

PARENT SUPPORT KIT
**GRADE EXPECTATIONS
IN NUMERACY**
FOR YEAR 2 CHILDREN



CONTENTS

Year 2 Parent Numeracy Checklist	i
Introduction to Parent Support Kit in Numeracy	ii
Key Skills 1–15	1

Published in 2018 by Moss Vale Public School
Browley Sreet, Moss Vale, New South Wales 2577
www.mossvale-p.schools.nsw.edu.au

In conjunction with Exeter Public School
47 -59 School Lane, Exeter, New South Wales 2579
www.exeter-p.schools.nsw.edu.au

Project Coordinator Erin Griffith
Principal Consultant Susan Hilliar
Editor Erin Griffith
Designer Natalie Bowra

Teacher Contributors:
Moss Vale Public School
Terri Byron
Erin Griffith
Meredith Hines
Carol Vandenberg
Exeter Public School
Rob Griffith

Parent Contributors:
Moss Vale Public School
Jane Aylen
Tonia Krebs

© The State of New South Wales by its Department of Education, 2018.
This work may be freely reproduced and distributed for personal, educational or government purposes. Permission must be received from the Department for all other uses.

Year 2 Parent Numeracy Checklist



In Year 2, children work towards the following key skills. How confident is your child with the skills on this checklist? If you'd like help to help your child with these skills, you've come to the right place!

Your child will be learning the skills on this checklist throughout the year. There is no specific order to learning them and you can revisit them at any time.

Whole Numbers

- 1 Skip count forwards and backwards by 2s, 3s, 5s and 10s from any starting point
- 2 Read, write and order the numbers 0 to 999 (3-digit numbers)
- 3 Break apart numbers up to 999 (3-digit numbers) using place value
- 4 Recognise, count and order Australian coins and notes according to their value

Addition and Subtraction

- 5 Make connections between addition and subtraction. This is called inverse operations
- 6 Use and write a range of mental strategies for addition and subtraction of 2-digit numbers
- 7 Solve word problems involving addition and subtraction

Multiplication and Division

- 8 Use repeated addition as a strategy for multiplication
- 9 Create and use arrays described in terms of 'rows' and 'columns' as a strategy for multiplication
- 10 Create and use groups, arrays and repeated subtraction as strategies for division
- 11 Create answers using drawings, words and numerals

Fractions and Decimals

- 12 Recognise, describe and represent halves, quarters and eighths of whole objects, shapes and collections
- 13 Use fraction notation

Patterns and Algebra

- 14 Describe patterns with numbers and identify missing numbers
- 15 Find missing numbers in number sentences involving 1 operation of addition or subtraction

Introduction to parent support kit in numeracy

Maths is everywhere! This kit can help you and your child to make real-life connections to what they're learning in the classroom. When children see, hear and use maths in real life, it gives their learning purpose. Use maths whenever you see the chance! Play maths games in the car. Involve the kids when you're cooking, shopping or budgeting. Add up the footy and cricket scores together. Talk about fractions as you serve food.

This parent support kit in numeracy is designed to help parents understand what children learn in each grade. At school, teaching is adjusted for the needs of each student. Children who show they have the skills listed in this kit will be working at grade level and assessed as sound.

This parent support kit uses parent-friendly language to explain the skills that children work to achieve by the end of each grade. We hope it empowers parents to help their children, and to participate in their child's education.

We know that every family is busy! The activities here are simple and straightforward. Any numeracy work you do at home with your child will help them in their learning. Your child's education is a partnership. Let's work together ...

How to use this kit

This parent support kit:

- lists and explains the skills of children working towards a sound level
- shows ways to develop that skill with your child, including links to online resources like videos and games

Watch the videos to gain a deeper understanding of the skill. Work through the activities with your child. The suggestions here are a drop in the ocean – the internet has thousands! Use these as a starting point, and change them as you like.



Definitions are indicated by this icon throughout the kit. Lots of the definitions we use come from www.schoolatoz.nsw.edu.au.



Why is it important? Next to this icon, you'll see 2 types of explanations:

- 1 Why this particular skill is important in the real world or for what children will be learning later on
- 2 Tips to help with learning



A closer look: This icon points the way to:

- an activity to help develop the skill or concept using familiar language for your child
- examples of problems
- handy tricks to help remember skills



WEB link This icon points the way to online resources you can use at home, like games, videos and further explanations.

[Video: Helping young kids get maths](#)

[Video: Helping your child with primary school maths](#)

Use the kit whenever and however you can! Your child will be working towards these skills all year. You might like to review the kit each term, or more regularly. If you have any questions about your child's learning, always talk to their teacher. Remember – we're all in this together!

Where do I learn more?

The key skills listed in the Grade Expectations kit are taken from the NSW Standards and Education Authority's (NESA's) [Mathematics K-6 continuum of key ideas](#). You can find the complete [mathematics syllabus](#) for every grade at the [NESA website](#).

Whole Numbers: Key Skill 1

Skip count forwards and backwards by 2s, 3s, 5s, and 10s from any starting point



Skip counting is counting forwards or backwards in groups or multiples of a particular number.



Counting forwards and backwards helps children learn how numbers work in relation to each other. Learning to skip count helps children learn strategies for addition and subtraction. It builds number confidence and strong multiplication skills. Skip counting helps children to move from counting by 1s, to using number facts to count e.g. starting at 7 to count on by 3s.

Children find skip counting forwards easier than skip counting backwards. Counting over 10s and 100s can sometimes be tricky too, especially backwards!

Practice this skill often but for a short amount of time for maximum impact.



Count by 2s, 3s, 5s and 10s using a 100s number chart to help. Colour in the numbers as you skip count and see if you can find a pattern. ([Here's a 100s chart you can print.](#))

We skip count often in daily life when we have to count a lot of items. Work together to count using skip counting to find the total! Use objects to count by 2s, 3s, 5s and 10s.

Make your own abacus out of beads and use it to skip count numbers (move 2 or 5) across every time.

Play a game where you start on any number and take turns to say the next number while skip counting (forwards or backwards). See how high you can go!



WEB LINKS go to:

[Video: Identifying one more and one less](#)

[Video: Number patterns](#)

[Video: Counting by 10s](#)

[Game: Number bubble skip counting](#)

[Game: Ordering numbers](#)

[Game: Interactive hundreds chart](#)

Whole Numbers: Key Skill 2

Read, write and order the numbers 0 to 999 (3-digit numbers)



A **digit** is a symbol used to write a numeral. The digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 are used to write all the numbers in our number system. A 3-digit number is any 3 numbers together e.g. 258 or 761.



Being able to read and write numbers is an important skill for future learning and everyday life.

Check that the teen numbers are read and said clearly e.g. **seventeen** not **seventy**! Children often write the teen numbers back to front e.g. 41 instead of 14 for fourteen. Sometimes when 18 and 81 are written next to each other, children think they are the same number.

Remember to include 0s when working with bigger numbers like 304 and 340.

Our number system is based on multiples of 10 (a base 10 system). We teach children to recognise the value, or place value, of numbers using this system. A place value chart can help children understand place value (see below).

number	hundreds	tens	ones
386	3	8	6
502	5	0	2



Play a game where 1 person says a 3-digit number and the other has to write it on a whiteboard or piece of paper. Take turns and make mistakes so that your child has to really check your answers.

See who can get the most right in a row!

Make 3-digit numbers using playing cards/Uno cards/dominoes. Have a race to see who can make the number the fastest.

Play 'I'm thinking of a number'. Choose a number, give the guesser 10 guesses, answers can only be higher or lower. See if you can find the number with only 10 (or more if needed) guesses! It helps to repeat the field as it narrows e.g. 'We now know that it is higher than 350, but lower than 400.'

Play the highest to lowest number card game ([see Video: Highest and lowest card game](#)).

Play Celebrity head with numbers.



WEB LINKS go to:

[Video: Understanding place value](#)

[Video: 4 digit number game](#)

[Video: Highest and lowest card game](#)

[Video: Whack it place value game](#)

[Game: Place value charts](#)

[Game: Coconut ordering](#)

[Game: Hidden place value party](#)

Whole Numbers: Key Skill 3

Break apart numbers up to 999 (3-digit numbers) using place value



A **digit** is a symbol used to write a numeral. The digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 are used to write all the numbers in our number system. A 3-digit number is any 3 numbers together e.g. 456 or 999.

Place value shows the amount a digit is worth due to its position in a number – ones, tens, hundreds, thousands etc. e.g. 56 is 5 tens and 6 ones.



Understanding place value helps children understand the meaning and value of a number. This helps to play with numbers and makes maths easier, especially addition and subtraction.

Remember to include 0s when working with place value!

Check that the teen numbers are read and said clearly e.g. **seventeen** not **seventy**! Children often write the teen numbers back to front e.g. 41 instead of 14 for fourteen. Sometimes when 18 and 81 are written next to each other, children think they are the same number.



Make place value cups to practice 3-digit numbers ([see Video: Place value cups](#))

Play a game where your child becomes the 'numbers expert'! They can teach you how to write 3-digit numbers.

Have a race to see who can find and read five 3-digit numbers when you are out and about.

Work together to learn to read numbers in another language. Other languages name numbers in a logical pattern focused on place value. They can be easy to learn and help children to understand the place value of 3-digit numbers in English.

Japanese numbers

1 – ichi	6 – roku
2 – ni	7 – shichi or nana
3 – san	8 – hachi
4 – shi or yon	9 – kyu
5 – go	10 – jyu

100 – hyaku

11 (1 x 10 and 1) = jyu ichi (10, 1)

54 (5 x 10 and 4) = go jyu yon (5, 10, 4)

173 (1 x 100, 7 x 10 and 3) = hyaku nana jyu san (100, 7, 10, 3)



WEB LINKS go to:

[Video: Place value](#)

[Video: Place value cups](#)

[Video: Count in Japanese for kids \(short\)](#)

[Video: How to count in Japanese \(long\)](#)

Whole Numbers: Key Skill 4

Recognise, count and order Australian coins and notes according to their value



The **value** of coins tells you how much each coin is worth.



Knowing and understanding the value of coins and notes is an essential skill for everyday life.

Many children do not see physical money or money exchanges (we use eftpos machines!). Playing with and using money helps children to learn about money, as well as the types and value of coins and notes.

Many children think that the biggest coin is the most valuable. Sometimes they think the amount of coins is more important than the type of coins. So they think 20 x 5c pieces is more money than 3 x \$2 coins.



Help your child pay money and collect change at the shops (supervised of course!).

Play Monopoly Junior!

Look at money using a magnifying glass or a microscope and see all the secret things you can find!

If you have currency from different countries, compare them to Australian money. Talk about what's the same and different about them.

Start a piggy bank at home and when it is full, open it and work together to order the coins saved in groups of their value.

Design your own money together and talk about what information is needed as well as what colours and sizes should be used.



WEB LINKS go to:

[Notes: Australian bank notes](#)

[Video: Funny money](#)

[Video: All about Australian money](#)

Addition and Subtraction: Key Skill 5

Make connections between addition and subtraction.

This is called inverse operations



Addition is the process of combining collections of objects into a larger collection. It is the opposite of subtraction. Add, addition, plus and sum mean the same thing.

Subtraction is taking 1 number or amount away from another. It is the opposite of addition. Decrease, minus, subtract, subtraction and take away mean the same thing.

Inverse operations are functions that are the opposite of each other. This is a way of checking if answers are correct.

Addition and subtraction are inverse operations. Multiplication and division are inverse operations.



Knowing that addition and subtraction are opposites helps to make learning subtraction easier.

Children begin to learn about addition and subtraction by moving objects and using pictures. Finding everyday events to give your child experiences using addition and subtraction will help develop this skill. Children learn to count from a larger number when adding.

Children can sometimes get stuck if they forget to physically move objects when working out their answer. Look for every object being counted once and given a number as your child adds or subtracts. Check that they know the last number they count is the answer.



Play with a calculator to explore this idea that subtraction and addition are opposites. Use a simple number sentence that your child is confident to solve like $5 + 3 = 8$.

Work together to act out an addition problem and then a subtraction problem to show that they are doing the opposite. Addition making bigger and subtraction making smaller.

Create a problem with a missing number. Use the inverse operation to solve it!

e.g. $4 + \blacktriangle = 11$ or $15 - \blacktriangle = 9$

Draw pictures of addition and subtraction problems using the same numbers.



WEB LINKS go to:

[Video: Inverse operations](#)

[Video: Relating addition and subtraction](#)

[Game: Addition](#)

[Game: Subtraction](#)

[Game: Number fact families](#)

Addition and Subtraction: Key Skill 6

Use and write a range of mental strategies for addition and subtraction of 2-digit numbers



Children use **mental strategies** to figure out the maths problem in their head, without writing anything down.

Addition is the process of combining collections of objects into a larger collection. It is the opposite of subtraction. Add, addition, plus and sum mean the same thing.

Subtraction is taking 1 number or amount away from another. It is the opposite of addition. Decrease, minus, subtract, subtraction and take away mean the same thing.

A **digit** is a symbol used to write a numeral. The digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 are used to write all the numbers in our number system. A 2-digit number is any 2 numbers together e.g. 25 or 76.



Children begin to move away from hands on materials and work on adding and subtracting mentally (in their head). They need strong number skills to be able to mentally break apart, shuffle and play with numbers in their head to answer questions.

Work from a number line or a 100s chart to build mental calculation skills. Children find choosing which order to add the numbers in the most challenging. ([Here's a 100s chart you can print.](#))

Practice this skill often but for a short amount of time for maximum impact.



Play a game of Hookey (ring toss game like darts) and add up your scores as you play. The winner is the first to reach 50 for addition or the first to reach 0 from 50 for subtraction.

Play hold and flip ([see Game: Addition game – hold and flip below](#))

Play any board game where scoring is needed.



WEB LINKS go to:

[Notes: Mental strategies for addition](#)

[Notes: Mental maths strategies](#)

[Video: Year 2 subtraction](#)

[Video: Subtraction with the jump strategy](#)

[Video: Addition card game](#)

[Video: Bonds to 20 dice game](#)

[Video: Jump strategy](#)

[Video: Split strategy](#)

[Game: Building number pairs](#)

[Game: Wishball](#)

[Game: Addition game – hold and flip](#)

Addition and Subtraction: Key Skill 7

Solve word problems involving addition and subtraction



Addition is the process of combining collections of objects into a larger collection. It is the opposite of subtraction. Add, addition, plus and sum mean the same thing.

Subtraction is taking 1 number or amount away from another. It is the opposite of addition. Decrease, minus, subtract, subtraction and take away mean the same thing.

For **word problems**, children need to read a story about a problem (often a real life problem!) and then figure out what operations are needed to reach the answer.



To solve a word problem, children must choose and apply a strategy, make an estimate, find the solution and check the answer. Children often find it difficult to understand what they need to do to solve a word problem. Ask them to read the question carefully, decide what the most important information is and figure out what operation they need to solve the question.

Check for children pulling the numbers out of the question and adding them. This means that they may be guessing what to do. Use CUBES or Newman's Analysis to read the problem when this happens. Remembering that addition and subtraction are inverse operations will also help to answer these questions (Key Skill 5).



Try the strategy **CUBES** when working with word problems:

- C** Circle the numbers
- U** Underline the question
- B** Box the keywords
- E** Eliminate information not needed
- S** Solve by showing your working out

Newman's Analysis is another strategy to help with word problems.

- 1 **Read** the question to me.
- 2 Tell me **what** the question is asking you **to do**.
- 3 Tell me **how** you are going to find the answer.
- 4 **Show** me what to do to get the answer.
- 5 Now, **write** down your answer.

Make up stories about climbing up and down a long ladder or a set of stairs to learn this skill e.g. George climbed 20 stairs to the school gate, then Josh his best friend called him from 10 stairs below. George climbed back down to see Josh, how many stairs did he climb to Josh? Then Josh and George climbed 5 stairs to the bubblers. How many stairs are they from the bottom? How many stairs are they from the school gate?



WEB LINKS go to:

[Notes: addition and subtraction word problems](#)

[Video: Word problems with 100](#)

[Video: Word problems with more and fewer](#)

[Video: Superhero word problem with working out](#)

[Video: Newman's analysis in the classroom](#)

[Games: Maths playground](#)

Multiplication and Division: Key Skill 8

Use repeated addition as a strategy for multiplication



Repeated addition is adding the same number again and again in order to find the answer to a multiplication problem.

Multiplication is a process of repeatedly adding the same number a given amount of times. Multiply, product of, times and lots of all mean the same thing.



Giving children a number of strategies to solve multiplication gives them lots of ways to solve multiplication questions. They still need to learn their times tables but this helps them to see how multiplication works.



Using sticky dots, textas, M&Ms, playdough or Lego to make groups and getting children to write the repeated addition facts to match.

Use paddle pop sticks to create groups and add them together to multiply and find your answer.

Try a 100s chart and colour in the numbers as you add on top of them to find the answer to your question. Can you find any patterns? ([Here's a 100s chart you can print.](#))



WEB LINKS go to:

[Notes: Repeated addition](#)

[Video: Repeated addition](#)

[Video: Repeated addition working out](#)

[Video: Multiples of 5](#)

[Game: Repeated addition and multiplication game](#)

Multiplication and Division: Key Skill 9

Create and use arrays described in terms of 'rows' and 'columns' as a strategy for multiplication



An **array** is a rectangular diagram divided into rows and columns.

Multiplication is a process of repeatedly adding the same number a given amount of times. Multiply, product of, times and lots of all mean the same thing.



Learning to create and use arrays is an important step towards children understanding multiplication and division. Arrays help children to learn how to skip count to multiply or divide. It also helps with fact families!

Arrays create a picture to help children understand multiplication and they can use this to learn their times tables faster. It also prepares children to learn how to find the area of a rectangle in later years.

Children often begin by counting each object in the array and then learn to skip count the rows to find the answer. It is helpful to show that you can count from the rows or the columns of the rectangle e.g. in 4×2 you can count 4 rows twice ($4 + 4$) or 2 columns four times ($2 + 2 + 2 + 2$).



Arrays are a grid like pattern. Explore around you and find arrays! It could be a bookshelf, the kitchen drawers or the plates laid at the dinner table. Work out what these arrays are (their rows and columns) and their answer if they were multiplied.

A fun way to show arrays is to bake some muffins or cookies and multiply the rows and columns to work out how many you will make.

Make arrays with items around the house. Challenge yourselves to see who can make the arrays in the fastest time!



WEB LINKS go to:

[Notes: Arrays](#)

[Notes: Examples of arrays in a classroom](#)

[Video: Explaining arrays](#)

[Video: Arrays for multiplication](#)

[Game: The array](#)

Multiplication and Division: Key Skill 10

Create and use groups, arrays and repeated subtraction as strategies for division



An **array** is a rectangular diagram divided into rows and columns.

Repeated subtraction is subtracting the same number again and again in order to find the answer to a division problem.

Division is to share into equal groups or parts. Divide, split, quotient, distribute, share equally and separate all mean the same thing.



There are 2 types of sharing problems. Children work with the total to give each group a specific number of items. The first type is the easiest. Here's the difference:

- Share 10 pencils into 5 groups. How many pencils are in each group?
- Share 10 pencils so that each child gets 2 each. How many children get 2 pencils?

Repeated subtraction is a way to explain the idea of division. It is also a skill that can be used to divide on paper or in one's head.

Arrays help by creating a picture for children to understand division. Children often begin by counting each object in the array and then learn to skip count the rows to find the answer. It is helpful to show that you can count from the rows or the columns of the rectangle e.g. in a rectangle that is 3 x 2, you can have 2 rows of 3 ($6 \div 2 = 3$) or 3 columns of 2 ($6 \div 3 = 2$).



At mealtimes, have your child divide dishes or snacks equally among family members. You may want to set up dolls, toys, or other props to act as additional members.

Use a muffin tray and marbles (or anything small) to divide equally into arrays.

Use a number line to jump backwards with repeated subtraction ([see Video: Number line to divide](#)).



WEB LINKS go to:

[Notes: Arrays explained](#)

[Video: Repeated subtraction to introduce division](#)

[Video: Repeated subtraction](#)

[Video: Repeated subtraction teacher demonstration](#)

[Video: Number line to divide](#)

[Game: Division](#)

[Game: Repeated subtraction](#)

Multiplication and Division: Key Skill 11

Create answers using drawings, words and numerals



Children learn all kinds of multiplication and division strategies so that they can visualise and understand the meaning of multiplication and division. Working with drawings is the easiest with words and numerals being harder.



Children are encouraged to:

- 1 **Read** the problem many times.
- 2 **Draw** a picture that shows the information given. During this step children ask themselves:
 - Can I draw something from this information?
 - What can I draw?
 - What is the best way to show the information?
- 3 **Write** your answer based on the drawings. This can be a number sentence or a statement.



WEB LINKS go to:

[Video: Using pictures to divide](#)

[Video: Division using arrays](#)

[Video: Dividing using pictures](#)

[Video: Multiplying using pictures](#)

Fractions and Decimals: Key Skill 12

Recognise, describe and represent halves, quarters and eighths of whole objects, shapes and collections



A fraction is part of a whole that has been broken into equal parts. It has a:

- **numerator** (the top number)
- **fraction bar** (the line in the middle)
- **denominator** (the bottom number)

A **numerator** is the number above the line in a fraction which shows how many parts are being considered.

A **denominator** is the number below the line in a fraction. It shows the number of parts a whole has been divided into.

The line in between the numerator and the denominator is called the **fraction bar**. Division bar and vinculum mean the same thing.

It will help your child to use these words when talking about fractions.



Fractions are often the first introduction to numbers smaller than 1 or a whole. Remembering that a fraction is a whole broken into **equal parts** is extremely important. If the parts are not equal, it is not a fraction. The whole could be an object, a group of objects or a number.

When making fractions, look for fraction pieces that are **equal**. Children sometimes break a whole into unequal parts e.g. drawing 4 parallel lines down a circle for quarters. Pictures are hugely helpful when making fractions.

When reading fractions, look for a double count, counting the number of parts shaded and then the total number of parts to make the fraction.

A common mistake is thinking the larger denominator creates a larger fraction. It is the opposite for early fraction work. The smaller the denominator, the larger the fraction.



When parents are preparing meals demonstrate fractions with food. Cut a cake into quarters, a sausage roll in half and many more!

Lego blocks can be used to make fraction walls – where the bottom is 1, the next row is 2 halves etc.

Read “The Great Divide” by Dayle Ann Dodds or “Give Me Half” by Stuart J Murphy.



WEB LINKS go to:

[Video: Explaining fractions](#)

[Video: Showing real life examples of fractions](#)

[Video: The great divide book reading](#)

[Video: Give me half story reading](#)

Fractions and Decimals: Key Skill 13

Use fraction notation



Fraction notation is a number written $\frac{a}{b}$ where a and b are numbers and b is never 0.

- **numerator** (the top number)
- **fraction bar** (the line in the middle)
- **denominator** (the bottom number)

A **numerator** is the number above the line in a fraction which shows how many parts are being considered.

A **denominator** is the number below the line in a fraction. It shows the number of parts a whole has been divided into.

The line in between the numerator and the denominator is called the **fraction bar**. Division bar and vinculum mean the same thing.

It will help your child to use these words when talking about fractions.



Fractions are often the first introduction to numbers smaller than 1 or a whole. Remembering that a fraction is a whole broken into **equal parts** is extremely important. If the parts are not equal, it is not a fraction. Collections are the whole just like 1 is the whole for fractions smaller than 1.

When making fractions, look for fraction pieces that are **equal**. Children sometimes break a whole into unequal parts e.g. drawing 4 parallel lines down a circle for quarters. Pictures are hugely helpful when making fractions.

When reading fractions, look for a double count, counting the number of parts shaded and then the total number of parts to make the fraction.

A common mistake is thinking the larger denominator creates a larger fraction. It is the opposite for early fraction work. The smaller the denominator, the larger the fraction.



Work together to cook a recipe that uses cups, e.g. $\frac{1}{2}$ cup of flour. ([Here are some kid friendly recipes.](#))

Write out your favourite recipe using fraction notation for measurements. Share the recipe with family, friends or your class.



WEB LINKS go to:

[Video: Explaining fractions](#)

[Video: Fractions song](#)

[Video: Fractions](#)

[Video: Sharing using fractions](#)

[Video: How to write fractions](#)

[Game: Pizza fractions](#)

[Game: Fraction flags](#)

Patterns and Algebra: Key Skill 14

Describe patterns with numbers and identify missing numbers



A **pattern** is made up of a number of elements that repeat.

A **number pattern** is made up of numbers that repeat following a rule e.g. 2, 4, 6, 8 the number pattern is increasing by 2.



Finding number patterns help children to see the relationships between numbers e.g. I can calculate $6 + 5$ because I know that $5 + 5$ is 10 and so $6 + 5$ is 1 more.

Describing patterns is the easier of these skills, with identifying missing numbers being harder.



Work together to create patterns by arranging coloured blocks, crayons, different sized objects, or stringing beads and more. Ask open-ended questions. Here are some questions to ask:

Do you see a pattern? Tell me about it.

What comes next? Could you make a pattern with these different materials?

How could we make pictures that would help us remember this pattern?

Can you show me a pattern with your body? What would you do first? Second?

What happens over and over again with these blocks?

How would you read this pattern?

What would happen to the pattern if I changed _____?



WEB LINKS go to:

[Video: Missing numbers](#)

[Video: Missing numbers examples](#)

[Game: Chinese dragon sequencing](#)

Patterns and Algebra: Key Skill 15

Find missing numbers in number sentences involving 1 operation of addition or subtraction



A **number sentence** is an equation. It uses numbers and symbols to describe a maths problem.

A **fact family** is a group of related facts in addition and subtraction, and multiplication and division. It helps children understand the relationship between operations.

$$4 + \blacktriangle = 10$$

$$\blacktriangle + 4 = 10$$

$$10 - 4 = \blacktriangle$$

$$10 - \blacktriangle = 4$$



These skills will be used by the children for the rest of their maths careers! To find missing numbers, we use lots of strategies.

- We focus on the idea of equivalence and the role of the equals (=) sign. Remembering that the equals sign means 'the same on both sides'.
- We know that addition and subtraction are inverse operations (Key Skill 5)
- We use a fact family

The key is to be able to explain **how** they got their answer (show working out).



Here are some examples of number sentences with missing numbers.

$$4 + \blacktriangle = 9$$

$$10 - \blacktriangle = 2$$

$$5 = 2 + \blacktriangle$$

$$12 = 15 - \blacktriangle$$

Use objects or draw pictures to create number sentences and fill in the missing parts.

Create a balance beam with a coat hanger, string and cups and use this to solve questions.



WEB LINKS go to:

[Notes: Make a balance scale](#)

[Video: Missing numbers](#)

[Game: Number pyramid](#)