

Standards Correlation: Symphony Math[®] and Australian Curriculum

Australian Curriculum		Symphony Math	
Reference	Description	Stage References	Concepts
ACMNA001	Establish understanding of the language and processes of counting by naming numbers in sequences, initially to and from 20, moving from any starting point	1.1, 1.3, 1.4,	Sequencing, counting forward, counting backward
ACMNA002	Connect number names, numerals and quantities, including zero, initially up to 10 and then beyond	1.2	Match quantity with numeral, each object counted only once, last number matches 'how many'
ACMNA003	Subitise small collections of objects	1.1, 1.2, 1.3	Visual models support subitising; dot cards use iconic and consistent arrangements
ACMNMA289	Compare, order and make correspondences between collections, initially to 20, and explain reasoning	2.1, 2.2, 2.3, 2.4, 2.5, Checkpoints 2 & 5	Visual models support comparisons; Find more, less, same as, not the same as. Justification throughout program.
ACMNA004	Represent practical situations to model addition and sharing	3.1, 3.2, 3.5, 3.7, 6.1, 6.2, 6.6	Range of strategies for adding to 20 using visual displays: number line, magnitude bars, and dot-cards. Story problems reflect practical situations/look for application.

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ACMMG006	Use direct and indirect comparisons to decide which is longer, heavier or holds more, and explain reasoning in everyday language	5.1, 5.2, 5.3, Extension, Stage 5	Visual displays model more, less, longer, shorter. Justification consistently shown throughout program.
ACMNA012	Develop confidence with number sequences to and from 100 by ones from any starting point. Skip count by twos, fives and tens starting from zero	7.1-7.7 11. 1	Order and sequence of decade numbers. Find, make 10, '10-more' '10-less' than decade numbers. Combining parts of 1-digit numbers related to combining parts of 2-digit numbers up to and including 100. (2 + 5, 20 + 50) Skip count by 2's, 5s,10s.
ACMNA013	Recognise, model, read, write and order numbers to at least 100. Locate these numbers on a number line	5.2, 5.3, 7.1-7.5, 7.9	Consistent use of visual models including number lines. Greater than, less than.Count forward and backward by 10s, Comparing tens. Order numbers to 100.
ACMNA014	Count collections to 100 by partitioning numbers using place value	8.1-8.8, Extension Stage 8	Compose and decompose numbers 10-100,Visual models reinforce partitioning and place value. Decompose into tens and ones.
ACMNA015	Represent and solve simple addition and subtraction problems using a range of strategies including counting on, partitioning and rearranging parts	4.1-4.4, 8.1-8.8,	Make 10. Add 10 plus. Compose and decompose numbers 10-100. Visual models reinforce partitioning and place value. Add and subtract to find missing results and missing change. Decompose into tens and ones.
ACMNA016	Recognise and describe one-half as one of two equal parts of a whole.	14.1	Visual representation; show any whole can be divided into two, or any number of equal groups.
ACMNA018	Investigate and describe number patterns formed by skip-counting and patterns with objects	11.1, Extension Stage11	Use a pattern to count on from any number counting by 2s, 5s, 10s, 20s, 50s, and 100s.

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ACMNA026	Investigate number sequences, initially those increasing and decreasing by twos, threes, fives and tens from any starting point, then moving to other sequences	11.1	Use a pattern to count on from any number counting by 2s, 5s, 10s, 20s, 50s, and 100s.
ACMNA027	Recognise, model, represent and order numbers to at least 1000	9.1-9.8	Identify, model, represent and order numbers using ones, tens and hundreds. Understand how 3-digit numbers are organized and composed.
ACMNA028	Group, partition and rearrange collections up to 1000 in hundreds, tens and ones to facilitate more efficient counting	9.1-9.8	Understand how 3-digit numbers are comprised of ones, tens and hundreds. Use of models to represent quantities throughout program. Justifications consistent throughout program.
ACMNA029	Explore the connection between addition and subtraction	3.1-3.7 , 6.1-6.5 8.1- 8.8	Partition numbers to understand connection between addition and subtraction. Find missing element in additive problem using models.
ACMNA030	Solve simple addition and subtraction problems using a range of efficient mental and written strategies	3.1-3.7, 4.1 - 4.4, 6.1 - 6.6, MR 1, MR 2, MR 3, MR 4	Addition and subtraction to 5 and 20 using visual models. Fact fluency to 20. Commutivity, Making tens, Adding ten. Adding 10 plus.
ACMNA031	Recognise and represent multiplication as repeated addition, groups and arrays	11.1- 11.3, 13.1-13.3	Skipcount, recognize repeated equal groupings, calculate repeated equal groupings. Use of visual models pervasive throughout program. Models support group size and number in each group.

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ACMNA032	Recognise and represent division as grouping into equal sets and solve simple problems using these representations	13.4- 13.6	Divide into equal-sized groupings, identify the difference between dividing a set of objects into x equal groups and dividing the same set of objects into groups of y. Find missing dividend, divisor, and quotient. Use of visual models.
ACMNA033	Recognise and interpret common uses of halves, quarters and eighths of shapes and collections	14.1, 14.2	Divide a whole into any number of equal parts. Relate the number of parts to the size of a fraction denominator. Recognize that sets of objects can be partitioned in different ways to demonstrate fraction parts. Use of number line and bar model with halves, thirds, fourths to start.
ACMNA035	Describe patterns with numbers and identify missing elements	11.1 - 11.3	Recognize a pattern by skip counting by a number and representing on a number line. Add groups of 2s, 5s, 10s, 20s, 50s, and 100s.
ACMNA036	Solve problems by using number sentences for addition or subtraction	Stages 3, 6, 8, 10.	Add and subtract with number lines, bars and dot-cards plus symbolic notation. Make number sentences. Interpret word problems.
ACMNA052	Recognise, model, represent and order numbers to at least 10,000	9.1-9.8, 10.1 - 10.8	Recognize number magnitude, compose and decompose numbers to 1000, understand meaning of ones, tens, and hundreds, compare and order numbers. Use of number line to regroup and order numbers.
ACMNA053	Apply place value to partition, rearrange and regroup numbers to at least 10,000 to assist calculations and solve problems	10.1-10.7, 12.1- 12.5	Understand the structure of tens and hundreds, apply when regrouping to add and subtract.

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ACMNA054	Recognise and explain the connection between addition and subtraction	12.1-12.5	Understand the connectivity between addition and subtraction. Apply relationship to partition and find missing parts. ($60 + ? = 47 + 19$). Use visual models and justifications throughout.
ACMNA055	Recall addition facts for single-digit numbers and related subtraction facts to develop increasingly efficient mental strategies for computation	8.1- 8.8, 10.1- 10.7, 12.1-12.5, MR 5, MR 6, MR 7, MR 8	Regrouping with 1 and 2-digits, Fact fluency to 10s, 20s, 200s. Find missing sums and missing parts. Partitioning and using related addition and subtraction facts.
ACMNA056	Recall multiplication facts of two, three, five and ten and related division facts	15.1-15.7, MR 9, MR 10	Practice with related multiplication and division facts. Fact fluency with multiplication and division facts to 30/100.
ACMNA057	Represent and solve problems involving multiplication using efficient mental and written strategies and appropriate digital technologies	15.1-15.8	Related Multiplication and division problems. Use of commutative and distributive properties. Solve word problems. Use of visual models throughout. Check reasonableness of solution before SM checks it digitally.
ACMNA058	Model and represent unit fractions including $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{5}$ and their multiples to a complete whole	14.1- 14.3,	Partition area model to make unit fractions and multiples of unit fractions, (non-unit fraction). Use of number line to partition and locate fractions on a number line.
ACMNA072	Recognise, represent and order numbers to at least tens of thousands	21.5-21.8	Use place value to combine numbers into the thousands.

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ACMNA073	Apply place value to partition, rearrange and regroup numbers to at least tens of thousands to assist calculations and solve problems	16.1- 16.5, 21.5-21.8	Understand each place is ten times more than place to the right. See multiplicative relationship between place in base 10 system. Use place value to break apart, rearrange, and regroup numbers into the thousands. Apply place value to solve word problems. Use visual models throughout program.
ACMNA074	Investigate number sequences involving multiples of 3, 4, 6, 7, 8, and 9	15.1-15.3, 15.7-15.8	Multiply numbers to 100 using sequences of multiples. Recognize and use commutative and distributive properties.
ACMNA075	Recall multiplication facts up to 10×10 and related division facts	MR 9, MR 10	Fluency with multiplication and division facts to 30/100.
ACMNA076	Develop efficient mental and written strategies and use appropriate digital technologies for multiplication and for division where there is no remainder	13.1-13.8, 15.1-15.8, 16.1-16.5	Related Multiplication and division problems. Use of commutative and distributive properties. Solve word problems. Use of visual models throughout.
ACMNA077	Investigate equivalent fractions used in contexts	14.6, 17.1	Use visual fraction models to support equivalencies,
ACMNA078	Count by quarters halves and thirds, including with mixed numerals. Locate and represent these fractions on a number line	17.3,18.1, 20.1-20.4	Combine unit fractions to make non-unit fractions. Count and combine fractions. Use number line and area bar model to compose and decompose fractions greater than 1. Locate fractions on a number line including fractions greater than 1.

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ACMNA079	Recognise that the place value system can be extended to tenths and hundredths. Make connections between fractions and decimal notation	19.1- 19.5, 24.2, 24.3	Understand decimal-fraction equivalencies. Express fraction numbers as decimal numbers. Use of bar and number line visual models. Compose fraction numbers to tenths and hundredths. Multiply by $\frac{1}{10}$. Divide by ten.
ACMNA082	Solve word problems by using number sentences involving multiplication or division where there is no remainder	15.1- 15.7, Checkpoints Stages 13, 15	Visual models support grouping and partitioning; multiplication and division. Number sentences throughout. Represent a word problem as a number sentence. Create a story problem from given context.
ACMNA083	Find unknown quantities in number sentences involving addition and subtraction and identify equivalent number sentences involving addition and subtraction	8.1-8.3, 10.2, 10.4-10.5, 12.2-12.5, Extensions, Stages 8, 10,12	Use prior knowledge and reasoning to solve for missing parts. Demonstrate understanding of parts to whole. Solve word problems. Use partitioning to solve for unknown parts. ($33 - 5 = 20 + ?$)
ACMNA098	Identify and describe factors and multiples of whole numbers and use them to solve problems	Stages 13 & 15	Practice finding and identifying factors and multiples to 100. Interpret word problems with models and number sentences. Visual models and justification throughout program.
ACMNA100	Solve problems involving multiplication of large numbers by one- or two-digit numbers using efficient mental, written strategies and appropriate digital technologies	15.7, 15.8, 22.1, 22.3, 22.5	Understand commutative and distributive properties, area and array models, and partitioning and partial products to solve multiplication and division problems.
ACMNA101	Solve problems involving division by a one digit number, including those that result in a remainder	22.2, 22.4, Extension Stage 22	

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ACMNA291	Use efficient mental and written strategies and apply appropriate digital technologies to solve problems	Symphony Math Program	SM makes use of mental, visual, and written strategies throughout. Justifications consistent and offered digitally. Reasoning and reasonableness of answers consistent throughout.
ACMNA102	Compare and order common unit fractions and locate and represent them on a number line	14.3 - 14.6, Extension Stage 14	Identify and place unit fractions on number lines. Visual models aid comparison of unit fractions by understanding size of denominators.
ACMNA103	Investigate strategies to solve problems involving addition and subtraction of fractions with the same denominator	14. 3, 14.4, 17.1- 17.6, 18.1-18.4	Solve problems with visual models- number lines and fraction bars. Apply models to addition and subtraction by seeing jumps on a number line and area parts of fraction bar. Apply understanding to composition of non-unit fractions from unit fractions.
ACMNA104	Recognise that the place value system can be extended beyond hundredths	16.1-16.4, 19.2-19.5, 24.1-24.3, - 25.1-25.3	Introduction to decimals and understand how decimal place value works. Understanding how decimal numbers are $\frac{1}{10}$ of the number to the left. Multiplication and division by 10, 100, 1000 and $\frac{1}{10}$ and $\frac{1}{100}$ to extend the number system. Multiplication of decimal numbers. Compare decimals to thousandths.
ACMNA105	Compare, order and represent decimals	19.1- 19.6	Order and compare decimals. Locate decimals on a number line. Show fraction/decimal equivalencies.
ACMMG109	Calculate perimeter and area of rectangles using familiar metric units	Checkpoint Stage 22	Apply area model to calculate area of rectangles.

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ACMNA121	Find unknown quantities in number sentences involving multiplication and division and identify equivalent number sentences involving multiplication and division	22.1-22.5	Find missing factors, products, divisors, and dividends. Express in terms of number sentences.
ACMNA123	Select and apply efficient mental and written strategies and appropriate digital technologies to solve problems involving all four operations with whole numbers	Stages 15, 21, 22	Applying strategies already developed for solving problems involving small numbers to those involving large numbers. Applying a range of strategies to solve realistic problems including story problems. Justify answers throughout program. Addition and subtraction multiplication, and division with small and large quantities.
ACMNA125	Compare fractions with related denominators and locate and represent them on a number line	20.1- 20.4	Understand, compose and decompose non-unit fractions and fractions greater than one. Place fractions with related denominators on a number line. Show equivalencies. Use visual models throughout.
ACMNA126	Solve problems involving addition and subtraction of fractions with the same or related denominators	18.1-18.4, 20.1 - 20.4	Use jumps on a number line, or diagrams of fractions as parts of shapes (fraction bars) to solve addition and subtraction problems. Solve word problems. Develop understanding of operations with fractions and equivalencies.

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ACMNA127	Find a simple fraction of a quantity where the result is a whole number, with and without digital technologies	23.1-23.3	Use a number line and fraction bar to see equal-sized groups of a number. Use equal-sized group partitions to find a fraction of a quantity. Understand finding a fraction of a number is the same as dividing by the fraction's denominator.
ACMNA128	Add and subtract decimals, with and without digital technologies, and use estimation and rounding to check the reasonableness of answers	25.1, 25.2	Extend whole-number strategies to explore and develop meaningful strategies for addition and subtraction of decimal numbers to thousandths. Explore and practise efficient methods for solving problems requiring operations on decimals, to gain fluency with calculating with decimals and with recognising appropriate operations. Check reasonableness of answer and justify.
ACMNA129	Multiply decimals by whole numbers and perform divisions by non-zero whole numbers where the results are terminating decimals, with and without digital technologies	26.1-26.3	Consolidate prior experience when multiplying and dividing decimals by whole numbers. Visual models used to clarify action of operating on decimals. Results checked by digital technology, justifications provided.
ACMNA130	Multiply and divide decimals by powers of 10	24.1- 24.3	Visuals used to see the relationships and values when multiplying and dividing by powers of 10. Multiplicative relationship of the place value system clarified and emphasized through practice, models, and justifications.

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ACMNA131	Make connections between equivalent fractions, decimals and percentages	24.2, 24.3, 25.6,	Connect fractions with equivalent decimals. Use of visual models plus symbolic representation. Interchange fractions for decimal equivalencies and compute.