5, so $6 \times 2 = 12$ and $6 \times 5 = 30$ $12 + 30 = 42$		
Recognise, represent and describe unit fractions $\frac{1}{2}, \frac{1}{3}, \frac{1}{4}, \frac{1}{5}$ and $\frac{1}{10}$. Combine unit fractions with the same denominator to create a complete whole For example: • Describing fractions using words and numerical representations, such as one-third as one part out of three, $\frac{1}{3}$ or $1 \div 3$ • Exploring fraction walls  	Explore and represent common equivalent fractions and make connections to their decimal representation For example: • Representing a line, shape, object or collection using equivalent fractions  • Demonstrating equivalent fractions as lengths and using paper folding  	Count by unit fractions, locate and represent on number lines and extend to mixed numerals For example: • Cutting objects, such as oranges into sixths and counting by sixths to find the total • Counting forwards and backwards by unit fractions • Describing and representing quantities that are more than one whole  • Moving flexibly between mixed numerals and improper fractions	Order common fractions with the same and related denominators, including mixed numerals, using diagrams and number lines For example: • Using a range of representations, such as number lines, paper strips, shapes and objects to assist in ordering common fractions, such as $\frac{1}{2}$, $\frac{2}{3}$ and $\frac{1}{6}$ 

- Representing fractions using shapes, objects, paper folding, fraction strips or number lines



- Finding the quantity of a whole collection, given the number of objects in one-third



- Sharing collections, such as pop sticks or counters, between three, four and five people and connecting division with fractions, such as sharing between three people gives $\frac{1}{3}$

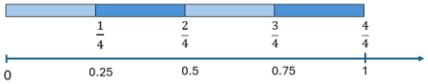
- Building familiarity with common equivalent fractions, such as

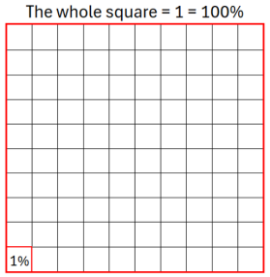
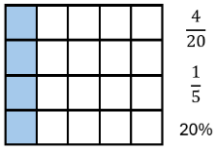
$\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$

$\frac{1}{5} = \frac{2}{10}$ or $\frac{2}{5} = \frac{4}{10}$

$\frac{3}{4} = \frac{6}{8}$

- Connecting fractions and decimals by aligning number lines to show equivalence



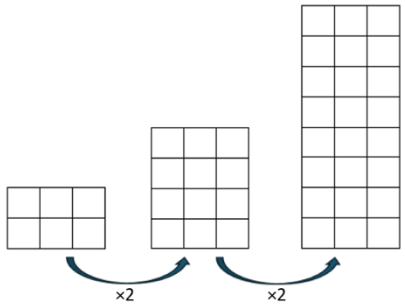
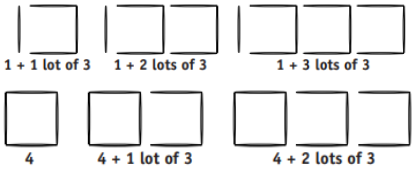
Year 3	Year 4	Year 5	Year 6
of the collection to each and sharing between five people gives $\frac{1}{5}$ of the collection to each			
		Identify the use of percentages in everyday situations and recognise that 100% represents a complete whole, which is equal to one For example: • Using grid paper to represent a whole  • Identifying the use of percentages in familiar contexts, such as battery levels on laptops or tablets, sport statistics or supermarket discounts • Recognising percentages that represent more or less than the whole, such as 120% is more	Connect commonly used percentages, including 10%, 25% and 50% to fractions and decimals, including on a number line For example: • Recognising the percentage symbol (%) is used to show a ratio out of 100 • Contextualising percentages, such as comparing the advantages of being offered a 10%, 25% or 50% discount, in connection to fractions, such as '50% off' is half price • Using representations to identify fractions and the corresponding percentages 

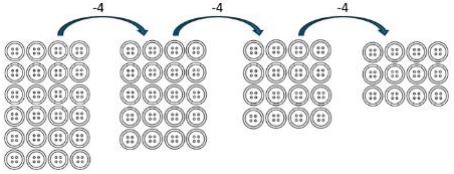
Year 3	Year 4	Year 5	Year 6
		than the whole and 75% is less than the whole	• Using visual aids to explore percentages as parts of a whole, exploring wholes that are different sizes  

Sub-strand: Understanding equalities and inequalities

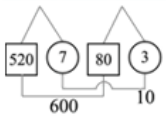
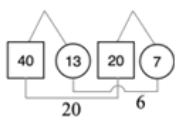
Year 3	Year 4	Year 5	Year 6
Explore and use the greater than, less than and equality symbols to compare two whole numbers and statements involving addition and subtraction For example: • Recognise and use the symbols for greater than (>) and less than (<) • Using the correct inequality symbol to compare two given numbers, such as $5 \square 2$ • Using equality and inequality symbols to compare numbers and statements, such as $7 + 3 \square 11$ $12 + 8 \square 1 + 19$ $8 + 4 \square 7 + 6$ $20 - 12 + 2 \square 10 - 3$	Decide if statements of equality and inequality involving the four operations are true, and explain reasoning For example: • Classifying statements as true (T) or false (F) $17 + 0 = 0$ (F) $52 + 17 < 70$ (T) $60 - 10 > 60 \div 10$ (T) $16 \div 1 > 16 \times 1$ (F) • Reasoning to identify, without calculating, that $6 \times 12 < 6 \times 14$ because multiplying 6 by a larger number will result in a larger answer	Complete and check statements of equality and inequality involving the four operations, and explain reasoning For example: • Completing statements, such as $28 \times 5 \div ? = 28$ $2 \times 3 \times 4 \times 5 = 4 \times 3 \times \square$ • Checking statements, such as $2 \times 18 = 4 \times 9$ to identify if they are true or false, explaining that doubling one number and halving the other will give the same result • Reasoning to insert the correct symbol to make true statements without calculating, such as $15 + 87 \square 16 + 86$	Complete, check and construct statements of equality and inequality involving the four operations, including the use of brackets and order of operations, and explain reasoning For example: • Checking statements to say if they are true (T) or false (F), such as $\frac{1}{2} \times 0 = \frac{1}{2}$ (F) $10 \times 0.2 < 10 \div 2$ (T) • Completing statements, such as $(3 + 5) \times 2 \square 3 + 5 \times 2$ and explaining reasoning using order of operations • Explaining where to put brackets in a number sentence to make the statement true $2 + 4 \times 7 = 42$

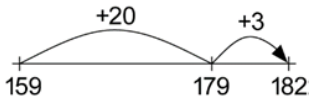
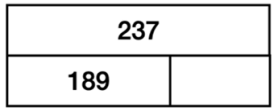
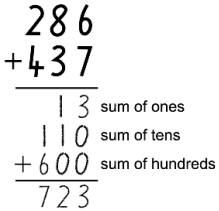
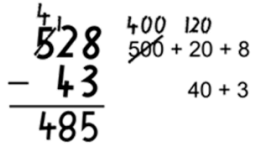
Sub-strand: Patterns and relationships

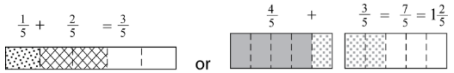
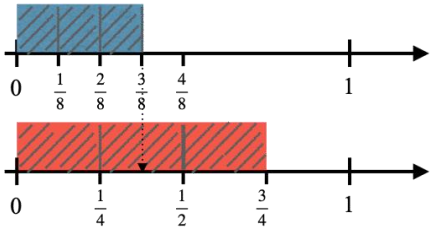
Year 3	Year 4	Year 5	Year 6
Create and represent increasing or decreasing additive patterns from any starting point, using concrete materials and numbers, and describe rules to represent the pattern For example: • Using concrete materials to represent an increasing additive pattern, such as Number pattern: 5, 8, 11, 14 … Object pattern:  and describing it as ‘starting at five and adding three more each time’, recognising the importance of the starting point	Create and represent increasing multiplicative patterns, using concrete materials and numbers, and describe rules to represent the pattern For example: • Using concrete materials to represent an increasing multiplicative pattern, such as  and describing it as ‘starting at six and multiplying by two each time’ • Creating and describing a variety of multiplicative number patterns, such as $2, 10, 50, 250$ … or $4, 12, 36, 108$ …	Follow rules to create increasing or decreasing additive and multiplicative patterns using concrete materials and numbers. Explore ways to predict unknown values For example: • Following a rule, such as ‘start at two, double and add one, double this result and add one and repeat’, drawing or creating the pattern and producing the sequence $2, 5, 11, 23$ … • Recognising that the same pattern can be created using different rules, such as  and predicting that the number of toothpicks needed for eight	Create and represent increasing or decreasing patterns using concrete materials and numbers. Use words to generalise rules that relate each element of a pattern to its position For example: • Using toothpicks, counters, blocks or drawings to create patterns, investigate and make predictions, such as  the number of squares in the sixth diagram will be $6 + 5 + 4 + 3 + 2 + 1 = 21$ • Recognising that one pattern can generate many rules, such as  a square with side length of 10 will have $8 \times 8 = 64$ black squares,

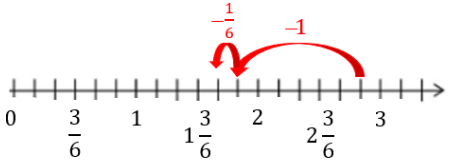
Year 3	Year 4	Year 5	Year 6
• Using concrete materials to represent and describe a decreasing additive pattern, such as  • Creating and describing a variety of number patterns that increase or decrease by a constant amount, such as $20, 25, 30 \ldots$ or $16, 12, 8 \ldots$		boxes will be $1 + 8$ lots of 3 or $4 + 7$ lots of 3 • Entering an additive and multiplicative formula, = (A1*3 – 5) into a spreadsheet and following the rule to generate a sequence of numbers, starting from 3, to determine the 15th term • Predicting if the next number in a pattern will be odd or even	$10 + 10 + 8 + 8$ or $4 \times 10 - 4 = 36$ white squares and $10 \times 10 = 100$ squares all together • Considering sequences, such as $1, 3, 5 \ldots$ recognising the rule as being double the position number, subtract one and using the rule to predict the 200th odd number

Sub-strand: Calculating with number

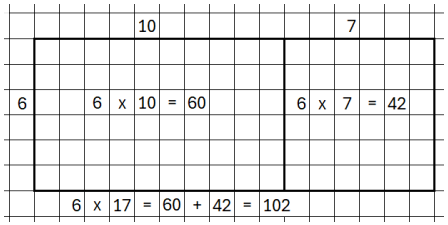
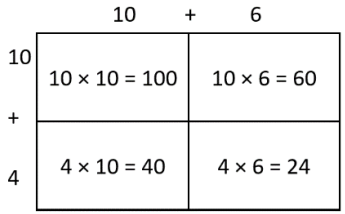
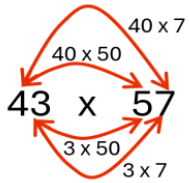
Year 3	Year 4	Year 5	Year 6
Add and subtract two- and three-digit numbers, using a range of strategies For example: • Using and applying a range of strategies, such as partitioning, rearranging, number lines, bar models and part-part-whole models ▪ Rearranging and partitioning to facilitate calculations $37 + 28$ (subtract 3 from 28 and add to 37) $40 + 25$ (using place value partitioning) $60 + 5 = 65$ ▪ Solving subtraction problems efficiently by adding or subtracting a constant amount to both numbers, such as $534 - 395$ adding 5 to both numbers to make $539 - 400 = 139$	Add and subtract whole numbers up to four-digits, using flexible and efficient strategies For example: • Using and applying a range of strategies, such as Bridging the decades $(385 + 47 \rightarrow$ 385 plus 15 = 400 plus 32 is 432) Quantity values $(36 + 27 \rightarrow$ 36 plus 20 = 56 plus 4 is 60 and 3 is 63) Compensation (28 + 35 is the same as $30 + 35 = 65$, subtract 2 to obtain 63) $(125 - 78 \rightarrow 125 - 80 = 45$, add 2 to obtain 47) Levelling (264 + 198 is the same as 262 + 200) Constant difference (125 – 78 is the same as $127 - 80$) • Setting out standard and non-standard partitions to facilitate addition and subtraction 527 + 83  53 – 27  	Add and subtract any whole numbers, using flexible and efficient strategies For example: • Applying known strategies, such as Levelling $(4988 + 955 \rightarrow 4990 + 953 \rightarrow 5000 + 943)$ Addition for subtraction (5009 – 3997 add 3 is 4000 plus 1009) Constant difference $(5009 - 3997 \rightarrow 5012 - 4000)$ Bridging $(4988 + 955 = 4988$ plus 2 plus 10 plus 943) Place Value $(42\,000 + 5123 + 246 = 40\,000 + 7000 + 300 + 60 + 9)$ • Using algorithms, to record addition and subtraction calculations $\begin{array}{r} {\scriptstyle 1\ 1\ \ \ } \\ 21\,384 \\ +\ 3\,791 \\ \hline 25\,175 \end{array}$ $\begin{array}{r} {\scriptstyle 2\ \ 1\,16} \\ 3\!\not{0}\,2\!\not{7}3 \\ -\ 1\,096 \\ \hline 29\,177 \end{array}$ • Identifying efficient and inefficient multidigit subtraction strategies, such as solving $9000 - 7$ mentally is efficient, using an algorithm is inefficient	Choose and use flexible and efficient strategies to calculate with whole numbers, involving any of the four operations and explore the use of the order of operations For example: • Selecting and using efficient strategies to multiply whole numbers, such as 5000×90 mentally but 4974×87 using a calculator • Applying the order of operations to solve equations, such as $5 + (2 \times 3) = 5 + 6 = 11$ • Representing remainders appropriately, as whole numbers, fractions or decimals

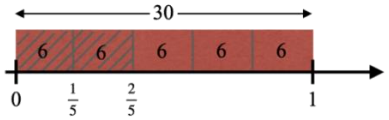
Year 3	Year 4	Year 5	Year 6
▪ Using a number line, such as for $159 + 23$  ▪ Using a part-part-whole model, such as for $237 - ? = 189$ and using the inverse relationship  	• Using algorithms, showing understanding to record addition and subtraction calculations  • Recognising how hundreds are exchanged in subtraction algorithms requiring re-grouping  • Recognising when mental strategies would be more efficient than a vertical algorithm for subtraction, such as $900 - 3$ or $500 - 498$		

Year 3	Year 4	Year 5	Year 6
	• Using the inverse relationship between addition and subtraction to find missing numbers in calculations, such as $\square - 15 = 19$ $83 = 55 + \square$ $18 + 5 = \square + 16$		
		Add and subtract fractions with the same denominator, using flexible and efficient strategies For example: • Using concrete materials or diagrams  or • Using diagrams, objects and mental strategies to subtract a unit fraction from any whole number, including one $1 - \frac{1}{3} = \frac{2}{3}$ 	Add and subtract fractions with related denominators, using flexible and efficient strategies, based on knowledge of equivalence For example: • Representing fractional quantities with the same or related denominators to add and subtract fractions, such as 'How much more is $\frac{3}{4}$ than $\frac{3}{8}$?' 

Year 3	Year 4	Year 5	Year 6
			• Calculating mentally, or with jottings and diagrams $\frac{1}{4}+\frac{1}{8}$, recognising that $\frac{1}{4}=\frac{2}{8}$, so $\frac{1}{4}+\frac{1}{8}=\frac{2}{8}+\frac{1}{8}=\frac{3}{8}$ • Adding fractions by simplifying or grouping, such as $\frac{7}{8}+\frac{1}{4}=\frac{7}{8}+\frac{2}{8}=1+\frac{3}{8}$ • Using a number line, such as for $2\frac{5}{6}-1\frac{1}{6}$ 
			Add and subtract decimals to two decimal places, using flexible and efficient strategies For example: • Multiplying decimals by powers of 10 to solve $2.15+2.35$ $215+235=450$ $450\div100=4.5$

Year 3	Year 4	Year 5	Year 6
			• Using place value, such as $8.4 + 3.6$ $= 8 + 3 + 0.4 + 0.6$ $= 8 + 3 + 1$ $= 12$ and $5.8 + 7.4$ $5.8 + 7 = 12.8$ $12.8 + 0.4 = 13.2$ • Applying known strategies, such as levelling or constant difference levelling $(2.94 + 5.16 \rightarrow 3 + 5.1)$ constant difference $(2.574 - 1.027 \rightarrow 2.577 - 1.03)$
	Multiply two-digit numbers by one-and two-digit numbers, and divide whole numbers by one-digit numbers, where there is no remainder, using flexible and efficient strategies For example: • Applying the associative property of multiplication, where 5×18 becomes	Multiply larger whole numbers by one- and two-digit numbers and divide whole numbers by one-digit numbers, including those with remainders, using flexible and efficient strategies For example: • Utilising factors to multiply, such as 36×25 can be re-written as $9 \times 4 \times 25$ which is 9×100	Multiply decimals by whole numbers and multiply and divide decimals by powers of 10, using flexible and efficient strategies For example: • Exploring multiplying whole numbers by decimals larger and smaller than one to identify misconceptions that multiplying always makes numbers bigger, such as 120×1.5 and 120×0.5

	$5 \times 2 \times 9 =$ $10 \times 9 = 90$ so that $5 \times 18 = 90$ • Using a variety of formats to partition numbers into ones and 10s and represent operations in arrays to support calculations, such as 6×17  or 14×16  14 × 16 = 100 + 60 + 40 + 24 = 100 + 100 + 24 = 224 • Doubling for multiplying by four and eight, such as 8×19 $2 \times 19 = 38$ doubles to $4 \times 19 = 76$ doubles to $8 \times 19 = 152$	• Using compensation to make division easier by multiplying or dividing by the same amount, such as $29 \div 5$ is $58 \div 10$ • Partitioning numbers to simplify multiplication, such as  • Using multiplication facts to facilitate division, such as $27 \div 6$, $4 \times 6 = 24$ and $5 \times 6 = 30$ therefore, the result must be between 4 and 5, with a remainder ($3 = 30 - 27$)	• Using mental strategies to multiply decimals, such as 3.5×2 • Using place value to mentally multiply and divide decimals by powers of 10, such as $5.75 \times 10 = 57.5$ $5.75 \times 100 = 575$ $5.75 \times 1000 = 5750$ $57.5 \div 10 = 5.75$ $57.5 \div 100 = 0.575$ $57.5 \div 1000 = 0.0575$

Year 3	Year 4	Year 5	Year 6
	and halving for dividing by four and eight, such as $104 \div 8$ $104 \div 2 = 52$ halves to $104 \div 4 = 26$ halves to $104 \div 8 = 13$ • Doubling and halving to make multiplication easier, such as 45×14 is the same as $90 \times 7 = 630$ • Using materials or diagrams to develop and explain division strategies, such as finding thirds or using the inverse relationship to turn division into a multiplication		
			Determine a familiar fraction, decimal or percentage of a whole number For example: • Calculating fractions of whole numbers, such as $\frac{2}{5} \times 30$ 

Year 3	Year 4	Year 5	Year 6
			• Explaining how $\frac{1}{3}$ of a quantity can be achieved by dividing by three, and how knowledge of $\frac{1}{3}$ of a quantity can be used to find $\frac{2}{3}$ or $\frac{4}{3}$ of the same quantity • Finding 0.2 of a whole number, recognising that $0.2 = \frac{1}{5}$ so finding 0.2 of a number means dividing by five • Finding 10%, 25% and 50% of a whole number, equating 10% to dividing by 10, 50% to finding half by dividing by two and 25% to finding a quarter by dividing by four or by finding half and half again 10% of \$60 = 60 ÷ 10 = \$6 50% of 105 = 105 ÷ 2 = 52.5 25% of 1200 = 1200 ÷ 4 = 300

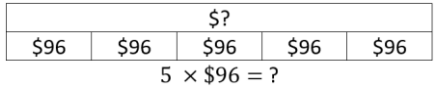
Year 3	Year 4	Year 5	Year 6
Explore additive estimation strategies to evaluate the reasonableness of a calculation in familiar contexts For example: • Identifying situations where estimating is useful because a high level of accuracy is not necessary • Estimating by rounding numbers to the nearest ten or hundred, such as rounding $\$219 + \$385$ to $\$200 + \$400 = \$600$ • Estimating the results of a calculation to check the reasonableness of calculator results	Explore a range of additive estimation strategies for different situations, including using knowledge of odd and even numbers For example: • Using front-end estimation where a high level of accuracy is not required, such as estimating $764 + 289$ as $700 + 200$ • Rounding to the nearest dollar to estimate cost, $\$16.67 + \$4.12 + \$0.97 + \$0.46$ rounds to $\$17 + \$4 + \$1 + \$0 = \$22$ • Over and underestimating for a range, such as $687 + 294$, the result will be between $700 + 300 = 1000$ and $680 + 290 = 970$ • Checking results of calculations using knowledge of odd and even numbers, such as the sum of two even numbers or two odd numbers must be even	Explore multiplicative estimation strategies and their appropriateness in different situations For example: • Recognising the effect of rounding both numbers up, both numbers down or one number up and one number down, explaining which estimation is the best approximation and why • Estimating how many pages in a book series if there are five books in the series and each book in a series has about 120 pages, using doubling and halving, $10 \times 60 = 600$ pages • Estimating if $\$30$ will be enough to buy six mugs at $\$4.95$ each by rounding to $\$5$	Use estimation and rounding to make reasonable evaluations and justify results For example: • Using rounding to simplify divisions, such as approximating $997 \div 4$ to $1000 \div 4$, gives a result of approximately 250 • Estimating fractions, such as $\frac{5}{12}$ is a little less than a half • Rounding a decimal to a nearby whole number, such as for 25.14×3.5, recognising it will be between 3×25 and 4×25, which is between 75 and 100 • Rounding up when determining money required for a purchase, and not rounding for digital financial transactions

Sub-strand: Financial mathematics

Year 3	Year 4	Year 5	Year 6
Investigate financial transactions, recognising equivalent values and change For example: • Identifying different payment methods and situations where they are commonly used, such as cards for public transport and gold coins for donations • Developing an awareness of the value of money relative to everyday items, using catalogues • Representing equivalent values using different denominations, such as 70 cents can be made up of three 20-cent coins and a 10-cent coin, or two 20-cent coins and three 10-cent coins • Representing transactions involving change, such as determining the change from a $50 note to purchase a $24 shirt and $8 socks for a sport team uniform	Explore saving and spending, recognising that limited amounts of money are available For example: • Investigating saving patterns using different weekly amounts and various time periods, such as 4, 8 or 12 weeks • Comparing how total savings can change when weekly savings amounts differ, such as 'If $5 is saved each week for eight weeks, how much do you save? What if you save $7 a week for the same time?' • Exploring purchasing choices when money is saved rather than spent immediately, recognising that spending decisions can be influenced by external factors, such as friends, media and advertising	Identify features of budgets and create a simple budget, comparing prices where possible For example: • Using a context, such as a school trip or class party to create a simple budget • Distinguishing between total cost and cost per person • Comparing prices and recognising that a product/service can be overpriced • Developing an awareness that advertising can influence purchasing decisions	Create a plan for a savings goal, predict expenses and identify that saving money with a bank attracts interest For example: • Choosing a savings' goal, such as an end-of-year school camp • Using a spreadsheet to keep track of money being raised in a bake sale for the end-of-year school camp. Keeping track of income (money received for the cakes purchased) and expenses (money spent on ingredients), recognising the need to prioritise certain expenses (e.g. ingredients over decorations) • Identifying the importance of checking receipts, including ensuring any % discounts have been accurately applied and using estimation strategies to check the total amount • Discussing the benefits of using a bank for saving

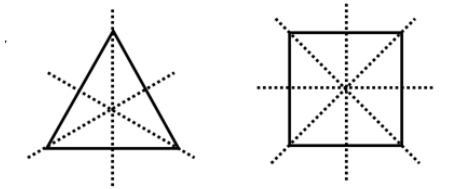
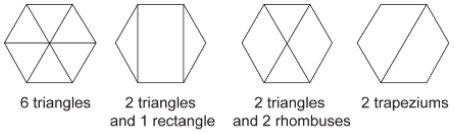
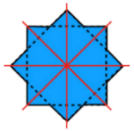
Sub-strand: Modelling with number

Year 3	Year 4	Year 5	Year 6
Identify and represent a range of real-world addition and subtraction situations with part-part-whole models, and multiplication and division situations with arrays. Write number sentences to reach a solution and interpret in context For example: • Modelling additive situations, such as 'I had 75 tomatoes and then picked some more, now I have 138. How many did I pick?' Choosing to use a part-part-whole model and writing number sentences, explaining how each number is related to the situation. Using strategies, such as the relationship between addition and subtraction to solve, interpreting the answer and the additional tomatoes picked 138 75 | ?	Identify and represent real-world additive and multiplicative situations with diagrams and equations to reach a solution. Interpret and communicate findings in context For example: • Modelling situations, such as buying five scooters for $\$96$ each, evaluating the situation, identifying that it is multiplicative. Representing the situation using a bar model and equation, explaining that five is the number of scooters and $\$96$ is the cost of each scooter. Using efficient strategies to solve, such as rounding $\$96$ to $\$100$, multiplying 5×100 and subtracting 5×4, communicating that the answer is the total cost of buying five scooters	Identify and represent a range of real-world additive and multiplicative situations with equations, using diagrams where needed. Interpret and communicate findings in context For example: • Modelling situations, such as determining how many containers Amy collected for 'Containers for Change', knowing their total was 12 times as many as Ling, who collected 25. Determining the situation to be multiplicative and represent using a diagram and equation, demonstrating how the representation is connected to the situation, such as the diagram shows that 12×25 is 12 times as many as 25. Using efficient strategies to solve, such as halving 12 and doubling 25, communicating that the answer	In real-world situations involving whole numbers, order of operations and fractions with the same denominator I. analyse the situation and identify relevant information II. mathematically represent the situation, including using equations to reach a solution III. interpret and communicate findings in the context, exploring and justifying decisions For example: • Modelling situations, such as determining the total cost of Leith hiring a bike for nine hours,

Year 3	Year 4	Year 5	Year 6
• Modelling multiplicative situations, such as sharing 48 horses into $2, 4, 6$ or 8 paddocks using arrays, choosing to use multiplication and/or division, writing number sentences, (e.g. $2 \times ? = 48$) and explaining how each number is connected to the situation (e.g. 2 is the number of paddocks, 48 is the total number of horses and the missing number will be the number of horses in each of the two paddocks)		is the number of containers Amy collected, which is 12 times as many as Ling	 analysing the given information, identifying the relevant information to translate the situation into an equation. Deciding on the operation or combination of operations and applying the order of operations, e.g. $15 + (9 - 4) \times 3 + 2 = ?$ Using efficient strategies to solve, interpreting the answer to be the total cost, explaining findings, such as 'It would have cost $\$17$ to hire the bike for four hours, and it was an extra $\$15$ for five more hours'

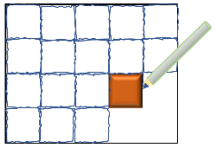
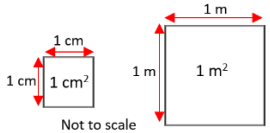
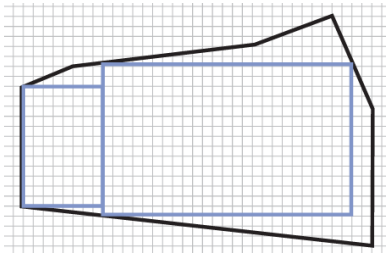
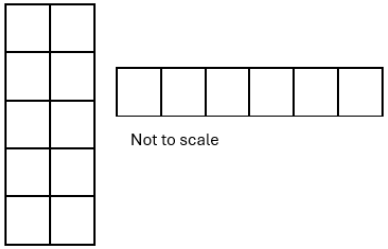
Strand: Measurement and geometry

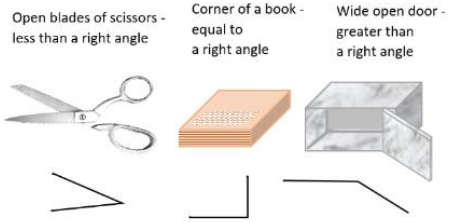
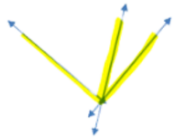
Sub-strand: Two-dimensional space and structures

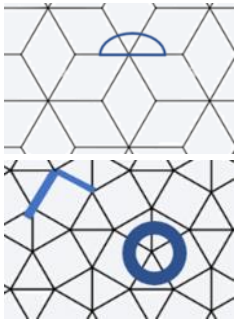
Year 3	Year 4	Year 5	Year 6
Explore one-step slides (translations) and flips (reflections) of familiar two-dimensional shapes, make connections to line symmetry and describe the movement of the shape For example: • Sliding or flipping 2D shapes to identify that translations and reflections do not change the size or features • Identifying lines of symmetry on given shapes, such as triangles and squares, using paper-folding, mirrors or drawings  Three lines of symmetry Four lines of symmetry	Explore, visualise, describe and create two-dimensional shapes that result from combining or splitting familiar shapes For example: • Combining familiar 2D shapes, including quadrilaterals and other polygons to form common shapes  • Splitting a given shape, such as a hexagon, into two or more common shapes  6 triangles 2 triangles and 1 rectangle 2 triangles and 2 rhombuses 2 trapeziums	Explore line and rotational symmetry in two-dimensional shapes For example: • Identifying line symmetry in the environment, artworks and patterns, such as the following Islamic design that has four lines of symmetry  • Identifying the rotational symmetry of shapes by tracing and rotating them to determine how many times they match their original position in a full rotation, such as a rectangle aligns with itself twice during one complete turn	Explore, visualise and describe translations, reflections or rotations of two-dimensional shapes For example: • Recognising that translations, reflections or rotations change the position and orientation but not the size of shapes • Transforming shapes to create tessellating patterns, including using digital tools. Describing the transformations used and discussing why these shapes tessellate, including identifying shapes or combinations of shapes that will not tessellate

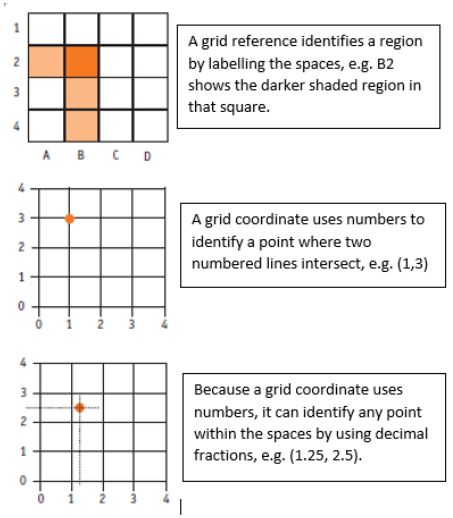
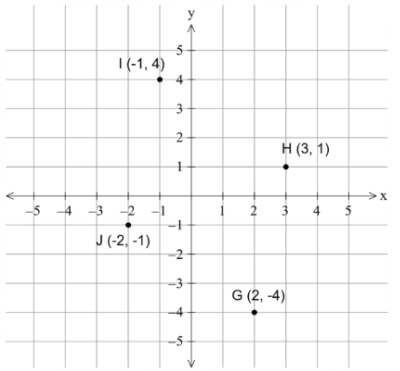
Year 3	Year 4	Year 5	Year 6
Estimate, measure and order lengths in uniform units, including millimetres, centimetres and metres For example: • Creating a metric unit measuring tape by drawing 1 cm markings on a long paper strip using a centimetre cube or tile and using it to estimate, measure and order the length of stationery items • Recognising the need for formal units smaller and larger than the centimetre to measure length and using the abbreviations mm, cm, m and km • Investigating the length of one metre using everyday examples, such as a desk or arm span and exploring benchmarks for centimetres and millimetres	Estimate, measure and compare the perimeter of two-dimensional shapes, using scaled instruments and appropriate informal or formal units For example: • Recognising that perimeter is the sum of the lengths that form the boundary of a shape or enclosed space • Selecting and using appropriate scaled instruments, such as a tape measure, ruler or trundle wheel to measure around the boundary of a shape, e.g. a painting or a garden bed • Using a piece of string to measure the perimeter of irregular shapes, including those that have curved sides	Choose and use appropriate metric units and part units to estimate and measure lengths For example: • Choosing and using an appropriate unit, such as centimetres when measuring a length of fabric • Recognising that the choice of an appropriate unit may depend upon the need for accuracy rather than simply the size of the object, for instance a bridge may be measured in metres to estimate length, but in millimetres for engineering work • Recording measurements using both whole units and whole and part units, such as 56 millimetres or 5.6 centimetres	Convert between units of length, by connecting metric units to the decimal system and extend to units of mass and capacity For example: • Recognising the significance of the prefixes in units of measurement • Converting between units, including millimetres, centimetres, metres, kilometres; milligrams, grams, kilograms, tonnes; millilitres, litres, kilolitres and megalitres • Using place value, such as converting 2600 m to 2.6 km, recognising that 1000 m equals 1 km • Explaining and using the relationship between the size of a unit and the number of units needed, such as more grams than kilograms will be needed to measure the same object, and so to convert from kilograms to grams you need to multiply by 1000

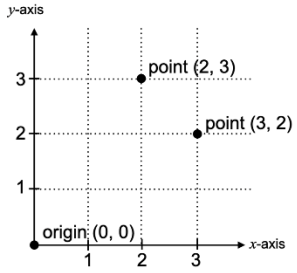
Year 3	Year 4	Year 5	Year 6
		Describe and test a sequence of steps to determine the perimeter of rectangles For example: • Creating a range of rectangles representing paddocks on grid paper and establishing different methods of working out the length of boundary fences • Exploring efficient ways to calculate the perimeters of rectangles, such as adding the length and width together and doubling the result	
Compare the areas of two shapes indirectly, using uniform informal units, without gaps and overlaps For example: • Selecting from a range of uniform informal units, such as tiles, counters or blocks to cover shapes • Using uniform informal units to compare areas, recognising why the same unit is used repeatedly	Estimate, measure and compare the areas of rectangles, using uniform informal square units in arrays For example: • Choosing from a range of uniform informal square units, such as tiles, blocks, post it notes or paper cut outs, tracing around this unit, creating an array to estimate, measure and compare the area of rectangles	Identify dimensions of a metric square unit. Estimate, measure and compare areas using metric square units For example: • Recognising the dimensions of a metric square unit, recording the area using the abbreviations mm^2, cm^2 and m^2 and using correct terminology, for	Describe and test a sequence of steps to determine the area of rectangles based on dimensions For example: • Drawing a variety of rectangles on grid paper to investigate patterns in the relationship between the length of the base and the height of rectangles, and their area

Year 3	Year 4	Year 5	Year 6
• Recognising the relationship between the size of the informal units used and the number of units needed to fill a shape, choosing units that can best cover a shape with no gaps or overlaps		instance, 2 cm^2 read as 'two square centimetres'  • Recognising that a unit of area can be cut and rearranged and still be the same area, such as a square metre does not need to be 'square', it may be 50 cm by 2 metres or 25 cm by 4 metres • Exploring the use of arrays within irregular shapes to approximate the area, discussing the parts that fall outside of the arrays 	<table><tr><th>Base</th><th>Height</th><th>Area</th></tr><tr><td>5 cm</td><td>4 cm</td><td>20 cm^2</td></tr><tr><td>3 cm</td><td>6 cm</td><td>18 cm^2</td></tr></table> • Using grid paper to investigate and compare shapes that have the same perimeter but different areas, such as both rectangles have a perimeter of 14 cm but different areas 

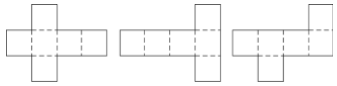
Year 3	Year 4	Year 5	Year 6
Identify angles as measures of turn between two lines that intersect and directly compare angle sizes in everyday situations For example: • Identifying angles formed by two arms that open and close in everyday situations, such as the arms of a clock, a partially opened book, or an open pair of scissors, recognising that a full arm turn forms a circle • Superimposing two angles, aligning one arm and the vertex, and checking the other arm to determine which angle is greater	Indirectly compare angles and identify as being equal to, greater than or less than a right angle For example: • Identifying angles in the environment and comparing to a right angle, including by using an informal tool where required, such as a pipe cleaner or bent straw • Recognising that the length of the arms does not affect the size of the angle  	Estimate, measure and construct angles in degrees using a protractor. Classify acute, right, obtuse, reflex and straight angles For example: • Estimating and describing the size of angles using known angles as benchmarks • Exploring the scale on a protractor, recognising that protractors usually have two sets of numbers, one for measuring angles in a counterclockwise direction and one for clockwise • Developing and following a sequence of steps to accurately measure angles using a protractor • Recording angle measurements using the symbol for degrees (°)	Investigate angles in a right angle, on a straight line, angles at a point and vertically opposite angles, to determine unknown angles and explain reasoning For example: • Investigating adjacent angles that form a right angle and establish that they add to $90°$ (complementary angles)  • Investigating adjacent angles that form a straight angle and establish that they add to $180°$, such as an angle of $120°$ and $60°$ (supplementary angles)  • Recognising vertically opposite angles as angles that are directly opposite each other and equal

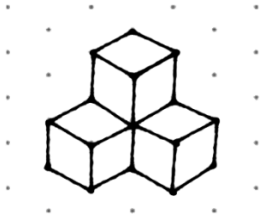
Year 3	Year 4	Year 5	Year 6
			in size, formed when two lines intersect  • Recognising and describing angle relationships embedded in diagrams, such as 
Create and interpret simple maps to show positions and pathways, considering the relative position of key features For example: • Imagining a 'bird's-eye-view' of locations to create maps without scales, such as representing the layout of a classroom or bedroom	Create or interpret a grid map, describe positions and pathways, and explore scale and legends For example: • Locating positions on grid maps by co-ordinating horizontal and vertical references • Exploring scales, such as the length of one square grid $= 10$ metres	Use directional language, grid references and grid coordinates to describe positions and pathways For example: • Using a given grid map and compass directions (N, S, E, W) plan, describe and show a route from one location to another	Explore the Cartesian plane as the intersection of two number lines at zero, using the coordinate system to locate points in all four quadrants For example: • Recognising positive and negative integers on the number lines when plotting points in all four quadrants on the Cartesian plane

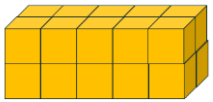
Year 3	Year 4	Year 5	Year 6
• Sketching a mud map of the school, identifying the main buildings, orienting to the real world to determine directions to travel	• Using maps to move through pathways, describing a journey between two locations on a grid map • Using digital tools to create a grid map of a familiar area, such as the local park	• Recognising the difference between grid references and grid coordinates  • Identifying grid coordinates on the number plane in the first quadrant, describing the horizontal position first, followed by the vertical position. Recognising $(2,3)$ is a different location to $(3,2)$	

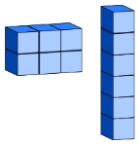
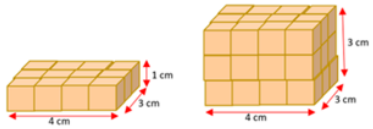
Year 3	Year 4	Year 5	Year 6
			

Sub-strand: Three-dimensional space and structures

Year 3	Year 4	Year 5	Year 6
Visualise and make models of three-dimensional objects. Compare and classify objects according to the key features of faces, edges and vertices For example: • Visualising and constructing models of 3D objects using clay, sticks, card or digital tools • Comparing 3D objects, identifying similarities and differences, such as a pyramid has triangular faces and a cube does not	Connect three-dimensional objects to their two-dimensional representations and visualise and describe key features that cannot be seen For example: • Connecting images or drawings to 3D objects, including prisms, pyramids and cylinders from images • Constructing models of 3D objects, based on 2D sketches, using cubes	Visualise and connect three-dimensional objects to their nets and build objects from their nets For example: • Deconstructing packages to see the nets of different 3D objects, including prisms, pyramids and cylinders • Investigating the variety of nets that can be used to create a particular prism 	Visualise, sketch and construct three-dimensional objects, including prisms and pyramids For example: • Visualising features to create sketches of 3D objects, showing depth and from different views • Constructing 3D models of prisms and pyramids, given drawings of different views • Creating skeletal 3D models of prisms and pyramids using materials, such as toothpicks, clay, straws and tape

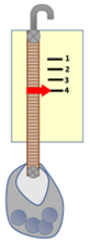
Year 3	Year 4	Year 5	Year 6
• Classifying a collection of 3D objects, including cubes, cylinders, cones, spheres, rectangular and triangular prisms and pyramids using geometric language to describe features	 • Visualising features of 3D objects that cannot be seen, such as recognising the sketch is a square-based pyramid with a square base, four triangular faces, eight edges and five vertices 	• Examining a diagram to determine whether it is the net of a 3D object or not • Constructing 3D objects from both provided nets, and by sketching and testing nets, considering the number, shape and placement of faces	
Measure and order capacity in uniform units, including millilitres. Estimate larger capacities using a litre container For example: • Creating a calibrated measuring instrument by repeatedly pouring a quantity of water, such as 50 mL and drawing and labelling a line at each level	Estimate, measure and compare capacity in litres and millilitres using scaled instruments For example: • Relating benchmark capacities to everyday containers, such as a 250 mL juice container or a 600 mL water bottle	Choose appropriate units to estimate and measure capacity For example: • Selecting and using appropriate units, such as millilitres for a drinking glass and litres for a bucket • Reading calibrated measuring instruments with evenly spaced markings where not all values	

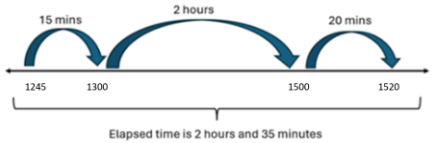
Year 3	Year 4	Year 5	Year 6
• Recognising that one litre containers can be a variety of shapes, such as milk cartons and ice-cream containers	• Recording capacities using the abbreviation for litres (L) and millilitres (mL) • Comparing capacity measurements, such as recognising that a 1500 mL container holds more than a 1 L container	are labelled, such as markings for 1.0, 1.2, 1.4, 1.6, 1.8, 2.0, but only 1 and 2 are labelled • Recognising and interpreting decimal notation for capacities, such as 8.7 L is the same as 8 litres and 700 millilitres	
	Explore and directly compare volumes, and recognise that objects with different shapes can have the same volume For example: • Identifying volume as the space an object occupies and differentiating it from other measurement attributes • Recognising that objects made with the same number of cubes may have different volumes depending on the size of the cubes used • Creating different objects using the same amount of playdough, observing that they all have the	Identify the dimensions of a metric cubic unit. Construct and compare rectangular prisms using cubes and determine their volume For example: • Constructing and comparing rectangular prisms using cubic-centimetre blocks and describing the volumes in terms of layers, such as two layers of 10 cubic-centimetre blocks  • Recording volumes using the abbreviation for	Describe and test a sequence of steps to determine the volume of rectangular prisms based on dimensions For example: • Exploring and generalising multiplicative strategies to find volume using diagrams, numbers and words, focusing on the relationship between the number of cubes in a layer and the number of layers in the prism, such as recognising that one layer is 12 cm^3 and multiplying by the number of layers to determine volume

Year 3	Year 4	Year 5	Year 6
	same volume even though they are shaped differently	cubic-centimetres (cm^3) and cubic-metres (m^3) • Exploring different rectangular prisms that can be made from the same number of cubes 	

Sub-strand: Non-spatial measurement

Year 3	Year 4	Year 5	Year 6
Compare objects to common benchmarks, including 100 g, 250 g, half and one kilogram For example: • Using balance scales to compare the weight of everyday items to common benchmark weights • Identifying familiar items that weigh about one kilogram, such as a pack of flour or litre of milk	Estimate and measure mass in kilograms and grams using analogue and digital scales For example: • Interpreting evenly spaced markings on analogue scales where not all values are labelled • Estimating and weighing the same item using both analogue and digital scales and comparing the readings	Choose appropriate units to estimate, measure and compare mass For example: • Identifying the appropriate unit and device to measure mass, such as digital scales to measure a school bag (kg) and kitchen scales to measure the weight of ingredients (g) • Comparing readings on digital scales applying knowledge of	

Year 3	Year 4	Year 5	Year 6
• Identifying familiar items that are measured in grams, such as chocolate or spices	• Creating a calibrated scale, and using it to measure the mass of everyday items in grams and kilograms  • Recording masses using the abbreviations for grams (g) and kilograms (kg)	decimal numbers, such as recognising that 3.25 kg is heavier than 3.025 kg • Recognising the equivalence of whole number and decimal representations of measurements of mass, such as 3 kg 250 g is the same as 3.25 kg	
Tell the time in minutes using analogue and digital clocks. Describe duration in hours, minutes and seconds and identify the relationship between them For example: • Recognising that the space before the minute hand (in a clockwise direction) indicates the minutes elapsed since the hour past, and that the remaining space on the clock	Convert between units of time, tell the time on digital and analogue clocks using 'am' and 'pm' notation and determine duration For example: • Using the multiplicative relationship between hours, minute and seconds to convert between units, such as recognising that an hour is 60 times longer than a minute	Explore, describe and convert between 12- and 24-hour time systems and use to determine duration For example: • Using visual aids to make connections between 12- and 24-hour time systems	Use timetables and itineraries in 12- and 24-hour time systems to determine the duration of events and journeys For example: • Applying concrete and mental strategies to determine elapsed time, considering starting and finishing time

Year 3	Year 4	Year 5	Year 6
shows how many minutes until the next hour • Developing a sense of how long one second and one minute is, using a timer to determine the duration of simple tasks • Using time to describe the duration of events, such as the 3 second rule in netball, recess is about 20 minutes, and a school day is about 6 hours	• Comparing the duration of two familiar events with durations provided in different time units, such as a movie length of 95 minutes and a bus journey of 2 hours and 10 minutes • Relating analogue notation to digital notation for time, such as 20 to 9 in the morning is the same time as 8.40 am	 • Applying strategies to convert between time systems, understanding that the same time can be described in different ways, such as to convert times from 12.00 pm to 11.59 pm into 24-hour time, 12 is added to the hour 1.00 pm → 1300 in 24-hour time 7.45 pm →1945 in 24-hour time 11.30 pm → 2330 in 24-hour time • Determining duration of events when the starting and finishing times are provided in different systems, such as the duration of a school excursion scheduled to start at 9.30 am and conclude at 1445	 • Interpreting a variety of timetables and itineraries, from real-life situations, such as a school, movie theatre or public transport authorities

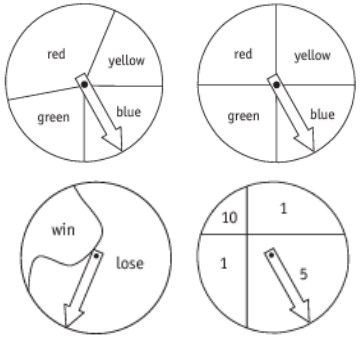
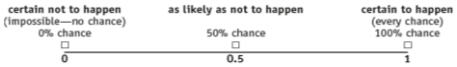
Sub-strand: Modelling with measurement and geometry

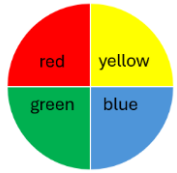
Year 3	Year 4	Year 5	Year 6
	In real-world situations involving two-dimensional shapes, three-dimensional objects, grid maps, determining length, capacity or mass in metric units or converting between units of time, mathematically represent the problem to reach a solution. Interpret and communicate findings in the context of the situation For example: • Modelling situations involving time, such as determining the winner of a summer reading contest where some students have entered their data in minutes and some in hours. Representing the problem using a diagram, such as a table explaining how information in the table relates to the context. Using efficient strategies to convert between the units of time to determine a winner,	In real-world situations involving transformation of two-dimensional shapes, nets, grid reference systems, determining length, area, capacity, volume or mass in metric units or converting between 12- and 24-hour time, mathematically represent the problem to reach a solution. Interpret and communicate findings in the context of the situation For example: • Modelling situations involving metric units, such as planning items to pack for a school camp, given a list of required items and a weight and size limit for student bags. Representing the problem with diagrams and equations, determining the weights of given items, using estimation strategies where appropriate and determining the total weight. Interpreting	In real-world situations involving transformation of two-dimensional shapes, rectangular prisms, pyramids, Cartesian plane, measuring and converting metric units for length, mass and capacity, determining volume and area in metric units or determining the duration of events and journeys I. analyse the situation and identify relevant information II. mathematically represent the situation to reach a solution III. interpret and communicate findings in the context, exploring and justifying decisions For example: • Planning a class trip to the WA Museum Boola Bardip (WAMBB), utilising Transperth timetables and the Map of WAMBB to plan the route and schedule for the day

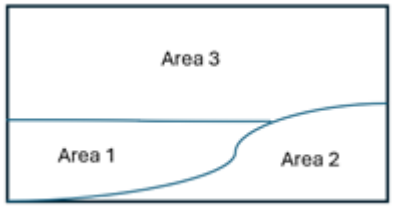
Year 3	Year 4	Year 5	Year 6
	interpreting the winner to be the student with the longest duration of reading time • Modelling situations involving units of measurement, such as exploring how much water is needed to fill a bathtub and comparing to how much water is used during a five-minute shower	the findings, such as the weight could be reduced if a plastic water bottle is chosen rather than a metal one • Modelling situations, such as ▪ Considering if the classroom can fit a new table by creating a grid map of the current configuration of the classroom, to an approximate scale. Using translations and grid references to analyse and solve the problem ▪ Creating a pathway utilising a map of a local community ensuring all points of interest are explored and identifying the total distance covered	• Designing a monument to honour an important person with the design, including both prisms and pyramids. Investigating how the symbolic meaning of the objects could reflect the qualities of the person

Strand: Probability and statistics

Sub-strand: Probability

Year 3	Year 4	Year 5	Year 6
Describe familiar events using the language of chance. Identify and list possible outcomes of everyday chance events For example: • Describing events as being likely, unlikely, 50-50, possible, certain or impossible, such as Christmas happening in December (certain) Getting heads when you flip a coin (50-50) Snow in Australia in summer (possible but unlikely) Having pizza for dinner tonight (possible) Seeing a dog on the way home from school (likely) Finding a unicorn in the backyard (impossible) • Identifying all possible outcomes for events, such as choosing two pegs from a bag containing three red and three blue pegs	Order the likelihood of everyday chance events. Identify when events are not affected by previous events For example: • Using lists of familiar events and ordering them from 'least likely' to 'most likely' to occur, such as seeing a rainbow during recess, finding a pencil in your school bag, having lunch at school on a regular day or winning a national raffle and discussing why the order of some events might be different for different students • Identifying that obtaining heads when tossing a coin does not affect the chance of obtaining heads on the next toss • Clarifying misconceptions about events that are not affected by previous events, such as if it	Compare a range of everyday chance events, grouping into those with outcomes that are equally likely or not equally likely For example: • Comparing differently divided spinners and identifying if they will produce equally or unequally likely outcomes for each section  • Comparing jars filled with two colours of balls and identifying those with equally likely	Order everyday chance events and phrases on a scale from 0 to 1, where 0 represents an event that is certain not to happen (impossible) and 1 represents an event that is certain to happen For example: • Recognising that all measures of probability fall between 0 and 1 and a probability of 100% means the event is certain to happen • Positioning events and phrases on a scale and justifying placements 

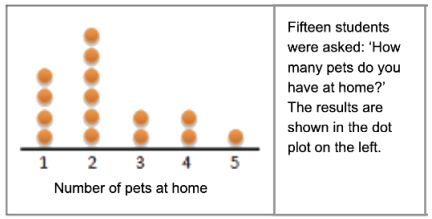
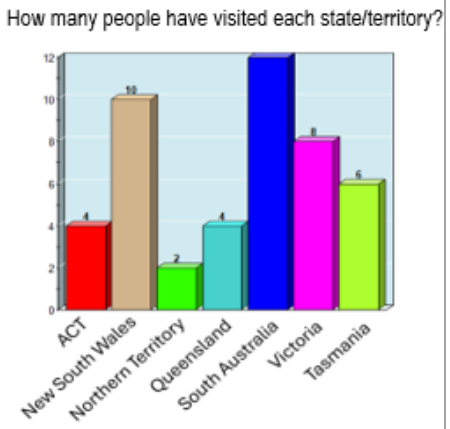
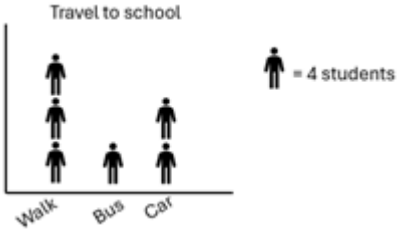
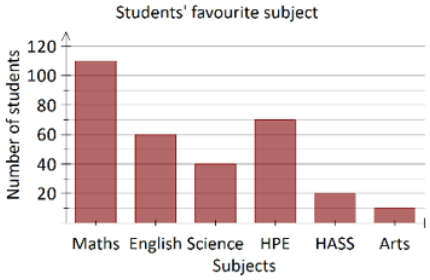
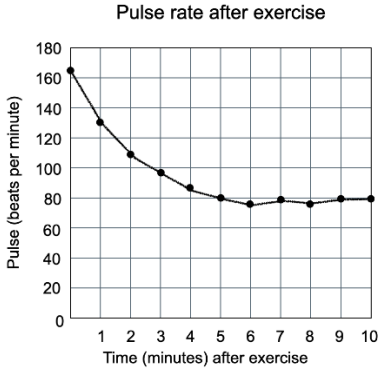
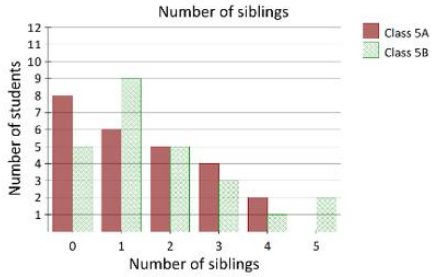
Year 3	Year 4	Year 5	Year 6
	rains today, it is more likely to rain tomorrow	outcomes and with unequally likely outcomes for each colour 	
Recognise the likelihood of outcomes for planned, equally likely, repeated chance experiments. Conduct the experiments and recognise variation in the results For example: • Rolling a dice, tossing a coin or choosing a card for a set number of trials and discussing the likelihood of outcomes using the language of chance • Conducting experiments and recording results using tallies, pictures or objects • Comparing results with others and with expected outcomes, discussing how results vary	Predict the likelihood of outcomes of unequally likely, repeated chance experiments. Conduct the experiments, describe variation and compare to the prediction For example: • Naming blue as the colour most likely and red as the least likely to be drawn when choosing a block from a bag containing 7 red, 13 blue and 10 yellow blocks • Predicting that a button being tossed will land on Area 3 most often, conducting the experiment 25 times, recording the results and describing	Conduct repeated chance experiments with equally likely outcomes, including with the use of digital tools. Represent results as fractions, compare with others and discuss variation For example: • Recording results for 20 trials as fractions, comparing and discussing differences between the results for each group 	Conduct repeated chance experiments and simulations with equally likely or unequally likely outcomes, including with the use of digital tools, for an increasing number of trials. Compare expected and observed frequencies in terms of variation as the number of trials increase For example: • Recording the frequency of each outcome for 20, 30, 40 trials and comparing observed frequency with the expected frequency

Year 3	Year 4	Year 5	Year 6
	differences between predicted and observed results  Top view of a desk or floor space		 • Combining results for groups of students and the whole class, identifying that the results trend closer to the prediction as the number of trials increases

	Group results (20 trials)			
	Group 1	Group 2	Group 3	Group 4
Red	$\frac{4}{20}$	$\frac{3}{20}$	$\frac{1}{20}$	$\frac{6}{20}$
Blue	$\frac{6}{20}$	$\frac{5}{20}$	$\frac{6}{20}$	$\frac{4}{20}$
Green	$\frac{5}{20}$	$\frac{5}{20}$	$\frac{7}{20}$	$\frac{6}{20}$
Yellow	$\frac{5}{20}$	$\frac{7}{20}$	$\frac{6}{20}$	$\frac{4}{20}$

Sub-strand: Statistics

Year 3	Year 4	Year 5	Year 6
Describe and interpret real-life data represented in dot plots and column graphs with scale intervals of one For example: • Using the dot plot to answer questions, such as 'How many students have two pets? What was the least common number of pets?'	Describe and interpret real-life data represented in many-to-one pictographs and column graphs For example: • Discussing advantages of many-to-one representation, such as it is easier to display larger numbers visually, and challenges, such as identifying 'how many' are represented by each symbol or reading values for the columns associated with	Describe and interpret line graphs that show how real-life continuous data changes over time For example: • Identifying features of line graphs, such as labels, scale and title, and answering questions relating to the information in the graph	Describe and interpret a range of displays for real-life numerical data, including side-by-side column graphs, using mode, range and shape For example: • Recognising that shape describes how data is spread on a graph, for instance whether the responses are grouped, spread out, have more high or low values, or show gaps

Year 3	Year 4	Year 5	Year 6
 Fifteen students were asked: 'How many pets do you have at home?' The results are shown in the dot plot on the left. • Identifying features of column graphs, such as labels, gaps, categories and titles, and answering questions relating to the information in the graph 	many-to-one representations  • Answering questions relating to the information in many-to-one graphs, such as 'How many students liked HPE? How many more students liked Maths more than English?' 'How many times as many students like HASS more than The Arts?' 		• Identifying the mode as the most frequently occurring response and the range as the difference between the highest and lowest data values recorded • Interpreting data using mode, range and shape, such as Class 5A has a range of 4, a mode of 0 and the number of students decreases as the number of siblings increases. Compare to Class 5B 

			Describe how the features of real-life data displays may influence an audience For example: • Considering how the broken axis may affect the interpretation of a display, such as choosing the second graph to convey that bread prices have fluctuated dramatically in the last 12 months   • Investigating how sizing, colour, labels or scale may have been used in the construction of a

Year 3	Year 4	Year 5	Year 6
			display to influence a particular audience or 'tell a particular story'
In a real-world context, explore questions of interest by collecting categorical or discrete numerical data through observation or surveys. Organise and represent data in dot plots, tables and column graphs and interpret to answer a question For example: • Using a suitable method to collect data (observation or survey) to explore a question, such as 'How do most Year 3 students at our school travel to school?'. Creating a list or table to organise the data and constructing an appropriate display, including with the use of digital tools, to answer the initial question and interpret the data, such as 'Most students travel by car as there are limited bus services to our school.'	In a real-world context, pose questions and collect categorical or discrete numerical data, checking for accuracy and consistency. Organise and represent data in pictographs and column graphs and interpret the data to communicate findings in terms of the context For example: • Drafting suitable questions, response categories and recording methods to collect data on topics, such as 'What is the most popular playground game?' • Recording responses accurately, including unexpected responses • Creating data displays, including with the use of digital tools, considering appropriate titles, labels, scales and categories for the axes	In a real-world context, pose and refine questions, and collect categorical or discrete numerical data. Organise and make choices to represent data. Interpret and communicate findings in terms of the context, and reflect on variation and accuracy For example: • Formulating and refining questions such as 'How did students at my school enjoy the food choices at the end of year event?' or 'How many plastic bottles do people in the classroom have in their home bins at the end of a week?' • Collecting data using numbers to indicate rating, such as 1 = don't like and 5 = likes a lot • Choosing and creating data displays such as dot plots, many-to-one column graphs and	In a real-world context involving numerical data I. analyse the situation to pose a refined question II. choose the most appropriate way to collect data to ensure accuracy and consistency, and make choices to represent data, including line graphs and side-by-side column graphs III. interpret and communicate findings in terms of the context and describe reasons for variation For example: • Considering a situation, such as growing plants in different areas of the classroom to formulate and refine a question, such as 'How does the amount of sunlight affect plant growth?' Recording and analysing data, including using a spreadsheet.

Year 3	Year 4	Year 5	Year 6
• Using conventions, such as equal spaces on axes, naming and labelling axes and choosing appropriate titles for dot plots and column graphs	• Interpreting the data displays created, summarising the information, responding to the initial question and discussing any unexpected results	pictographs, including with the use of digital tools • Discussing if the data provides the information necessary to answer the question and identifying if the type of questions, place, time or people asked could vary the results	Choosing a line graph to show plant growth over time, using digital tools as appropriate. Interpreting the data to answer the question, considering any reasons for variation in the data, such as distance from light source