Mathematics Progression Points: Year 3 – v8.0

Independent Schools Queensland (ISQ) has developed this version of the Progression Points to support teachers in independent schools with implementation of version 8 of the Australian Curriculum. This work has been done with support from officers at ACARA.

Teachers of Prep to Year 2 will find significant changes in English from previous versions of the Australian Curriculum – particularly with the inclusion of more specific references to phonics and phonemic awareness. Changes to the curriculum have also been made in all other year levels in both English and mathematics.

A word document version of the Progression Points is available so that teachers can rearrange the sequences of learning.

Personnel in independent schools are encouraged to consider how the Progression Points could be used to:-

* diagnose through formative assessment, the capabilities, strengths and weaknesses of individual students
* plan teaching programs to meet the needs of individuals and groups of students
* formally assess the progress of individuals and groups of students
* report to parents on the achievements of their children against the Australian Curriculum.

As with previous versions of the Progression Points, the “demonstrating” column accurately reflects the expectations of version 8 of the Australian Curriculum achievement standards – however with more detail and examples included.

ISQ welcomes any suggestions for improvement from teachers working very closely with the Progression Points.

More information

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| **Year 3 Achievement Standard**By the end of Year 3, students [recognise](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Recognise) the connection between addition and subtraction and [solve](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Solve) problems using efficient strategies for multiplication. (MKU3.1) They model and [represent](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Represent) unit fractions. (MKU3.2) They [represent](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Represent) money values in various ways. (MKU3.3) Students [identify](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Identify) symmetry in the environment. (MKU3.4) They match positions on maps with given information. (MKU3.5) Students [recognise](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Recognise) angles in real situations. (MKU3.6) They [interpret](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Interpret) and [compare](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Compare) data displays. (MKU3.7)Students count to and from 10 000. (MS3.1) They [classify](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Classify) numbers as either odd or even. (MS3.2) They [recall](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Recall) addition and multiplication facts for single-digit numbers. (MS3.3) Students correctly count out change from financial transactions. (MS3.4) They continue number patterns involving addition and subtraction. (MS3.5) Students use metric units for length, mass and capacity. (MS3.6) They tell time to the nearest minute. (MS3.7) Students make models of three-dimensional objects. (MS3.8) Students conduct chance experiments and [list](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=List) possible outcomes. (MS3.9) They conduct simple data investigations for categorical variables. (MS3.10) |
| **Strand**  | **Emerging** | **Developing** | **Demonstrating** | **Advancing**  | **Extending** |
| Beginning to work towards the achievement standard  | Working towards the achievement standard | Demonstrating the achievement standard | Working beyond the achievement standard | Extending with depth beyond the achievement standard |
| * *With explicit prompts (step-by-step oral scaffolding, concrete materials, reference to charts, etc)*
* *In familiar contexts*
* *Learning to follow procedures*
 | * *With prompts (oral or written questions, concrete materials, reference to charts, etc)*
* *In familiar contexts*
* *Attempts to explain*
 | * *Independent (with access to concrete materials, charts, etc)*
* *In familiar contexts*
* *Explains basic understanding*
 | * *Independent (with access to concrete materials, charts, etc)*
* *Applying in familiar contexts*
* *Explains with detail*
 | * *Independent (with access to concrete materials, charts, etc)*
* *Applying in new contexts*
* *Explains with connections outside the teaching context*
 |
| Proficiency strands*At this level:*  | * Understanding *includes connecting number representations with number sequences, portioning and combining numbers flexibly, representing unit fractions, using appropriate language to communicate times, and identifying environmental symmetry.*
* Fluency *includes recalling multiplication facts, using familiar metric units to order and compare objects, identifying and describing outcomes of chance experiments, interpreting maps and communicating positions.*
* Problem Solving *includes formulating and modelling authentic situations involving planning methods of data collection and representation, making models of three-dimensional objects and using number properties to continue number patterns.*
* Reasoning *includes using generalising from number properties and results of calculations, comparing angles, creating and interpreting variations in the results of data collections and data displays.*
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| **Relevant part of the Achievement Standard** | **They** [**classify**](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Classify) **numbers as either odd or even. (MS3.2)** |
| **Number and Algebra:** * Number and place value

[*ACMNA051*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMNA051) | **Students are beginning to:** * **Count** by 2s from zero or any other even number up to 100
* **Count** by 2s from 1 or any other odd number up to 99
 | **Students are developing the ability to:*** **Use** the term *even number* to describe whole numbers that end in 0, 2, 4, 6 and 8
* **Use** the term *odd number* to describe whole numbers that end in 1, 3, 5, 7 and 9
* **Generate** odd numbers by counting in 2s from 1 (e.g. 1, 3, 5, 7, 9, 11, ...)
* **Generate** even numbers by counting in 2s from zero (e.g. 0, 2, 4, 6, 8, 10, 12 ...)
* **Demonstrate** that a number is even (or odd) by making an array of pairs using materials (e.g. 7 is odd because there are 3 pairs and one left over)
 | Students **independently**:* **Investigate** and **describe** the conditions required for a number to be odd or even
* **identify** odd and even numbers within a given set of numbers
* **Identify** even numbers using skip counting by twos beginning at zero or by grouping even collections of objects in twos
* **Explain** why all whole numbers that end in the digits 0,2,4,6 and 8 are even and that whole numbers ending in 1,3,5,7 and 9 are odd
 | **Students:*** **Generalise** about even numbers by saying that they can always be halved to make another whole number
* **Explain** why all whole numbers that end in the digits 0, 2, 4, 6 and 8 are even and that whole numbers ending in 1, 3, 5, 7 and 9 are odd
 | **Students:*** **Make generalisations** about odd numbers (e.g. say that when odd numbers are doubled, or when two of them are added, the result is always an even number)
* **Make observations** and **predictions** about whole numbers using the fact that they are odd and even (e.g. say that 51 could not be grouped evenly into sets of 4 because it is an odd number)
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| **Strands and content descriptions for teaching*****Modes*** | **Emerging** | **Developing** | **Demonstrating** | **Advancing**  | **Extending** |
| Beginning to work towards the achievement standard  | Working towards the achievement standard | Demonstrating the achievement standard | Working beyond the achievement standard | Extending with depth beyond the achievement standard |
| **Relevant part of the Achievement Standard** | **Students count to and from 10 000. (MS3.1)** |
| Number and place value[*ACMNA052*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMNA052) | **They are beginning to:*** **Represent** and **recognise** 3-digit whole numbers
* **Link** different representations of 3-digit numbers including:concrete and symbolicconcrete and verbalverbal and symbolic
* **Write** 3-digit numbers in word form
* **Use** number lines to locate 3-digit numbers in the appropriate order
 | **They are developing the ability to:*** **Represent** and **recognise** 3-digit and 4-digit whole numbers
* **Link** the different representations of these numbers including:concrete and symbolicconcrete and verbalverbal and symbolic
* **Write** 3-digit and 4-digit numbers in work form
* **Use** number lines to locate 3-digit and 4-digit numbers in the appropriate order
 | Students **independently**: * **Recognise, model, represent** and **order** wholenumbers to at least 10000
* **Place** four-digit numbers on a number line using an appropriate scale
* **Reproduce** numbers in words using their numerical representations
* **Reproduce** numbers as numeral representations using their word form
 | **They:*** **Confidently** read and represent numbers to 10 000 and beyond (e.g. use a place value chart to record and read various 5-digit numbers)
* **Use** number lines efficiently to represent and order numbers (e.g. explain how the halfway point between 10 000 and 11 000 was used to estimate the correct position of 10 600 on a number line)
 | **They:** * **Interpret** different representations of numbers to 10 000 and beyond (e.g. say that 10 000 has the same value as 100 hundreds and use a calculator to support that statement)
* **Interpret** the scales on a range of different number lines that illustrate larger whole numbers (e.g. describe a strategy for working out the values at each of three equally-placed graduations between 12 000 and 13 000)
* **Solve** problems involving numbers to 10 000 using understanding of magnitude, sequence and order.
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| Number and place value[*ACMNA053*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMNA053) | **They are beginning to:*** **Use** partitioning skills to represent 3-digit numbers in equivalent forms (e.g. 500 equals 5 hundreds, 50 tens and 500 ones)
* **Use** place value knowledge to represent 3-digit numbers in expanded forms (e.g. 458 equals 400 + 50 + 8)
 | **They are developing the ability to:*** **Use** partitioning skills to represent 4-digit numbers in equivalent forms (e.g. 3000 equals 3 thousands, 30 hundreds, 300 tens and 3000 ones)
* **Use** place value knowledge to represent 4-digit numbers in expanded forms (e.g. 6385 equals 6000+ 300 + 80 + 5)
 | Students **independently**:* **Apply** place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems
* **Recognise** equivalent representations of the same number (e.g. that 10 000 equals 10 thousands, 100 hundreds, 1000 tens and 10 000 ones)
* **Apply** knowledge of numbers and place value to change the representation of numbers to assist calculations (e.g. change 98 + 57 to 100 + 55 by making one number larger by 2 and the other smaller by 2)
* **Justify** choices about partitioning and regrouping numbers in terms of their usefulness for particular calculations
 | **They:*** **Recognise** and use different representations of numbers to 10 000 and beyond in real-life problem situations
* **Identify** and **discuss** situations where partitioning and regrouping numbers can make addition calculations simpler (e.g. use knowledge about the addition concept to say that 198 + 56 is the same as 200 + 54)
 | **They:** * **Identify** and **discuss** situations where partitioning and regrouping numbers can make addition or subtraction calculations simpler (e.g. use knowledge about the subtraction concept to say that 300 - 45 is the same as 299 - 44)
* **Apply** operations and place value knowledge to solve some calculations involving larger numbers (e.g. change 10 000 – 5 268 to 9 999 – 5 267 by making both numbers 1 less)
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| **Relevant part of the Achievement Standard** | **Students recognise the connection between addition and subtraction and solve problems using efficient strategies for multiplication. (MKU3.1)** |
| Number and place value[*ACMNA054*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMNA054) |  **They are beginning to:*** **Identify** the relationship between matching addition and subtraction facts (e.g. 6 + 4 = 10 so 10 – 6 = 4)
 | **They are developing the ability to:*** **Use** ‘fact families to generate related addition and subtraction facts (e.g. use a fact family such as 13, 6 and 7 to work out:6 + 7 = 13;7 + 6 = 1313 – 6 = 713 – 7 = 6
 | Students **independently**:* **Recognise** and **explain** the connection between addition and subtraction.
* **Demonstrate** the connection between addition and subtraction by:
* using partitioning
* writing equivalent number sentences
* **Describe** addition and subtraction as inverse operations and use examples to support this reasoning
 | **They:*** **Describe** addition and subtraction as inverse operations and use examples to support this reasoning
* **Use** the connection between addition and subtraction to solve simple ‘missing number’ problems (e.g. given 14 - 🗌 = 8, recall the addition fact 6 + 8 = 14)
 | **They:** * **Use** and **describe** the inverse relationship between addition and subtraction to solve problems (e.g. given 64 - 🗌 = 28, recall the relationship between addition and subtraction facts and write 🗌 + 28 = 64 and 64 - 28 = 🗌)
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| **Strands and content descriptions for teaching*****Modes*** | **Emerging**Beginning to work towards the achievement standard  | **Developing**Working towards the achievement standard | **Demonstrating**Demonstrating the achievement standard | **Advancing** Working beyond the achievement standard | **Extending**Extending with depth beyond the achievement standard |
| **Relevant part of the Achievement Standard** | **They recall addition and multiplication facts for single-digit numbers. (MS3.3)** |
| Number and place value[*ACMNA055*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMNA055) | **They are beginning to:*** **Recall** most addition facts for single-digit numbers
* **Use** efficient strategies to work out addition facts not automatically recalled
* **Recall** some subtraction facts and use efficient strategies to work out the other facts.
 | **They are developing the ability to:*** **Recall** all addition facts involving single-digit numbers
* **Recall** most subtraction facts and use efficient strategies to work out the other facts.
 | They **independently**:* **Recall** all addition facts for single-digit numbers
* **Recall** related subtraction facts
* **Recognise** that certain single-digit number combinations result in the same answer for addition and subtraction of larger numbers
* **Apply** knowledge of addition and subtraction facts and partitioning to aid computation (e.g. 57 + 19 = 57 + 20 -1)
 | **They:*** **Automatically** **recall** all addition and subtraction facts
* **Use** efficient strategies for extending addition facts (e.g. use 7 + 5 = 12 to work out examples such as:17 + 5 = 2217 + 15 = 3247 + 5 = 52
* **Use** partitioning strategies to assist with the solution of addition situations (e.g. write 298 + 74 as 300 + 72 to reduce the complexity)
 | **They:** * **Use** efficient strategies for extending subtraction facts (e.g. use 15 - 9 = 6 to work out examples such as:25 - 9 = 1635 - 9 = 2685 - 19 = 66
* **Use** partitioning strategies to assist with the solution of some subtraction situations (e.g. change 1000 – 58 to 999 - 57 by making each number less by 1)
 |
| Number and place value[*ACMNA056*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMNA056) | **They are beginning to:*** **Count** in multiples of 2, 3, 5 and 10
* **Recall** some of the 2s, 3s, 5, and 10s multiplication facts
* **Related** dividing by 2 to halving and recall or work out all of the 2s division facts
 | **They are developing the ability to:*** **Count** in multiples of 2, 3, 5 and 10
* **Recall** most of the 2s, 3s, 5, and 10s multiplication facts
* **Use** efficient strategies such as *think of the related multiplication fact* to work out most of the 2s, 3s, 5s and 10s division facts
 | They **independently**:* **Recal**l multiplication facts of two, three, five and ten and related division facts
* **Establish** multiplication facts using number sequences
 | **They:*** **Recall** and extend the 2s, 3s, 5s and 10s multiplication facts
* **Relate** known multiplication facts to other sets of facts including the 4s (using the *double.. double* strategy) and the 8s (*double..double..double* strategy)
* **Use** the strategy *think of the related multiplication fact* to work out division facts from known multiplication facts
 | **They:** * **Recall** or can work out quickly most multiplication facts
* **Recall** or can work out quickly most division facts
* **Relate** multiplication and division facts to skip counting sequences involving single digit numbers
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| Number and place value[*ACMNA057*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMNA057) | **They are beginning to:*** **Identify** simple multiplication problems and say how they differ from addition and subtraction problems
* **Solve** simple multiplication problems using suitable materials
 | **They are developing the ability to:*** **Identify** simple problem situations involving multiplication
* **Make** simple models or drawings that represent multiplication situations
* **Solve** simple problems involving multiplication using suitable materials and mental strategies
* **Use** a calculator to solve multiplication problems where the calculations current mental or written abilities
 | They **independently:*** **Represent** and **solve** problems involving the multiplication facts ( using efficient mental and written strategies and appropriate digital technologies)
* **Write** simple word problems in numerical form
* **Translate** numerical problems into word form
* **Use** a calculator to check the solution and reasonableness of the answer
 | **They:*** **Interpret** problems involving multiplication and use any efficient strategy to solve them
* **Create** multiplication problems and the corresponding number sentences
* **Use** calculators or computers as necessary to explore the results of multiplying whole numbers (e.g. observe that when any numbers are multiplied by 2, even numbers are the result)
 | **They:** * **Interpret** multiplication problems involving extensions of the basic facts and use any efficient strategy to solve them
* **Link** multiplication problems with the corresponding number sentences
* **Use** calculators or computers as necessary to support statements about multiplying whole numbers (e.g. when any whole number is multiplied by 10 a zero is added to the end of the original number, and a number such as 14 becomes 140)
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| **Strands and content descriptions for teaching*****Modes*** | **Emerging**Beginning to work towards the achievement standard  | **Developing**Working towards the achievement standard | **Demonstrating**Demonstrating the achievement standard | **Advancing** Working beyond the achievement standard | **Extending**Extending with depth beyond the achievement standard |
| **Relevant part of the Achievement Standard** | **They model and represent unit fractions. (MKU3.2)** |
| Fractions and decimals[*ACMNA058*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMNA058) | **They are beginning to:*** **Identifies** examples of equal partitioning and says which fractions are represented
* **Identifies** different representations of halves and quarters

 | **They are developing the ability to:*** **Identify** examples of unit fractions and ways they can be represented (e.g. say that 2 counters out of a collection of 8 counters represents ¼)
* **Uses** different models to represent unit fractions (e.g. make examples of ¼ by shading one of four equal parts of a rectangle, selecting one of four equal groups in a collection, and by halving and then halving again a length of string)
 | They **independently:*** **Model** and **represent** unit fractions including 1/2, 1/4, 1/3, 1/5 and their multiples to a complete whole
* **Partition** areas, lengths and collections to create halves, thirds, quarters and fifths (e.g. fold the same sized sheets of paper to illustrate different unit fractions and compare number of parts with their sizes)
* **Locate** unit fractions on a number line
* **Recognise** the term for expressing fractions e.g. ‘one third’ is used (order: numerator, denominator).
 | **They:*** **Interpret** and make correct models of any proper fraction up to tenths
* **Link** fractions to one whole (e.g. 3 thirds, 4 quarters and 5 fifths are equal to one whole)
* **Describe** the relationship between a whole and the size of the denominators of proper fractions (e.g. to display eighths, one whole must be partitioned into 8 equal parts)
* **Describe** the relationship between the size of a unit fraction and its denominator (e.g. say that unit fractions such as , and get smaller in size as the denominator increases)
* **Use** number lines to place fractions in order
 | **They:** * **Interpret** and **make** correct models of any proper fraction to tenths and beyond (e.g. describe the relationship between quarters, eighths and sixteenths as halving and halving again)
* **Link** fractions to whole numbers (e.g. 8 quarters is equivalent to 2 wholes)
* **Describe** the relationship between a whole and the size of the denominators of proper fractions (e.g. say that the denominator in a fraction such as shows that 6 sixths are needed to make one whole)
* **Use** number lines to place fractions and small mixed numbers in order
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| **Relevant part of the Achievement Standard** | **They** [**represent**](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Represent) **money values in various ways. (MKU3.3)****Students correctly count out change from financial transactions. (MS3.4)** |
| Money and financial mathematics[*ACMNA059*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMNA059) | **They are beginning to:*** **explain** the concept of equal value
* **make** up collections of coins or notes that match a given value
* **explain** that when too much money is tendered, some change should be received
 | **They are developing the ability to:*** **demonstrate** different ways of making up a small amount of money
* **identify** examples of equal value and also whether one collection is worth more than another
* **compare** collections of coins and notes and say which is worth more
* **clearly** identify the need for change during shopping situations

  | They **independently**:* **Represent** money values in multiple ways (e.g. show different ways of making up an amount of $10 using only coins, only notes and a mixture of coins and notes)
* **Count** the change required for simple transactions to the nearest five cents (e.g. give the change when $10 is tendered to pay for an item worth $6.75)
* **Recognise** the relationship between dollars and cents
* Identify the currencies used by nations other than Australia (e.g. the Japanese yen, British pound, European euro and the Chinese yuan)
 | **They:*** **Make** up amounts of money to match given price tags
* **Work** out the change when items are purchased
* **Use** the relationship between dollars and cents to exchange given amounts for equivalent values of smaller notes and coins (e.g. say that a $100 note can be exchanged in many ways including for a $50, $20, $10, $5, five $2 coins and five $1 coins)
 | **They:** * **Demonstrate** clear understanding of Australian notes and coins by using efficient strategies related to value and equivalence when solving problems (e.g. plan a simple budget relating to a class gardening project and make decisions that ensure the budget is met)
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| **Relevant part of the Achievement Standard** | **They continue number patterns involving addition and subtraction. (MS3.5)** |
| Patterns and Algebra [*ACMNA060*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMNA060) |  **They are beginning to:*** **Identify** simple skip counting patterns and link them to jumps along a number line
* **Describe** the rules associated with odd and even number patterns
 | **They are developing the ability to:*** **Interpret** simple skip counting patterns and continue them as required
* **Describe** the rules associated with given skip counting patterns
 | They **independently**:* **Describe, continue** and **create** number patterns resulting from repeated addition and subtraction
* **Identify** and **write** the rules for given number patterns based around addition and subtraction
* **Describe** a rule for a number pattern and use it to generate the pattern
 | **They:*** **Interpret** and **continue** given number patterns associated with addition and subtraction
* **Interpret** number patterns and determine the value of any missing elements
* **Create** and **describe** rules for number patterns and generate the associated patterns (e.g. create a rule such as *double and add 1* and generate the first eight elements of the pattern..., 9, 11, 13, 15, 17, .....)
 | **They:** * **Interpret** and **continue** given number patterns associated with addition, subtraction and multiplication
* **Interpret** and **explain** number patterns and determine the value of any missing elements (e.g. analyse a given pattern such as 6, 12, 18, 24, 30, 36, ...., 48, ...., determine the rule – *add 6* – and work out the missing elements)
 |
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| **Relevant part of the Achievement Standard** | **Students use metric units for length, mass and capacity. (MS3.6)** |
| **Measurement and Geometry:** Using units of measure[*ACMMG061*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMMG061) | **They are beginning to:*** **Compare** and **order** objects according to length, area, capacity, volume, and mass using direct comparisons and using informal units of measurement
 | **They are developing the ability to:*** **Compare** and **order** objects according to length, area, capacity, volume, and mass and explain the strategies used

  | They **independently**:* **measure, order** and **compare** objects using familiar metric units of length, mass and capacity (e.g. metres and centimetres, kilograms and grams, and litres and millilitres)
* **recognise** the importance of using common units of measurement
* **recognise** and **use** centimetres and metres, grams and kilograms, and millilitres and litres.
 | **They:*** **explain** that objects can only be compared if they are measured using the same unit
* **select** and **use** an appropriate unit to measure and compare objects (e.g. select centimetres rather than metres to measure the heights of classmates)
* **select** and **use** an appropriate measuring instrument when measuring objects (e.g. choose a dressmakers tape to measure around a classmates head)
 | **They:** * **select,** **use** and **explain** appropriate units and measuring instruments when measuring and comparing objects (e.g. use a graduated water jug to check whish of three containers holds most)
* **demonstrate** an ability to use measuring instruments with reasonable accuracy (e.g. explain the importance of measuring from the zero point on a measuring tape)
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| **Relevant part of the Achievement Standard** | **They tell time to the nearest minute. (MS3.7)** |
| Using units of measure[*ACMMG062*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMMG062) | **They are beginning to:*** **use** the terms ‘half past, quarter to and quarter past’ when telling the time
 | **They are developing the ability to:*** **link** telling the time to the fact that there are 60 minutes in one hour
* **make** links between the terms ‘half past, quarter to and quarter past’ and the fact that there are 60 minutes in one hour

  | They **independently**:* **Tell** time to the minute and recognise the connection between different formats (e.g. link six thirty to half past six; link quarter past three to 3:15 and three fifteen; link quarter to four to 3:45 and three forty-five)
* **Investigate** the relationship between units of time
* **Use** the fact that there are 60 minutes in one hour to explain the displays on analogue clocks
* **Use** the second hand on an analogue clock to prove that there are 60 seconds in each minute
 | **They:*** **Interpret** a range of different clocks and identify the times on each (e.g. link Roman symbols to the numbers 1 to 12 using their positions on the clock face and work out the time shown)
* **Identify** and **describe** other facts relating to time such as 24 hours in one day, 7 days in one week, months of the year
 | **They:*** **Maintain** a daily diary (to quarter hours) and sequence school events
* **Identify** and **describe** other facts relating to time such as the number of days in each month and the number of days in a year
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| **Relevant part of the Achievement Standard** | **Students make models of three-dimensional objects. (MS3.8)** |
| Shape[*ACMMG063*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMMG063) | **They are beginning to:*** **Recognise** models of common 3D objects and say their names (e.g. cube, prism, cylinder, pyramid, cone, sphere)
 | **They are developing the ability to:*** **Recognise** models or drawings of common 3D objects and say their names (e.g. cube, prism, cylinder, pyramid, cone, sphere)
* **Classify** given 3D objects into families of shapes including prisms, cylinders, pyramids, cones and spheres
* **Make** reasonable representations of common 3D objects using suitable materials such as building blocks, clay, play dough)
 | They **independently**:* **make** recognisablemodels of three-dimensional objects including prisms and cubes, cones, pyramids, cylinders and spheres, using suitable materials
* **describe the** key features of the common 3D objects (e.g. all the six faces of a cube are squares that are all the same size)
* **explore** the creation of three-dimensional objects such as prisms, pyramids (e.g. explore the nets of prisms and pyramids and describe the shapes of the surfaces)
 | **They:*** **classify** given objects into families of shapes and **identify** the features of the objects that distinguish them
* **create** nets of common 3D objects by tracing around the edges and use them to build the shapes
 | **They:** * **analyse** a range of prisms, cylinders and pyramids and draw the nets of those objects
* **identify** and **describe** the features that define objects such as prisms and pyramids and decide whether given objects meet those criteria
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| **Strands and content descriptions for teaching*****Modes*** | **Emerging** | **Developing** | **Demonstrating** | **Advancing**  | **Extending** |
| Beginning to work towards the achievement standard  | Working towards the achievement standard | Demonstrating the achievement standard | Working beyond the achievement standard | Extending with depth beyond the achievement standard |
| **Relevant part of the Achievement Standard** | **Students recognise angles in real situations. (MKU3.6)** |
| Geometric reasoning [*ACMMG064*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMMG064) | **They are beginning to:*** **identify** angles within the environment (e.g. use their arms to display angles of various sizes)
 | **They are developing the ability to:*** **identify** angles as parts of shapes (e.g. say that triangles have three angles while quadrilaterals have four angles)
* **identify** examples in the environment where angles are fixed sizes (such as the corners of windows and tables) and where they are able to change (e.g. the opening and closing of doors, books etc)
 | They **independently:*** **Identify** angles as measures of turn (e.g. opening doors partially and fully comparing the size of angles created)
* **Compare** angle sizes in everyday situations; (e.g. recognise that analogue clocks use the turning of arms to indicate time, and comparing the size of angles between the arms for familiar times)
 | **They:*** **Identify** angles such as ‘corners’ that can be used as benchmarks when comparing the sizes of other angles
* **Construct** angles to match given criteria (e.g. move the pages of a book to match the angle formed when the time is 9 o’clock)
 | **They:** * **Recognise** that orientation does not change the size of an angle (e.g. show that angles of the same size can be formed in different orientations by moving the hands of a clock)
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| **Strands and content descriptions for teaching*****Modes*** | **Emerging**Beginning to work towards the achievement standard  | **Developing**Working towards the achievement standard | **Demonstrating**Demonstrating the achievement standard | **Advancing** Working beyond the achievement standard | **Extending**Extending with depth beyond the achievement standard |
| **Relevant part of the Achievement Standard** | **They match positions on maps with given information. (MKU3.5)** |
| Location and transformation[*ACMMG065*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMMG065) | **They are beginning to:*** **Identify** key features on maps of familiar environments such as their own classroom
* **Place** marks on maps or grids to represent the position of familiar features (e.g. mark the position of the teacher’s table on a map of their classroom
 | **They are developing the ability to:*** **Interpret** simple maps or grids of familiar environments such as the classroom or play area and describe marked features using their position as a guide

  | Students **independently:*** **Interpret** simple grid maps to show position and pathways
* **Create** a simple grid maps to show position and pathways (e.g. map of the classroom or playground)
 | **They:*** **Create** simple maps of familiar environments and describe the strategies used to ensure the accuracy of their work
* **Explain** the importance of proximity to other features when locating specific features (e.g. place the fountain on a map knowing that it is between the tree and the pathway, but close to the bench seat)
 | **They:*** **Use** simple keys and legends when creating maps and grids to explain the meaning of colours and symbols used
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| **Strands and content descriptions for teaching*****Modes*** | **Emerging**Beginning to work towards the achievement standard  | **Developing**Working towards the achievement standard | **Demonstrating**Demonstrating the achievement standard | **Advancing** Working beyond the achievement standard | **Extending**Extending with depth beyond the achievement standard |
| **Relevant part of the Achievement Standard** | **Students identify symmetry in the environment. (MKU3.4)** |
| Location and transformation[*ACMMG066*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMMG066) | **They are beginning to:*** **Observe** and **describe** symmetry within shapes on paper and within objects in the environment
* **Use** terms such as balanced or evenness when describing symmetrical shapes or objects
 | **They are developing the ability to:*** **Identify** pictures of objects or shapes that are symmetrical
* **Compare** pictures that show symmetry with others that are not symmetrical and attempt to explain the differences
 | * They **independently**:
* **Identify** symmetry in the natural environment
* **Identify** symmetry in the built environment
* **Identify** symmetry in art work
 | **They:*** **Explain** ways of testing whether pictures or shapes are symmetrical (e.g. fold shapes drawn on paper to check whether they are symmetrical)
* **Use** symmetrical shapes within drawings and sketches (e.g. point out the symmetry of the human face when sketching portraits of classmates)
 | **They:** * **Make** statements about the symmetrical features of 2D shapes (e.g. squares seem to have four ways of folding to show symmetry, while other rectangles only have two ways)
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| **Strands and content descriptions for teaching*****Modes*** | **Emerging** | **Developing** | **Demonstrating** | **Advancing**  | **Extending** |
| Beginning to work towards the achievement standard  | Working towards the achievement standard | Demonstrating the achievement standard | Working beyond the achievement standard | Extending with depth beyond the achievement standard |
| **Relevant part of the Achievement Standard** | **Students conduct chance experiments and list possible outcomes. (MS3.9)** |
| **Statistics and Probability** Chance[*ACMSP067*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMSP067) | **They are beginning to:*** **Identify** and **describe** common chance events within everyday life (e.g. when I roll a dice, I sometimes roll a 6)
* **Identify** the language of chance and make judgments about common events (e.g. the dark clouds might mean that it will rain today)

. | **They are developing the ability to:*** **Identify** all of the possible outcomes in very familiar situations such as rolling a dice
* **Conduct** a controlled experiment to investigate possible outcomes (e.g. when a coin is tossed, the outcome can be a head or a tail)

  | Students **independently**: * **Conduc**t chance experiments
* **Identify** and **describe** possible outcomes
* **Recognise** variation in results
* **Conduct** repeated trials of chance experiments (e.g. tossing a coin, drawing a ball from a bag)
* **Identify** the variations between trials
 | **They:*** **Decide** to repeat an experiment to check that the earlier outcomes are reliable
* **Use** the results of chance experiments to make simple predictions about future outcomes (e.g. say that we had 100 picks from a bag of 20 coloured counters and none were blue – so there are probably no blue ones in the bag)
 | **They:*** **Make** statements about ways to conduct chance experiments to ensure that the results are fair (e.g. say that when different coloured counters are placed in a bag, they should all be the same shape and size)
* **Identify** things that can make chance experiments unfair (e.g. a spinner can be coloured so that one colour has a much greater chance of occurring than any of the other colours on the spinner)
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| **Strands and content descriptions for teaching*****Modes*** | **Emerging**Beginning to work towards the achievement standard  | **Developing**Working towards the achievement standard | **Demonstrating**Demonstrating the achievement standard | **Advancing** Working beyond the achievement standard | **Extending**Extending with depth beyond the achievement standard |
| **Relevant part of the Achievement Standard** | **They conduct simple data investigations for categorical variables. (MS3.10)****They** [**interpret**](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Interpret) **and** [**compare**](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Compare) **data displays. (MKU3.7)** |
| Data representation and interpretation[*ACMMSP068*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMSP068) | **They are beginning to:*** **Identify** common groups within given categories (e.g. say that if the category is ‘pets’ the groups for our class will be ‘dogs, cats, birds and fish’
* **Describe** ways of collecting categorical data about familiar topics (e.g. say that each child with a pet could write that information on the board)
 | **They are developing the ability to:*** **Identify** questions that can be clarified by collecting data from available sources (e.g. to prepare a healthy class morning tea, decide that data about students’ preferred fruits and vegetables would assist planning)
 | They **independently:*** **Identify** and then clarify questions or issues for categorical variables to provide a clear focus for data collection
* **Identify** data sources
* **Plan** methods of data collection and recording
 | **They:*** **Examine** statements made by others about relevant issues and propose ways to check the worthiness of those statements in a local context (e.g. read statements from similar age groups overseas about favourite artists or movies and decide to check what classmates think about the same issues)
 | **They:** * **Explain** why various groups might think differently about common issues and gather data to support the explanations (e.g. examine how people of different ages think about homework for middle primary school students and describe the differences)
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| Data representation and interpretation[*ACMMSP069*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMSP069)[*ACMMSP070*](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACMSP070) |  **They are beginning to:*** **Use** simple techniques such as lists to display data about given categories (e.g. write data as it is collected in a list so that it can be examined)
* **Suggest** ways of summarising data to make interpretation easier (e.g. make groups of data about pets so that all of the ‘dogs’ are together etc)
* **Use** picture graphs where appropriate to display categorical data (e.g. show each piece of data collected about pets with a suitable picture or drawing)
 | **They are developing the ability to:*** **Recognise** that when data is grouped in agreed categories, each group can be counted and compared with other groups
* **Use** lists and tables when collecting and organising categorical data
* **Make** simple column graphs to display categorical data that has been organised in a table
 | They **independently:*** **Collect** data, **organise** into categories and **create** displays (using lists, tables, picture graphs and simple column graphs, with and without the use of digital technologies)
* **Explore** meaning and increasingly efficient ways to record data
* **Represen**t and **report** the results of investigations
* **Interpret** and **compare** data displays
* **Compare** various student-generated data representations and **describe** similarities and differences
 | **They:*** **Use** many-to-one picture graphs to represent data about categories (e.g. collect and organise data about colours of cars and use one symbol to represent five cars within each category)
* **Discuss** ways of representing ‘unfriendly’ data on many-to-one picture graphs (e.g. say that if 1 symbol represents 5 cars, fractions of a whole car can be used for groups of 4 or less cars)
* **Decide** which types of graphs display data most accurately and which types of graphs should be used in different situations
 | **They:** * **Create** and **discuss** different displays of the same data including lists, tables, picture and column graphs and compare how well each presents the set of data
* **Interpret** data presented in various ways and decide whether reliable statements can be made using that data
* **Collect** additional data about given categories if necessary to make meaningful statements
* **Use** graphing software where it is available to present data in different ways
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