Ideas on how parents can assist children with mathematics at home

Check out this Website: https://nzmaths.co.nz/families

Remember to practise on Mathletics: nz.mathletics.com

Ideas for Parents to Assist Children with Mathematics at Home

The Numeracy Project aims to raise the level of student achievement in mathematics. It is based on research about how children learn and is designed to teach children to think mathematically. There is an emphasis on children developing a sense of number that they can apply rather than learning by rules.

You can support your child's learning in mathematics by:
- ✓ being positive and enthusiastic about mathematics yourself.
- ✓ discussing mathematical experiences with your family.
- ✓ recognising the stage of development your child is at (see below) e.g.: if your child needs to use fingers to work something out, accept this way.
- ✓ not feeling you have to know everything. Be a learner too. Get your child to show you how. They will love having you ask and will learn from explaining.

The beginning stages of development that children and adults move through are listed below. There are many real-life experiences that you can have with your child at all of these stages. It is important that your child is confident at the stage they're at before they move on. Your child's teacher will be able to discuss which strategy stage your child is working at.

Emergent
☞ They are learning to rote count.

One-to-one counting
☞ They can count up to ten objects.

Counting from One on Materials

- ☞ They can add and subtract using their fingers or objects (up to ten).
- ☞ When they add 4 + 3 they will start counting from one.
- ☞ Children can count numbers from 0 – 20 (backwards and forwards).

Counting from One by using Images

- ☞ They can see objects in their mind rather than using real objects.
- ☞ When they add 4 + 3 they will still start counting from one.
- ☞ Children can count numbers from 0 – 20 (backwards and forwards).

Counting On (Advanced Counting)

- ☞ When adding 4 +3 they will count on from four (4, 5, 6, 7).
- ☞ Children can work with numbers from 0 – 100.
- ☞ At this stage children may use materials or may image and in some cases might "just know it".
- ☞ Chrildren use skip-counting as an early means of multiplying e.g. 5 x 2 as 2, 4, 6, 8, 10

Early Additive (part-whole)

- ☞ They can separate numbers into useful units to solve addition and subtraction, e.g. 7 + 8 can be done as 7 + 7 + 1 (doubles) or 9 + 7 is the same as 10 + 6 (tidy tens).
- ☞ Children can work with numbers from 0 – 1000.
- ☞ They will recognise and begin to use symbols for common fractions e.g. $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, $\frac{1}{10}$

Advanced Additive (part-whole)

- ☞ They can separate numbers into useful units in a variety of ways to solve of addition and subtraction, and are beginning to solve multiplication and division problems.
- ☞ Children can work with numbers from 0 – 1 000 000.
- ☞ This stage could also be called Early Multiplicative.

Advanced Multiplicative (part-whole)

- ☞ They can choose from a range of strategies to solve problems involving multiplication and division, including problems with fractions
- ☞ Students can work with decimal numbers to three places e.g. 6.23, 6.3.
- ☞ They are able to make use of more complicated strategies where one or more of the numbers may need to be broken up, manipulated then recombined.

Advanced Proportional (part-whole)

- ☞ They can make use of a variety of complex strategies to solve problems involving fractions, proportions, and ratios.
- ☞ Students are able to find relationships between quantities of two different measures e.g. You can make 21 glasses of lemonade using 28 lemons. How many glasses can you make using 8 lemons?

Here are some activities you can use to help your child at each of the stages. Some of these may be familiar to you already, others may spark something new for you to try.

Emergent

- ☞ Singing counting/nursery rhymes.
- ☞ Using picture books for example "The hungry caterpillar"
- ☞ Play "Snap" with playing cards.
- ☞ Counting backwards and forwards to 10.

One-to-one counting

☞ Counting in everyday contexts e.g. getting the right number of pegs for the washing, setting the table (five people for tea – how many knives / forks etc.)
☞ Playing "Dominoes".

Counting from One on Materials

☞ Use contexts to practice maths equations
  o 5 apples in the fruit bowl and we're going to eat 2 – how many are left? Have the materials available to look at.
  o How many legs on 2 chairs?
  o Four of us are having pizza for tea. How will we cut it fairly?
☞ Playing card games such as "Fish".
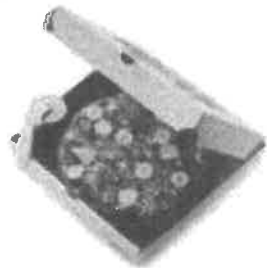
Counting from One by using Images

☞ Use contexts to practice maths equations
  o There are three people in our family, we have two people coming for tea – How many more chairs will we need? (No materials in front of the child – they need to picture what it will look like.)
☞ Playing card games such as "Memories".

Counting On (Advanced Counting)

☞ Use contexts to practice maths equations especially with money
  o I've got 50 cents, I get 20 more cents – how much have I got? (**50**, 60, 70)
  o I've got $27, my sister has $32 – How much more has she got? (**27**, 28, 29, 30, 31, 32 or **32**, 31, 30, 29, 28, 27)
  o I have 21 lollies that I will share between three of us – how many do we get each? (may need materials)
☞ Playing board games such as "Monopoly", "Snakes and Ladders"
☞ Using calendars.
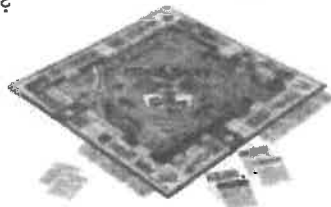
Early Additive (part-whole)

☞ Using dates and calendars e.g. I was born in 1987 – How old am I now?
☞ Car licence plates can be useful for numeracy games while travelling

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  o "Licence Cricket" – take turns to use the last number on car number plates to score – you're out when you get a '0'.
  o Add the numbers on a plate, look for patterns e.g. add tidy tens together first
  o Read the numbers aloud – 3 and 4 digit number practice e.g. 7263
  o Add the first two digits to the second two digits e.g. 72 + 63

Advanced Additive (part-whole)

☞ Using dates and calendars, look for patterns e.g. numbers in a square or diagonal numbers
☞ Use contexts to practice maths equations
  o Buying packs e.g. cans of soft drink – 6 packs of 4 cans – how many altogether? What is the total volume?
  o If a packet of 10 cakes were $2.50 – how much would each cake cost?
  o 8 pies shared among 3 people – how much would each person get?
☞ Reading family phone numbers as a number rather than as digits e.g. 3126533 – three million, one hundred and twenty-six thousand, five hundred and thirty-three.

Advanced Multiplicative (part-whole)

☞ Encourage students to use more than one strategy to check their answers.
☞ Use contexts to practice maths equations
  o Use decimals and fractions – everyone gets $^2/_5$ of the pizza, how many pizzas to feed 6 people?

o   In the supermarket – look for the most economical size/brand

Advanced Proportional (part-whole)

☞ Continue to use contexts to practice maths equations

- o   Make use of percentages – 20% discount on an item? How much will we save? What will the final price be?
- o   Use ratio/proportion – At our hangi we need six carrots for every five people, how many will we need for 15 people?

☞ Again encourage students to try other strategies to check their answers.

Basic Facts

Children should be able to make sense of addition and multiplication before they try to memorise their tables. When they do understand it is important that they learn these basic facts and recall them instantly. Each of the basic facts families are linked to the stages mentioned previously.

Ask your child's teacher when or how they feel it is appropriate for you to support your child in learning these facts. These will include the traditional basic facts as well as others such as facts to ten, doubles and 'teen' numbers.
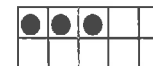
Learning Basic Facts

To practice your child can:

- ✓   Draw the fact.
- ✓   Record the results in their own way.
- ✓   Record the fact as an equation.
- ✓   Write it out 5 times.
- ✓   Image it. Talk to someone else about their imaging.
- ✓   Show the fact with materials e.g. milk bottle tops or counters.
- ✓   Use the Hundreds Board to find what comes just before and just after it when they skip count.

- ✓   Discuss the related family of facts and record using tens frames to help them.
- ✓   Write a number story about it.
- ✓   Practise the fact in their mind at a spare moment.

Incidental maths in everyday family life

As adults, we use math all the time — as we shop, figure out how much time to allot for tasks, and schedule time for cooking, eating, and cleaning. Often, our children are with us during these tasks. Perhaps they are even helping out. Why not involve them in the maths?

The everyday math activities can be built into the things most families already do – ordinary routines such as figuring out ways to save money, to share fairly, or to get somewhere on time. With these activities, children practice adding, subtracting, multiplying, dividing, and using other important math skills while doing tasks that are a regular part of life.

What about bookwork?

Most children will have untidy sections in their maths books especially where they have been thinking through problems. They should also have tidy sections where they will have written out important ideas or results.

Children are involved in classroom discussion and hands-on activities. Therefore there may be less formal written work in their books than in previous years. Ask them about their work and ideas.

Calculators

Children should do most calculations in their heads. They should only use pencil and paper or a calculator when the numbers are hard. There is also a place for children to explore numbers and number patterns using a calculator.