

Alignment of Australian Curriculum Year Levels to the Scope and Sequence of Math-U-See Program

This table provides guidance to educators when aligning levels/resources to the Australian Curriculum (AC). The Math-U-See levels do not address ALL concepts of the Australian Curriculum Mathematics learning area. This table highlights the alignment to the year level content that is covered in each level of the Math-U-See program. For a more comprehensive analysis with a focus at year level, please view the AC Year Level Alignment documents or the Math-U-See Level AC Alignment documents.

It is most important that each student is placed at the appropriate entry level in the program, regardless of their school-age recommended year level. The initial assessment helps identify conceptual holes in the student's understanding. Math-U-See's Placement Tests are designed to help you ensure proper initial placement for the student.

Math U See Level	F	1	2	3	4	5	6	7	8
Primer	●	●	●	●					
Alpha	●	●	●	●					
Beta	●	●	●	●	●	●	●		
Gamma		●	●	●	●	●	●	●	
Delta			●	●	●	●	●	●	●
Epsilon			●	●	●	●	●	●	●
Zeta				●	●	●	●	●	●

KEY

●	Addresses concepts at this year level
	Heavily addresses concepts at this year level
	Moderately addresses concepts at this year level
	Minimal concepts addressed at this year level

Primer

	Australian Curriculum Year Level								
Math U See Level	F	1	2	3	4	5	6	7	8
Primer	●	●	●	●					

Primer is the beginning level in the Math-U-See program and heavily covers the **Number and Algebra** strand in the Australian Curriculum Mathematics Learning Area across Foundation and Year 1. The major focus is on the content descriptors located in *Number and Place Value* and *Patterns and Algebra*.

Primer introduces students to the concept of number by making connections between number names, numerals and counting up to 20. Once students are confident with number recognition they are introduced to place value, simple addition and skip counting by using common everyday examples/objects (fingers, toes, coins).

Primer also covers content in the **Measurement and Geometry** strand relating to the content descriptors focused on *Shape* and *Using units of Measurement*. Students are required to group objects based on common characteristics and sort shapes and objects (rectangles, circles, triangles and squares). The unit of measurement introduced at the Primer level is time. With Math-U-See based on foundational mastery and sequential learning the approach to teaching students the concept of time is different to the sequence suggested in the Australian Curriculum. The Primer level demonstrates that once a student has mastered skip counting by fives, they are ready to learn how to tell the time with minutes and hours.

Primer also touches on the **Statistics and Probability** strand as a lesson is provided on tally marks, preparing students to collect, check and classify data.

Number and Algebra	Measurement and Geometry
<ul style="list-style-type: none"> • Number recognition • Writing numerals • Place value • Counting to 20 • Missing numbers in a pattern • Comparison of amount (longer, shorter, lighter, heavier, bigger, smaller, more, less) • Vertical Addition of single-digit numbers • Counting to 100 • Skip counting by 5s and 10s • Addition of 10s and 100s • Number bonds to 10 • Introduction to Subtraction 	<ul style="list-style-type: none"> • Common 2D Shapes: <ul style="list-style-type: none"> - circles - triangles - squares - rectangles • Telling time with minutes and hours • Area (brief introduction)
	Statistics and Probability
	<ul style="list-style-type: none"> • Tally marks

Alpha

Math U See Level	Australian Curriculum Year Level								
	F	1	2	3	4	5	6	7	8
Alpha	●	●	●	●					

Alpha level heavily covers the **Number and Algebra** strand in the Australian Curriculum Mathematics Learning Area across Foundation, Year 1 and Year 2. The major focus is on the content descriptors located in *Number and Place Value* and *Patterns and Algebra*.

Alpha level has a heavy focus on developing student's understanding of place value and partitioning, which is a necessity to function in the decimal system. The program's manipulatives are introduced at this level and student's are taught to develop confidence with number sequences to and from 100, including skip counting by 2s, 5s and 10s. Along with teaching students single-digit addition and subtraction and how they relate to one another, this level is very explicit in developing student's skills and strategies to problem solve, such as, understanding commutative properties, doubling and identifying the number bonds of 10.

Alpha also covers content in the **Measurement and Geometry** strand relating to the content descriptor focused on *Shape*. Students are introduced and are able to explore the obvious features of common 2D shapes; circles, triangles, rectangles and squares.

Number and Algebra	Measurement and Geometry
<ul style="list-style-type: none"> Place value Partitioning Counting to 20 Addition of single-digit numbers Counting on Commutative properties of addition Counting to 100 Subtraction of single-digit numbers Relationship between addition and subtraction Identify the missing element Skip counting by 2s, 5s and 10s Number bonds to 10 Problem solving strategies Doubling 	<ul style="list-style-type: none"> Common 2D Shapes: <ul style="list-style-type: none"> - circles - triangles - squares - rectangles

Beta

	Australian Curriculum Year Level								
Math U See Level	F	1	2	3	4	5	6	7	8
Beta	●	●	●	●	●	●	●		

Beta level continues to cover the **Number and Algebra** strand in the Australian Curriculum Mathematics Learning Area mainly addressing concepts across Year 2, Year 3 and Year 4. The major focus is on the content descriptors located in *Number and Place Value* and *Money and Financial Mathematics*.

Beta level has a heavy focus on further developing student’s understanding of the relationship between addition and subtraction, whilst introducing the concepts of regrouping (carrying and borrowing). Skip counting continues to be developed at this level, but this time with an emphasis on working with money. The decimal point is also introduced in conjunction with dollars and cents. Students are made aware of the important strategy of rounding and estimating and are encouraged to continue to utilise this skill throughout the program.

Beta also covers content in the **Measurement and Geometry** strand relating to the content descriptor focused on *Using units of measurement*. The measurement of time, length and temperature are explored, exposing students to the different units of measurement that are used and raising their awareness of conversion between units.

The **Statistics and Probability** strand is also covered with a focus on *Data representation and interpretation*, introducing students to the concept of collecting information and representing this through a graph for ease of interpretation.

Number and Algebra	Measurement and Geometry
<ul style="list-style-type: none"> Place value (thousands) Word problems Rounding Estimation Addition of multiple digits Regrouping (carrying and borrowing) Money Decimal point Subtraction of multiple digits Relationship between addition and subtraction Skip counting by 2s, 5s and 10s Problem solving strategies 	<ul style="list-style-type: none"> Time (hours and minutes) Temperature Length (centimetre and metre) (perimeter and millimetre)
	Statistics and Probability
	<ul style="list-style-type: none"> Bar graphs Line graphs Tally marks

Gamma

Math U See Level	Australian Curriculum Year Level								
	F	1	2	3	4	5	6	7	8
Gamma		●	●	●	●	●	●	●	

Gamma level is the 'multiplication level' as it heavily focuses on the **Number and Algebra** strand in the Australian Curriculum Mathematics Learning Area mainly addressing concepts across Year 3, Year 4 and Year 5. The major focus is on the content descriptors located in *Number and Place Value* and *Patterns and Algebra*.

Gamma introduces the concept of multiplication with an approach that covers the proficiency strands *Understanding* and *Fluency*. Although multiplication facts are introduced independent of each other it is unlike the old rote 'times tables approach'. The concept of skip counting is the foundation, along with the understanding of the connection between repeated addition and multiplication facts. The more familiar and confident students become with these approaches the more fluent they will become with recalling multiplication facts. The concept of commutative properties also assists students to not become overwhelmed with learning multiplication facts. The use of the Math-U-See manipulatives and the factors/products rectangle concept adds another dimension of understanding and builds depth to ensure the *Reasoning* proficiency strand is also covered. As does the concept of equivalent fractions along-side multiplication/skip counting).

Mathematical terms are introduced to students from the very beginning (eg. factors, products, commutative property, distributive properties) which assists with students having the ability to explain their reasoning and provides opportunities to use the language in everyday relevant circumstances (rather than just for testing preparation).

Gamma also covers content in the **Measurement and Geometry** strand relating to the content descriptor focused on *Using units of measurement*. The Year 4-5 concepts of area are introduced (in relation to multiplication facts) which again lends to the proficiency strands *Understanding* and *Reasoning*. Relating mathematical understandings across mathematical strands is very important. The units of measurement Litre, Centimetre, Metre, Kilometre, Kilogram and Tonne are explored along with connecting decimal representations to the metric system.

Number and Algebra	
<ul style="list-style-type: none"> • Multiplication facts • Skip counting • Factors and products • Commutative properties • Solving for the unknown (preparing for division and basic algebra) • Equivalent fractions • Double digit • Multiple digit multiplication (2 by 1 digits) – distributive properties • Multiplication by multiples of 100 	<ul style="list-style-type: none"> • Australian currency (100 cents to a dollar) • Multiple digit multiplication • Prime and composite numbers • Rounding • Place value through to the millions
	Measurement and Geometry
	<ul style="list-style-type: none"> • Area of a rectangle • Litres • Converting units of measurement (cm-m, kg-t) • Kilo = 1000

Delta

	Australian Curriculum Year Level								
Math U See Level	F	1	2	3	4	5	6	7	8
Delta			●	●	●	●	●	●	●

Delta level is the ‘division level’ as it heavily focuses on the **Number and Algebra** strand in the Australian Curriculum Mathematics Learning Area mainly addressing concepts across Year 4 and Year 5. The major focus is on the content descriptors located in *Number and Place Value* and *Patterns and Algebra*.

Delta introduces the concept of division building on from the multiplication lessons covered in the Gamma level. Division is described to students as trying to find the missing factor and it is most important that students have mastered multiplication facts before commencing with the Delta level. Along with the different symbols to represent division, this level ensures students also are familiar with the language that assists with recognising division is required (eg. Divided by, how many threes can I count in nine?, two times what is the same as twelve? etc). Toward the end of the level the notion of long division (referred to as dividing with double digit factors) is covered in a way that allows students to demonstrate their understanding, their ability to problem solve and explain their reasoning (all important *Proficiency strands* as required in the Australian Curriculum). The beginning level of fractions is also introduced in this level.

Delta also covers content in the **Measurement and Geometry** strand across Years 5-7 relating to the content descriptor focused on *Using units of measurement* by establishing the formulas for areas of rectangles, triangles and parallelograms and use these in problem solving. Another content descriptor covered is *Geometric reasoning* with a focus on parallel and perpendicular lines and the properties of triangles and parallelograms. Volume is also introduced at this level.

Number and Algebra	Measurement and Geometry
<ul style="list-style-type: none"> • Multiplication facts • Skip counting • Factors and products • Division facts • Solving for the unknown • Language and common terms • Long division • Expanded notation • Division with remainders • Fractions (basic concept) • Roman Numerals 	<ul style="list-style-type: none"> • Area of a parallelogram, triangle, trapezium • Parallel and perpendicular lines • Volume • Converting (mm-cm)
	<p>Statistics and Probability</p> <ul style="list-style-type: none"> • Calculating the mean (average)

Epsilon

Math U See Level	Australian Curriculum Year Level								
	F	1	2	3	4	5	6	7	8
Epsilon			●	●	●	●	●	●	●

Epsilon is the ‘fractions’ level and focuses on the **Number and Algebra** strand in the Australian Curriculum Mathematics Learning Area mainly addressing concepts across Year 5, Year 6 and Year 7. The major focus is on the content descriptors located in *Fractions and Decimals / Real Numbers*.

Epsilon begins with ensuring students understand that fractions are equal parts of a whole, and use the Math-U-See manipulatives to transfer this understanding. Students at this level should be very familiar with the concept that the green block represents *one*, so using this understanding Epsilon introduces the overlays (breaking the one block into equal parts). The important concept of understanding the line separating the numerator and denominator symbolises division, assists students to truly understand the function of fractions. Until students are competent with division they should not be introduced to fractions (hence the importance of students mastering the Delta level prior to commencing Epsilon).

This level then continues to demonstrate how to problem solve using fractions. Rather than just simply providing rules to follow when adding, subtracting, multiplying or dividing fractions, Epsilon level provides the visual breakdown to demonstrate not only the ‘how’ to work with fractions, but also develops students understanding of the ‘why’ we work it out this way. This builds an indepth understanding of the function of fractions, which then provides students with a solid base to move into working with decimals and percentages (covered in the next level, Zeta).

Although Epsilon is mainly focused on the concept of fractions there are a few levels that further introduced students to algebra. The areas covered address the *Patterns and Algebra* content descriptors at the Year 7 level.

Epsilon also covers content in the **Measurement and Geometry** strand reviewing some areas introduced at earlier levels. However, the Year 8 concept of investigating the relationship between features of circles such as circumference, area, radius and diameter is introduced.

Number and Algebra	
<ul style="list-style-type: none"> Fractions Addition and subtraction of fractions Equivalent fractions Multiplying and dividing fractions Common factors Simplifying fractions Mixed numbers Improper fractions Addition of mixed numbers Subtracting mixed numbers 	<ul style="list-style-type: none"> Dividing and multiplying missed numbers Multiplication of three fractions Solving for an unknown (algebra) Fractions / Decimals / Percentages Multiplicative inverse / additive inverse Coefficient
	Measurement and Geometry
	<ul style="list-style-type: none"> Area and circumference Properties of a circle

Zeta

	Australian Curriculum Year Level								
Math U See Level	F	1	2	3	4	5	6	7	8
Zeta				●	●	●	●	●	●

Zeta level focuses on the **Number and Algebra** strand in the Australian Curriculum Mathematics Learning Area mainly addressing concepts across Year 6 and Year 7. The major focus is on the content descriptors located in *Fractions and Decimals / Real Numbers*.

Zeta begins with the concept of decimals and how they relate to the place value system. After the concept of tenths and hundredths is covered students are then introduced to decimals being expressed as fractions. This allows students to enhance their understanding of decimals and fractions both representing parts of a whole (building on the previous level Epsilon which focused heavily on fractions). Expanded notation is also introduced to assist with the partitioning of decimals and how they relate to fractions. Percentages are then introduced by using the Math-U-See overlays to assist students to understand that a whole can be divided into 100 equal parts. By relating percentages to fractions and then to decimals students begin to understand how the three can be applied, how they relate and the equivalents across all areas. Once understood students are then required to multiply and divide decimals and problem solve using fractions and percentages. Toward the end of this level Algebraic expressions are further explored, preparing students for the harder mathematical concepts in Years 8 -10.

Zeta level also covers content in the **Measurement and Geometry** strand across Years 6-7 relating to the content descriptor focused on *Using units of measurement* by delving further into the metric system by connecting decimal representation to the metric system and converting between units of measurement. The Year 8 concept of investigating the relationship between features of circles such as circumference, area, radius and diameter are also covered.

The **Statistics and Probability** strand is also covered by the Zeta level with a focus on data representation, probability and determining the mean, median and mode all concepts which are required to be covered in Year 6 and Year 7.

Number and Algebra	Measurement and Geometry
<ul style="list-style-type: none"> Indices Decimal place value Expanded notation Addition/subtraction of decimals Decimals and fractions Finding percentages Multiplying decimals Algebra (coefficient) Division of and by decimals 	<ul style="list-style-type: none"> Origin of the metric system Converting units of measurement Angles Area and circumference Properties of a circle
	Statistics and Probability
	<ul style="list-style-type: none"> Pie graph Mean, median and mode Probability