Spring Farm Public School

Parent Support Kit

Numeracy Expectations

For Stage One Children

CONTENTS

Stage One

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.

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 this parent support 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.

Stage One

Icon Key

Definitions are indicated by this icon throughout the kit. Lots of the definitions we use come from School A to Z

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
- 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.

Notes: Learning maths: connecting school and home
Video: Helping your child with primary school maths
Notes: Talk Moves: supporting mathematical discussions with your child

Stage One

Stage One Parent Checklist

In Stage One, children work towards the following key skills. How confident is your child with the skills on this checklist? If you would like to help your child with these skills, you have 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. While our school teaches students in stage classes, these checklists provide parents with a guide to support your child depending on which grade they are in within the stage.

Year 1

Whole Numbers

○ 1. Count forwards and backwards by 1s from any number higher than 10

○ 2. Identify the place value of digits in numbers

○ 3. Read and write the numbers 0 to 99 (2-digit numbers)

○ 4. Compare and order a group of numbers from 0 to 99 (2-digit numbers) from smallest to largest and vice versa

○ 5. Read and use numbers to describe their place in an order to 31st (e.g. 1st, 2nd, 3rd etc.)

○ 6. Recognise, describe and order Australian coins according to their value

Addition and Subtraction

○ 7. Demonstrate addition and subtraction using pictures and objects

○ 8. Recognise and remember number combinations that add up to 20

○ 9. Demonstrate that numbers can be added in any order, e.g. 3 + 4 = 7 and 4 + 3 = 7

○ 10. Write maths questions using drawings, words, numbers and the symbols +, – and = (e.g. 1 + 1 = 2, five minus three equals 2)

Year 2

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

○ 11. Mentally add and subtract 1-digit and 2-digit numbers. Explain how they worked out their answer in their head

○ 12. Use the equals sign, and know that the total of the numbers on both sides must have the same value

Multiplication and Division

○ 13. Skip count out loud by 2s, 5s and 10s starting at 0

○ 14. Make and use equal groups as a strategy to multiply

○ 15. Make and use equal groups as a strategy to divide

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

○ 16. Show what half an object is. Know that a half is 2 equal parts of a whole

○ 17. Use the symbol ½ to describe a half

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

○ 18. Show and explain odd and even numbers

○ 19. Work with number patterns with increasing or decreasing numbers to identify, continue and explain patterns

○ 20. Work with patterns of objects or symbols to identify, continue and explain patterns

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

Stage One

Whole Numbers: Key Skill 1
Count forwards and backwards by 1s from any number higher than 10

Counting forwards and backwards helps children learn how numbers work in relation to each other. Children will find counting forwards easier than counting backwards. Counting over 10s and 100s can sometimes be tricky for children.

Count forwards and backwards together taking turns to say the next number.

Play a guessing game. Say, 'I'm thinking of a number. Here's a clue: it's the number after 5.' Or, 'I'm thinking of a number. Here's a clue: it's the number before 9.'

Draw a noughts and crosses grid and place a number in the middle. See if you can figure which numbers would go above, below, and either side of the number in the middle. The answers are (in clockwise direction from the top) 10 less than, 1 more than, 10 more than, 1 less than. Use a 120s chart to help you. (Here's a 120 chart you can print.)

WEB LINKS go to:

Video: Counting
Video: Count to 120 and Exercise
Video: Identifying one more or less Game: Number before and after
Game: Number trains

Stage One

Whole Numbers: Key Skill 2
Identify the place value of digits in 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 2-digit number is any 2 numbers together e.g. 25 or 76.

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, which helps with maths strategies they learn later like trading in addition and subtraction. Remember to include 0s when working with place value!

Check that the teen numbers are read and said clearly e.g. seven*teen* not seven*ty*! 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 see them as the same number.

Use a deck of playing cards (take out the face cards). Ask your child to pull 2 cards out, and ask them to read the number as a whole number, and then as tens and ones, e.g. 93 is 9 tens and 3 ones.

Play a game where your child becomes the 'numbers expert'. They can teach you how to write 2-digit numbers.

Play a game with playing or Uno cards. Draw 2 cards each and see who can make the largest number. They are the winner! How many times in a row can you win?

WEB LINKS go to:

Notes: Helping children make sense of numbers: Number sense
Video: Making 2-digit numbers
Game: Pop penguin and the place value race
Game: Number partner

Stage One

Whole Numbers: Key Skill 3
Read and write the numbers 0 to 99 (2-digit numbers)

Year 1

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.

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. seven*teen* not seven*ty*! 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 see them as the same number.

Look around! 2-digit numbers are everywhere! Point out 2-digit numbers, help your child read them, and talk about what they mean.

Read the daily temperature where you live and write it on the calendar.

Play bingo or snakes and ladders.

WEB LINKS go to:

Notes: Early maths: How children learn about numbers
Game: Place value party
Game: Untamed number names

Stage One

Whole Numbers: Key Skill 4
Compare and order a group of numbers from 0 to 99 (2-digit numbers) from smallest to largest and vice versa

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.

Ordering numbers helps children learn about number relationships. These are important skills for their future learning, and for everyday life.

Check when teen numbers are included in your group. Sometimes when 18 and 81, or 14 and 41 are written next to each other, children see them as the same number.

Randomly choose a group of numbers between 1 and 100, and help your child to order them from smallest to largest. Once they're confident, time them with adding more numbers to sort. Work on largest to smallest too and turn it into a race!

Use a 100s chart and blank out some numbers. Work together to find what numbers go in the spaces.

(Here's a 100s chart you can print.)

WEB LINKS go to:

Video: Identifying highest and lowest numbers
Video: Making 2-digit numbers
Game: Pop penguin and the place value race
Video: Ordering numbers to 100

Stage One

Whole Numbers: Key Skill 5
Read and use numbers to describe their place in an order to 31st (e.g. 1st, 2nd, 3rd)

Year 1

Numbers used to describe a place in an order are called ordinal numbers. They tell the position of something in a sequence e.g. 1st, 2nd, 3rd, 15th, 100th.

We use ordinal numbers in everyday life to order and compare people, events and things.

Children learn this skill by finding first and last before moving on to places in the middle like 4th or 5th and finally, third hour of the day or 2nd last in the line. It is helpful to remember that ordinal numbers depend on the starting point e.g. 3rd last car from the left.

Find your position in the line at the supermarket. Are you third from the register? Last in the line?

Look at a sports competition ladder like the NRL ladder, and talk about the position of each team in the competition. Who is coming first? Who is coming last?

Rank things in order of size, e.g. Australian states, pencils, stuffed toys etc.
Find things to compare and order e.g. heights, times, sizes and find the first, last and a place in between.

Play any games where turn taking and places are a part of the game like backyard races, Jenga, Monopoly Junior, Collect 4, Hungry hippo and many more!

WEB LINKS go to:

Video: Ordinal numbers
Video: Ordinal numbers game
Video: Students learning ordinal numbers
Video: Ordinal numbers race

Stage One

Whole Numbers: *Key Skill 6*
Recognise, describe and order Australian coins according to their value

Year 1

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

Knowing and understanding the value of coins 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.

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 20 x 5c pieces is more money than 3 x $2 coins.

Open up a play shop or restaurant and practise using money. Help your child to group like coins together when buying or giving change at the restaurant or shop.

Play Monopoly Junior!

Go through your coins to show different types of coins. Talk about how they are similar and how they are different.

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

Make coin rubbings by rubbing a pencil over a piece of paper with a coin underneath.

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.

WEB LINKS go to:

Video: Australian coins
Video: Australian notes and coins

Stage One

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Addition and Subtraction: Key Skill 7
Demonstrate addition and subtraction using pictures and objects

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.

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.

When you're at the shops, ask your child to count the number of items in the basket. Ask questions like, 'How many will there be when we add 2 more items to the basket? How many will there be if we put back 1 item? After we put 5 items on the counter, how many will be left?'

Play skittles! Write down the number of pins you start with, and take away the number you knock down. At the end, add your scores.

Give your child a group of objects and ask them to answer a maths question that you give them.

$7 + 4 = s$ $13 - 5 = s$ $s = 6 + 2$ $20 - 7 = s$

WEB LINKS go to:

Notes: Helping your child with arithmetic
Video: Adding
Video: Subtraction in action
Games: Addition and subtraction games

Stage One

Addition and Subtraction: Key Skill 8
Recognise and remember number combinations that add up to 20

Year 1

Number combinations are a pair of numbers that add up to 20 e.g. 19 and 1, 18 and 2, 17 and 3, 16 and 4 etc. They are also called number bonds and friends of 20.

Knowing number combinations makes adding and subtracting in their head easier. Through number combinations, children can start to see the relationships between numbers. For example, 11 + 10 = 21 because 10 and 10 are friends of 20, and 11 is one more.

Your child might use the words 'friends of 20', e.g. 9 and 11 are 'friends' of 20, because 9 + 11 = 20 and 11 + 9 = 20.

Make a rainbow artwork and write the friends of 20 underneath. 10 + 10 are on the smallest arc and 19 + 1 on the largest arc. Each arc joins to make 20!

Create number bonds to 20 building lego towers. 19 white and 1 red = 20, 18 yellow and 2 green = 20 and so on.

WEB LINKS go to:

Video: Combinations to 20 game
Game: Number bonds make 20
Game: Subtraction to 20

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Addition and Subtraction: Key Skill 9

Demonstrate that numbers can be added in any order. This is the commutative law e.g. 3 + 4 = 7 and 4 + 3 = 7

Year 1

The commutative law shows that numbers can be added in any order or multiplied in any order and the answer will be the same. Commutativity and turn-around facts all mean the same thing.

This is a maths skill needed for mental maths strategies (working out answers in your head). Children can spin the numbers around to answer questions faster and easier! Remember that this works only for addition and multiplication - not subtraction or division.

20 + 5 = 5 + 20   20 − 5 ≠ 5 − 20

This is very handy when teaching children to start with the bigger number first and then add the smaller number. For example, with 3 + 16 it is easier start from 16 and count on 3 (16 + 3) than start from 3 and count on 16 (3 + 16).

Play a dice game! Roll 2 dice, put them next to each other, and add up the results. Switch the order, and add up the results again. Explain that, even though they're in a different order, the result is the same.

Play with dominoes and take turns to add up the 2 numbers on each domino. Swap the order you add them to check the answer is always the same!

Investigate the commutative law for yourselves! Make some tricky questions and see if you can stump the law. Some examples to help you on your way:
5 + 6 +3 =   = 3 + 2 + 8   =3 +6 +1   2 +6 +7 +3 =

WEB LINKS go to:

Notes: Turn-around facts
Video: Commutative law of addition explained

Stage One

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Addition and Subtraction: Key Skill 10

Write maths questions using drawings, words, numbers and the symbols +, – and = (e.g. 1 + 1 = 2, five minus three equals 2)

Year 1

Being able to read and write maths symbols, words and drawings helps children to create their own maths questions and understand how to use each in the right way.

Act out a story or a problem and then draw the question and answer in pictures.

Play Mr Squiggle and turn maths symbols, words, numbers into drawings to help your child become familiar with the symbols.

Play a game where you use a combination of symbols, pictures, numbers and words all together to make maths questions. Fold a piece of paper in 5 strips and take turns adding the next part of the question hiding the part before it. Play around with all the options and at the end reveal your question and answer the question together.

WEB LINKS go to:

Video: Making equations
Video: Mr Squiggle

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Addition and Subtraction: Key Skill 11

Mentally add and subtract 1-digit and 2-digit numbers. Explain how they worked out their answer in their head

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

Mental calculation is an important everyday skill – we use it at the shops, when we're playing sport and we're in the car to figure out when we'll get there. When children can add and subtract in their head, it builds their confidence and lays the groundwork for skills they'll need later.

Start with questions that don't use trading and work to harder questions where trading is needed. We often use a 100s chart to help children work towards mental addition and subtraction (here's a 100s chart you can print). Sometimes children need a reminder to start with the largest number. It is important that they can explain *how* they came to their answer.

Make up some sums for your child to solve (use the place value chart to start with). Ask, 'How did you figure that out? Can you show me how you got that answer? What if I change the number to?'

Pretend that you don't know how to answer the question and get it wrong on purpose. Have your child become the expert and teach you how to solve the problem!

Play a game of subtraction bowling! Write down the number of pins you start with, and take away the number you knock down. At the end, add your scores.

Play a subtraction game with dice. Start with a 50 or 100, roll the dice, and subtract the result. The first person to 0 wins! Try doing the same with addition starting at 0 and aiming for 50 or 100.

WEB LINKS go to:

Notes: How to help your child with mental calculation
Video: Mental subtraction strategies
Video: Subtraction strategies
Game: Gobbling goblins

Stage One

Addition and Subtraction: Key Skill 12
Use the equals sign, and know that the total of the numbers on both sides must have the same value

The equals sign is a symbol used to show that 2 or more amounts have the same value e.g. 5 + 3 = 9 – 1.

The equals sign is like a balance beam! The numbers on either side must always be equal. It doesn't just mean 'write the answer here'. The equals sign's job is easily and quickly forgotten and children need reminding of this often! Talk to your child about sums and the equals sign. Use words like value, same, different and even balance beam.

Use different coloured pegs to create different combinations that add up to the same number. 4 green + 2 blue = 3 green + 3 blue. See how many different combinations you can make to create the same total! Don't forget to write questions of the other side of the equals sign! 7 = 3 + 4 and is the same as 3 + 4 = 7 but not often seen like this.

= 2 + 7   = 8 – 4   = 7 – 5   = 3 + 11

Create your own scales with a coat hanger, 2 cups and string. Put an equals sign in the middle then make and test your own questions using pegs, marbles or even food!

Try some questions where the 2 sides don't add up to the same number. Put 2 boxes either side of the equals sign with objects in each 1 so your child can count and move items to help them find then fix the problem.

5 + 2 = 3 + 5   10 – 2 = 3 + 3   10 + 2 = 12 + 4

WEB LINKS go to:

Video: What is the question?
Video: Using the equals sign
Game: Balance the cups

Stage One

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Multiplication and Division: Key Skill 13
Skip count out loud by 2s, 5s and 10s starting at 0

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

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.

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

Play a game! Take turns skip counting by 2s, 5s or 10s. Here are some examples:

'Let's count by 5s starting from 0 and see how high we can go.'
'Let's start at 0 and count up by 10s. I'll go first then you go after me. 0, 10 ...'

Colour in all the 2s, 5s or 10s in a 120 chart and talk about the patterns you have made. (Here's a 120 chart you can print.)

Make cards showing multiples of 2, 5 or 10 to help with skip counting. Use playing cards, scrap paper, paddle pop sticks or anything to race. See who can order them forwards or backwards the fastest.

Play pick up sticks but in order! You could use paddle pop sticks to make this game easier for little fingers. Skip count out loud and deliberately miss a number. Work together to find what the number should be.

WEB LINKS go to:

Video: How to teach kids to skip count
Game: Skip counting game

Stage One

Multiplication and Division: Key Skill 14
Make and use equal groups as a strategy to multiply

Year 1

Equal groups means to have the same amount in each group.

Putting objects together in equal groups helps children to understand early multiplication and division. Encourage your child to physically move objects to create equal groups.

Make groups with objects your child can move around themselves, like pencils, pebbles, fruit etc. Count each group to check they are equal.

Here are some examples of problems you can solve together.

- I need 2 groups of 5. Let's make 2 groups with 5 in each group. Now let's add them together.
- 'Look at this! There are 6 grapes in that group, and 6 in this group. How many grapes are there altogether? That means 2 groups of 6 is 12.'

WEB LINKS go to:

Video: Multiplying for Year 1
Video: Multiplying with objects
Video: Equal groups

Stage One

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Multiplication and Division: Key Skill 15
Make and use equal groups as a strategy to divide

Year 1

Division is often talked about as 'sharing'. We share out the items in a big group to make smaller groups.

Putting objects together in *equal groups* helps children to understand early multiplication and division. Encourage your child to physically move objects to create equal groups.

There are 2 types of sharing problems. Children work with the total to give each group a specific number of items. Here's the difference:
1. Share 10 pencils into 5 groups. How many pencils are in each group? Share 12 objects into 3 groups. How many objects are in each group? The key element is that the child has to work out that there are 3 groups of 4.
2. Share 10 pencils so that each child gets 2 each. How many children get a pencil? Share 12 objects so that there are 3 in each group. How many groups are there? The key element is that the child has to work out that there are 4 groups.

Start with a bigger group of objects, and share them out equally. Eg. 'We have 10 apples and 2 children. How many apples will we give each child?'

Try a number line to divide! We skip count backwards on the line and then see how many skips we made to get to 0. The number of skips (or hops) is our answer! For 12 ÷ 3 we draw a number line, then start at 12. We jump backwards by 3s to 9, 6, 3 and then 0. We jumped 4 times so the answer is 4. 12 ÷ 3 = 4

Make physical groups and share out real objects. Help divide and share out baked treats, fruit pieces or even dinner so that they are all equal.

WEB LINKS go to:

Notes: Using groups
Notes: Empty number lines
Video: Division strategies
Video: Division in action
Video: Division into groups
Video: Division example

Fractions and Decimals: Key Skill 16
Show what half an object is. Know that a half is 2 equal parts of a whole

A half is 1 of 2 equal parts of a whole.

This is the beginning of learning about fractions. Encourage your child to discover that a fraction is a part of a whole. The whole could be an object, a group of objects or a number.

Show that to create a half, a whole is split into 2 *equal* parts.

Use food! Slice in half a pizza, cake, banana etc. Explain that both sides are equal, so the item has been halved.

Read the story "Give Me Half" by Stuart J. Murphy with your child.

WEB LINKS go to:

Video: Halving numbers
Video: Halves in the real world
Video: "Give Me Half" book reading

Stage One

Fractions and Decimals: Key Skill 17

Use the symbol ½ to describe a half

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 you have.

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.

Remember that fractions represent equal parts of a whole. If the parts are not equal, it is not a fraction.

Look around! Point out where you see the ½ symbol – shopping catalogues, recipes, the newspaper etc.

Talk about what the symbol means in each situation.

WEB LINKS go to:

Notes: Fractions
Video: Who's got the biggest half
Video: Parts of a fraction

Stage One

Patterns and Algebra: *Key Skill 18*
Show and explain odd and even numbers

Even numbers are whole numbers ending in 0, 2, 4, 6, or 8.

Odd numbers are whole numbers ending in 1, 3, 5, 7 and 9.

Even and odd numbers help children with their skip counting, doubling and halving. Later, they'll help with division and prime numbers.

When you talk about numbers, ask your child whether they are odd or even. Talk about how many letters are in the names of people in your family, house numbers of people you know, the number of cousins your child has etc. Odd or even? Make a table of the results.

Create an artwork with flowers. Make flowers with odd and even petals. Write which one they are in the middle of the flower.

Play a game of Uno and call out if the card played is odd or even as you play.

Read the story "Even Steven and Odd Todd" by Kathryn Cristaldi or "Missing Mittens" by Stuart J. Murphy with your child. Talk about whether the items in the story are even or odd. .

WEB LINKS go to:

Video: "Even Steven and Odd Todd" book reading
Video: "Missing Mittens" book reading
Video: Odd and even numbers
Game: Odd and even

Patterns and Algebra: Key Skill 19

Work with number patterns with increasing or decreasing numbers to identify, continue and explain patterns

Year
1

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. For example, I can calculate 6 + 5 because I know that 5 + 5 is 10 and so 6 + 5 is 1 more. Identifying patterns is the easiest of these skills, with continuing and then explaining patterns being harder.

Use a 100s chart to colour in a number pattern. For example, +5 every time or colour all the numbers that end in 6. Look at the pattern that is being made. Describe your pattern. Can you make another pattern? What other patterns do you see? (Here's a 120 chart you can print.)

Start with a number on a calculator and add or subtract the same numbers. For example, start with 34 then minus 2. Then minus 2 again, and again. See what happens to the number. Guess what the next number will be before you type it into the calculator.

WEB LINKS go to:

Video: Identifying missed numbers in patterns
Game: Interactive 120 chart

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Patterns and Algebra: Key Skill 20
Work with patterns of objects or symbols to identify, continue and explain patterns

Year
1

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

Sorting and classifying objects and numbers is a child's first look at patterns. Looking for similarities and differences between objects such as size, colour and shape is the beginning of finding patterns. Patterns can be like puzzles and encourage logical thinking which is important for maths. Identifying patterns is the easiest of these skills, with continuing and then explaining patterns being harder.

Help your child to make a repeating pattern as an artwork.

Ask your child what comes next in a pattern. Here are some examples:

- 'Tree, house, dog, tree, house, ... what comes next?'
- 'Train, bus, car, plane, train, bus, car ... how am I making this pattern?'

Play games involving body actions such as clapping or jumping. Ask your child to repeat the pattern, continue the pattern or make up a new one!

Arrange some random materials and ask your child to explain if it's a pattern. Ask questions like 'Why is it a pattern?'
'What can we add or take away to make a pattern?' 'How can we keep the pattern going?' 'Describe the pattern to me'

Discuss the numbers on houses in the street and ask your child to describe what's happening as you walk along.

WEB LINKS go to:

Video: Patterns
Game: Making patterns

Stage One

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 120 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

Stage One

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. seven*teen* not seven*ty*! 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.'

WEB LINKS go to:

Video: Understanding place value   *Game: Coconut ordering*
Video: Highest and lowest card game   *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. seven*teen* not seven*ty*! 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.

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

Year 2

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

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Stage One

Addition and Subtraction: Key Skill 5
Make connections between addition and subtraction. This is called inverse operations.

Year 2

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 + s = 11 or 15 − s = 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: Number fact family

Stage One

Addition and Subtraction: Key Skill 6
Use and write a range of mental strategies for addition and subtraction of 2-digit numbers

Year 2

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: Addition and subtraction mental strategies	*Video: Bonds (combinations) to 20*
Video: Subtraction	*Video: Jump strategy*
Video: Subtraction using the jump strategy	*Video: Split strategy*
Video: Addition card game	*Game: Building number pairs*
Video: Addition game: hold and flip	*Game: Wishball*

Stage One

Addition and Subtraction: Key Skill 7
Solve word problems involving addition and subtraction

<div style="float:right">

Year
2

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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).

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?

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
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.

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

Stage One

Multiplication and Division: Key Skill 8
Use repeated addition as a strategy for multiplication

Year
2

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 120 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

Stage One

Multiplication and Division: Key Skill 9
Create and use arrays described in terms of 'rows' and 'columns' as a strategy for multiplication

Year 2

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 x 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:

Video: Explaining arrays
Video: Arrays for multiplication
Game: The array

Stage One

Multiplication and Division: Key Skill 10
Create and use groups, arrays and repeated subtraction as strategies for division

Year 2

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.

WEB LINKS go to:

Video: Repeated subtraction to introduce division   *Game: Division*
Video: Repeated subtraction   *Game: Repeated subtraction*
Video: Repeated subtraction teacher demonstration

Multiplication and Division: Key Skill 11
Create answers using drawings, words and numerals

Year 2

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:

Read the problem many times.

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?

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

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Stage One

Fractions and Decimals: Key Skill 12
Recognise, describe and represent halves, quarters and eighths of whole objects, shapes and collections

Year 2

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 you have.
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

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Stage One

Fractions and Decimals: Key Skill 13
Use fraction notation

Fraction notation is a number written 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 you have.
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. ½ 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: How to write fractions*
Video: Sharing using fractions   *Game: Pizza fractions*
Video: Fractions   *Game: Fraction flags*

Stage One

39

Patterns and Algebra: Key Skill 14
Describe patterns with numbers and identify missing numbers

Year 2

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

Stage One

Patterns and Algebra: Key Skill 15
Find missing numbers in number sentences involving 1 operation of addition or subtraction

Year 2

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.

$4 + s = 10$
$s + 4 = 10$
$10 - 4 = s$
$10 - s = 4$

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.
$4 + s = 9$ $10 - s = 2$ $5 = 2 + s$ $12 = 15 - s$

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

Stage One