

Maths at home:

Cooking: counting

- Count the amounts of each ingredient being used in recipes.
- Count the numbers of items being made.
 - Ask your child to read the number off the recipe and then count the cups or spoons required.
 - Count the cutlery when you are setting the table.

Cooking: measuring

There are many different types of measurement included in cooking, including cups, teaspoons, tablespoons, millilitres, litres, grams, kilograms.

Discuss how important it is to be exact when measuring. Why do your measurements need to be more accurate when you are baking than when you are making a stirfry?

Cooking: figuring

Cooking provides plenty of opportunities to do some “figuring out” for children.

1. **Increasing and decreasing:** If you need to double a recipe, (or increase it by 3x, or 1 ½ x or 10x) you can ask your child to figure out how much of each thing is needed now. You can do the same if you need to halve a recipe or only mix up half of a packet of something.

Fractions: Explore what 1/2 and 1/4 and 1/3 mean within the context of cooking. This may mean learning to choose the right measuring spoon or cup, or estimating with a bigger spoon or cup. It can also involve taking a block of butter and cutting it into pieces to get the right fraction (like 1/2 cup = 125 g or the 500 g cut into quarters).

How much, How many? If you are making food for a large group or for a bake sale ask your child to help you figure out how much of each of the ingredients you will need or how much it will cost altogether and how much each thing should sell for in order to make money. When shopping for ingredients, take your child with you and ask them to compare prices and help decide the most cost efficient way to make the large batch. Many shops record the cost per unit on the shelf sticker for example \$1.75 per 100 g which helps people make comparisons about price.

Maths at home: going places

It is easy to turn “going somewhere” into a maths experience by being on the lookout for numbers, shapes and patterns.

These types of activities help to raise the awareness of mathematics in the environment and encourage your children to notice and figure out things. It can be practice of things they know or a challenge. A notebook in the car or in your bag can be a place where you ask them to write things down you notice as you are “going places.”

- Driving in the car
- Bus or train trips
- Walking to school or the shops

Junior going places activities

- **Number:** Find a number and use it as a “Launchpad” for counting backwards or forwards or in jumps of two or ten.
- **Patterns:** One day walk on the even number side of the street and the next on the odd number side. Notice which numbers are on the two sides.
- **Time:** Count the seconds while waiting for the light to change, notice anywhere there is a clock along the way.
- **Money:** Notice all the signs that have euro on them: for example, petrol stations, supermarkets, and garage forecourts..
- **Shapes:** Choose a shape and find objects in that shape along the way. You can choose two dimensional-shapes (circles, squares, rectangles, triangles etc) or three-dimensional objects (boxes, balls, cones, pyramids).

Statistics: Choose one colour of car to count on the way. On the way home or the next time choose a different one. Keep going for several trips. What colour seems to be the most common? The least common?

Middle going places activities

- **Number:** Spot a number and use it as a “Launchpad” for naming things that make it: Example “There’s a 12 on a letterbox, that’s 3×4 , 2×6 , $10 + 2$, $100 - 88$, half of 24 etc”.
- **Patterns:** Look how fences are put together. How many palings for each post? How many short ones to how many long ones? Have people planted flowers or trees in patterns by colour or height or number. In tall buildings how are the windows arranged? Is there a pattern?
- **Time:** Look for clocks and schedules. Ask children to read the time, if it’s a digital clock ask what it would look like on traditional clock, where would the hands be to make that time? If waiting for a bus ask children to read the schedule and tell you what time the next bus comes, what time does the last one come, is there a pattern for the bus times?
- **Money:** If prices are advertised in windows of shops or on signs play a game that helps with the two and ten times tables. Ask the children to double a price ($2x$) or $10x$ a price.
- **Shapes:** Children at this age can be asked to try and spot hexagons, different kinds of triangles, right angles or parallel lines in buildings as you pass by.
- **Statistics:** Notice the activities of people on the train or bus: how many are using mobile phones, or reading, or using computers or just sitting? Notice who is on the bus or train: how many children, teenagers, elderly and others. Why are there more people of certain ages on at certain times of day?

Senior going places activities

- **Number:** Spot a number and use it as a “Launchpad” for naming things that “make it”, for example: “There’s an 84, that’s 2×42 , 4×21 , 10×8.4 , 5×16.8 , half of 168 etc.”

Patterns: Look how fences are put together. How many palings for each post? How many short ones to how many long ones? Have people planted flowers or trees in patterns by colour or height or number. In tall buildings how are the windows arranged? Is there a pattern? Look for and discuss patterns in tiles and paving stones.

- **Time and Statistics:** Time how long it takes to walk to school each day and talk about why there are differences, or time alternative routes to a place (one way going and one way coming home) and discuss any differences.
- **Money:** If you pass a petrol station watch the prices change over the course of a few weeks and ask the children to tell you if it is increasing or decreasing and by how much?
- **Shapes:** Spot the angles in the environment and discuss them: a full turn is 360degrees, a right angle is 90 degrees, an acute angle is less than 90 degrees, an obtuse angle is more than 90 degrees, a straight line is 180 degrees.

Maths at home: shopping

A trip to the supermarket is a perfect opportunity to do some maths together no matter what the age your children.

There is the opportunity to:

- compare prices and talk about “more than” and “less than”
- to add, subtract, divide and multiply
- and talk about the shapes and sizes of items as well.

Comparison shopping and budgeting is a way to support the development of financial literacy and reading labels is a way for children to use their knowledge of percentages and weights within the context of reading charts and tables.

Making good decisions based on understanding maths in a real life context is what numeracy is about.

Junior shopping activities

For young children who are learning to count and learning to recognise and name numbers the super market is a great place to practice.

Can you get us 5 oranges?

We need 2 cans of beans.

How many juice boxes are in that packet?

What number is this aisle?

Can you find a five on this packet?

Money: Even before children learn about decimals they learn that the left side of the point means dollars and the right side means cents. Draw their attention to prices.

This small packet of biscuits is two dollars fifty. But this big one is three dollars. Which one should we get?

Measurement: The fruit and vegetable section usually has weighing scales and some allow you to print your own price labels as well. This is an opportunity to explore kilograms and grams.

Which one weighed more: the bunch of bananas or the 5 oranges?

How much does a watermelon weigh?

Look at the potatoes. Lift up this bag, its 10kg. This one is 5 kg. You weigh the same as 3 bags of potatoes!

Shape: Grocery packaging uses many different shapes and practicing this vocabulary will help your child learn to describe shape.

Lots of things come in cans. What is this shape called?

A cylinder has round sides and flat ends. What kinds of things get put in cylinders?

Lots of things come in boxes. How many sides does a cereal box have?

Another name for a box is a cuboid.

What kind of fruits are spheres?

Solving Problems:

If we get 5 apples and 5 oranges and 5 bananas, how many pieces of fruit will we have altogether?

Can you count in 5s for me?

Will that be enough for the week for everyone in our family?

Middle shopping activities

For children in the middle primary years, the ability to apply their new mental strategies for solving problems is very important. The practice in using maths in everyday contexts will help them become mathematical thinkers as they start to look for opportunities to figure things out for real reasons but also just for fun.

Money: While solving money problems requires a child to work with decimals and this may be too difficult, one money problem that is easily done at this level is comparison shopping. The ability to compare two amounts and use place value knowledge to know that you compare the euro first and then the cents is an important skill. Another skill is estimation, so you can round a price to the nearest euro and ask them to figure out how much for several items. This helps with times table practice.

Which package is more expensive: €2.45 and €2.75? How do you know?

We need a kilo of cheese. Which cheese block is the best deal this week?

Well if we can get 3 cans for €4, how much will 9 cans be?

This cereal is €4.50, that's 4 and half euro. How much will 2 of them be?

Measurement: Comparison of weights and volume provides practice and helps a child begin to build up the experience that will help with estimation.

So if these potatoes are 5 kg, how much do you think this watermelon is?

This box of cereal looks bigger than this one. Do they weigh the same or different? What's the difference?

How many litres are in the big orange juice bottle? Is that cheaper than buying 1 litre boxes?

Solving Problems:

How many eggs are in 3 dozen? How do you figure that out?

How much yogurt do you actually get in a 6 pack? How much is in the big container?

If you unrolled the whole roll of cling wrap about how far would it stretch?

If we spend €180 for a week's groceries, about how much per day do we spend on food?

Look at the receipt; what part of our food bill is the most expensive?

Senior shopping activities

Children in the senior years may be able to take some responsibility for making decisions about what goes in the trolley and participate in budgeting and preparing lunches and meals. They will be able to use calculators to solve complex calculations and will be learning to read charts like food labels to make decisions. Practice at estimation and rounding is important because much of our “shopping maths” as adults is actually estimating rather than doing exact calculations.

Money: Children at this age will be able to make calculations involving decimal amounts and will understand that cents are the fractions of a dollar. It is a valuable skill to be able to use the information on the shelf tickets to compare prices based on units. For example, the shelf labels for toilet tissue will compare the cost per sheet or the labels for pasta sauce will give the price per 100ml so you can compare different brands.

Is it cheaper for us to buy the taco kit all in the box together or the parts separately?

How much will it cost to make lasagne?

If we buy this expensive roast what sort of vegetables should we buy so we don't go over budget?

Measurement: Getting practice multiplying and dividing is important for this age group and this includes working with fractions. So asking a child to estimate and then check on a calculator can be a way to fit in some of this practice.

The 1.5 l bottles of coke come in boxes of 12. How many litres are in a box?

Each packet has 345g, how much does 10 packets weigh? 25 packets?

Solving problems:

We spent €185 for 4 people for 7 days. About how much is that per person per day?

About how much does it cost to make lunches for 4 people for 5 days?

Which type of noodles is the healthiest option? Look at the fat and sodium on the label.

Compare the fruit roll ups, biscuits, and muesli bars. Which has more sugar?

Maths at home: recycling

There is a bundle of maths stuff that gets sent to the footpath each week – it's all in the recycling bin! The recycling bin is a great place to things to help your child learn about geometry and to find things that you can reuse as maths gear before the junk makes its final trip to the big truck.

Sorting

A really important skill in geometry is being able to sort and classify things according to their characteristics. The great thing is that is exactly what we have to do when we sort the recycling. Ask your child to help you sort and talk about why these things (the plastics) and are different from these things (the paper or the glass or the metal). As you are sorting talk other ways you can sort, by shape or size, or colour. You can carry these sorting ideas over to playing with toys together and sorting plastic animals (zoo or farm, bird or mammal) or small cars or action figures.

Let's see how many glass things we have. You sort them out first and then we'll count. How come this isn't glass? I can see through it?

Naming

The development of a strong geometry vocabulary will support a child when they are explaining their thinking and asking questions. You can help them to acquire these new words by talking about shape and size and space. When sorting the recycling ask them to describe the shapes of objects to you. Encourage them to use words general descriptions like round, flat, box, ball, pointed, smooth. Also teach them and encourage them to use the more specific geometry words for shapes and solids like cube, sphere, circle, triangle, pyramid, prism, cuboid, edge.

You call a box a cuboid. That's a funny word but it's a geometry word. How many cuboids are in the cardboard recycling? Yeah, the toothpaste box is a long cuboid and the Weetabix box is more square. Is the egg box a cuboid?

Keeping

Some things that you may be tempted to throw out can be useful.

- Newspapers: There is a whole section on the Maths at Our House site dedicated to using the newspaper to support your child's learning. So you might want to put the paper in the maths kete and use the numbers before it goes in the recycling bin.
- Boxes: One of the things children learn to do at school is to make nets or plans for boxes. It is fun to take apart boxes of different shapes carefully so that the flaps are all still there but the box is now a flat shape. Help your child to make the box again inside out following the fold lines and taping flaps and edges. Then they can decorate the box. This practice of working with nets will be a big help when they get to doing this at school.

Maths at home: reading together

Reading with our children is an important support for their literacy learning but it can also be a wonderful opportunity to support their mathematics learning at the same time. You can choose books to read aloud that have stories about counting and shape and time. You can listen for the chances to explore maths in the books your children read to you. A trip to the library is a chance to borrow books that will provide your children with engaging stories and activities. Ask the librarian to help you find some stories with a maths focus or some counting books that will be appropriate for the age of your children.

Any time we share a book with children we can draw their attention to the page numbers and the sequence.

We've read page 14. What comes next?

How many pages does this chapter have?

Are we half way through the story? How do you know?

If you read a quarter of this chapter book each night, how many pages will you read each night?

Counting Books

There are thousands of books devoted to teaching children about the numbers 1-10 and the numbers beyond. Some of these have wonderful illustrations and provide engaging counting practice. Sometimes these books have a story to follow like "Ten in the Bed" and other times they are simply a series of pages with things to count. Praise for accurate counting and asking children to anticipate the next number are both important things to do when sharing the book.

- *Great counting! This is four. What number do you think comes next?*

- *We read this starting at 1 and went to ten. Let's read it backwards this time. Where will we start? Let's practice counting backwards.*
- *Let's make our own counting book. (Use stickers or cut out pictures from magazines and make a book with the numbers your child is learning about or ones they are interested in.)*

Books with Mazes, Maps, and Puzzles

Another type of book that can support a child's maths learning are books with mazes, maps and puzzles. These help with developing understanding about space and shape and direction. The library usually has these books in a special section and they may also have maths puzzle books. You can encourage your child to work through a puzzle or a maze by sitting with them and offering praise and suggestions.

- *This looks tricky. Where will we start?*
- *If that is NORTH which direction are we headed in now?*
- *That was clever. What should we do if we get stuck?*

Books about Shapes, Patterns, and Space

Many picture books have illustrations that highlight shape and pattern in wonderful ways. While reading a story look for opportunities to explore the illustrations and use shape words or find patterns.

- *What do you notice about these pictures? Do you see a pattern? What do you think they will do next?*
- *Can you find some triangles in this picture?*
- *Which things are UNDER the bridge? Do you think they will go AROUND the mountain or OVER the mountain?*

Reading and understanding instructions are important literacy and maths skills. Books about origami or paper plane folding have detailed instructions and provide the opportunity for you to work together with your child while talking about shapes and making things.

- *It says to fold it in HALF first. How will we do that?*
- *Look. When we fold this way it makes a square. How many sides does a square have?*
- *How many faces will this dodecahedron have?*

Maths at home: maps

Being able to read maps is an important skill for everyone and we can support our children in developing this skill.

- You can get free maps at tourist information centres, libraries, and places where there are large numbers of pamphlets on display.
- If you go somewhere like a museum or a zoo or park there are often maps given out. Save these for later and ask your child to remember the trip by going over the map together.

Ask questions that make your child look closely at the map.

- *What does this show us?*
- *What is the title?*
- *How does this map work?*
- *Find the key that tells what the symbols mean.*
- *Find each of the symbols on the map.*
- *What can you tell me about this place?*
- *Watch as my finger goes around the map.*

- *Tell me about where I am traveling.*

Hide and Seek: Playing with Maps

Tell your child you are looking at a spot on a map. Challenge them to ask you 10 questions and see if they can find your spot.

- *Are you near water/ocean/lake?*
- *Are you on a road/river/island?*
- *Are you in this half?*
- *Are you at A1/F5 (name coordinates)?*
- *Are you north/south of here?*

You could also play this game on a globe.

Computers: Games and Google

Many online games for children operate in a map environment where it looks like you are above looking down on the setting. Also many games require children to move around through imaginary worlds or fly over places. These experiences build up knowledge about how real places and imaginary places can be represented.

[Google Maps](#) will give you a map of anywhere in the world. You can zoom in to see individual cities, streets or even addresses. You can also see a satellite picture or a 'street view' of the location.

Drawing maps: Real and imaginary places

After exploring and reading maps use scrap paper and draw maps of real places like your house/bedroom/garden/neighbourhood.

Encourage your child to draw imaginary places like treasure islands or underwater cities from the perspective of looking down on the place from up high.

Take your child to the top of high places and look down and ask them to imagine it as a map.

Maths at home: Calendars

Calendars are an inexpensive resource that can support your child's learning of several key ideas related to time. Calendars are a way of learning the names of the months, days of the week and learning about the structure of a week, a month and a year. The learning about time takes lots of practice and the more experiences a child has the more likely these concepts will be strengthened.

Calendars go on sale very quickly after the New Year and you can also get them at discount shops or can make them on the computer.

The family calendar

1. **Family Days:** Sit with your child and record on a calendar or give them a list of the family days that are celebrated every year and ask them to record. This could be birthdays, holidays, and anniversaries. Each date can be found and the person's name written on the calendar square or a sticker added to the box. Ask your child to look at the name of the month, what came before what comes next, and the day of the week that the date occurs on.

The Family Calendar can be hung up at a child's eye height so they can check it regularly and be given responsibility for turning over the new page when the first of the month happens. Ask your child to practice with you by naming the order of days and months.

2. **Special Dates:** When the school or team newsletters come home ask your child to record the dates you need to remember on the calendar, like when netball starts, when school camp happens, when the disco is, or when the term ends or begins.

The calendar as a timeline

1. A year-long stretch: Many children don't get the idea of the year as a big time line. You can buy a calendar from a discount store, cut it up and put all the months up on the bedroom wall in order from January to December as a long strip. It is important to see the WHOLE year as one long strip. This helps to develop the idea of a year being a set of 12 months and there being about 4 weeks in each month.



As they cross off the days, weeks or months, ask them to think about the fractions related to the year:

When will it be half over?

Are we a quarter of the way through the year?

About when will we be 2/3 of the way through?

When do the seasons change?

What are the summer months?

2. New month: As a new month begins ask your child to look at what is coming up and talk about any planning that needs to be done, like remembering to make cards or cakes. Use this as a time to go over which months have gone by and which are coming up. Stress the order of the names and how much of the year is left. If your child is interested you can find out about the phases of the moon and many calendars indicate the dates for new and full moons. Then watch for these events in the sky at night. This helps to develop the concept of time being related to natural things such as the revolution of the planet (day and night) and the orbits of the moon and the Earth.

This week: Use a small whiteboard and divide it into 7 boxes. Each Sunday night ask your child to help with filling in the things that are coming up this week and to put the reminders in the right boxes: hockey practice, Nan's birthday, raffle tickets, church choir practice etc.

This is also an opportunity to include and record the time for certain events such as "Rugby 10 AM" "Pick up Nan at Doctor's 2:30". Questions like: Is that the afternoon or the morning? Help to develop a sense of clock time.

Maths at home: newspapers

Newspapers are filled with numbers and provide lots of opportunities for raising awareness (seeing the maths around us) and for solving problems.

There are many free newspapers available including community weeklies and the auto and property magazines at shops and garages.

Some of the sections that it's easy to get children interested in are:

- Sports pages
- Advertisements for toys and electronics
- Schedules for TV and movies
- Weather maps
- Car and motorbike prices
- House prices (for reading big numbers)

Junior scavenger hunt

1. More than/less than (Number)

Turn to a sports page with scores and ask:

- Can we spot any numbers bigger than 5/10/100? Let's circle them with a pen.
- Can you find any numbers less than 5/10/100? Use a different colour and circle those.

Spot the shape (Geometry)

- Let's find rectangles/triangles/circles in the paper.
- What kind of things are rectangles (TVs, boxes)
- What kind of things are circles? (clocks, watches, balls)

Spot the weather (Statistics and Measurement)

- Where will it be a sunny/rainy/cloudy day tomorrow?
- Where do we live?
- What will the weather be like?
- What will the temperature be? Is that warm?

Middle scavenger hunt

1. Big Numbers

- Turn to the property pages or motor vehicle sales
- Let's read the numbers.
- What's the most expensive house/car/motorbike we can find?
- Which is the cheapest?
- Is a house or an apartment cheaper?

Measuring Temperature and Time

- Weather Maps
 - On the weather map where is the warmest place? The coldest?
 - What is the difference between the low and highs for use tomorrow?
- TV Schedules
 - What time do you favourite shows come on?
 - What time does ... start? When does it end? How long is that?

Sports Stats

The sports section has lots of information in tables and scores. Help them to follow a team for a month and cut out scores and stories about the team and paste them into a notebook.

- At the end of the month ask them what all this information shows.
- How is the team doing?
- Who is ahead or behind them?
- What did the paper report on?

Senior scavenger hunt

1. Money-Money-Money

- If you had €100/€1000/€10,000 what could you buy?
- Find me three prices that add up to close to €1000.
- Find three stories about money anywhere in the paper. Circle the amounts mentioned.
- Where are there some good deals on groceries this week?
- Find some decimals, some fractions, and people's ages in stories.

Weather maps The weather page helps children learn to read tables, graphs and maps.

- Compare the weather forecast for the week to the activities planned.
- What will it be like for sport this weekend?
- Where is the hottest city in the world today?
- When is the next full moon?
- Look at the tide schedule together if you are going to the beach or going fishing.

Sports Stats

Statistics are the numbers that show us trends and information about events. Sports results are a goldmine for learning how to relate the numbers to events.

- Choose the short item column and ask children to find the numbers in each story and then tell you what they mean. Use a highlighter to highlight the numbers. Look for percentages or fractions or decimals.
- Children can check the scoreboard and use a highlighter to note teams and results of interest to them.
- Ask them to figure out what percentage of games a team has won, and lost at the end of a season.

Maths at our house: clocks

Time is a challenging concept for children and yet sometimes it's easy to take this skill for granted as an adult. If a child's life is very structured they may have few opportunities to tell the time or learn about it because everyone tells them where they need to be and when!

Learning about time has different components:

- noticing time and telling the time
- living with schedules and figuring out problems involving time

There are lots of places that clocks and timers appear in our lives:

- Watches
- Phones
- Clocks – digital and traditional (analogue)
- Timers – microwave, DVD, cooking, egg timer

Noticing and telling time

Noticing Time

1. Draw your children's attention to the clocks and timers around them.
Look it's 7 o'clock
Look the numbers are going backwards on the microwave
Can you see a clock in this place (such as a shop, library, train station)?
2. Challenge your child to find all the things that tell the time and count the time in your house.
3. Note all the names we have for time: the day, the month, morning, night, evening, afternoon, tea-time, summer, midnight etc.

Telling Time

1. Support your children with learning to tell time. Having their own watch or phone is a sign of maturity and that they are ready to take responsibility for being places on time.
2. Ask what time it is often and support them in reading the time. If it's digital ask them to describe what that would look like on the clock face. This skill takes a lot of practice and you can add to the practice they get at school by encouraging them to look at clocks and read them for you.
 - a. Is it PAST the hour or coming up TO the hour?
 - b. How many many minutes to what hour? Or how many many minutes past what hour?
3. Encourage them to move back and forth between digital and traditional clocks.
It's quarter to 9. That's the same as 8:45.

Using times

Living with schedules and routines

1. Set and say times for when things will happen. We are going to school at half past 8. Then I'll pick you up at 3 o'clock. You can help me make dinner at 5 o'clock. You can have a shower at half past 7. Draw your child's attention to a clock when it's time to do things so they get used to seeing the time and hearing the time together.
2. Older children can learn to read the TV guide or bus schedule and compare the digital time with the traditional clock and learn how to work back and forth between these. Ask them to compare the schedule to their watch or phone and tell you how long before things will happen.

Figuring Out Time

1. Give your children problems to solve that involve time.
What time will it be in 20 minutes?
How many hours will this drive take us?
How many minutes is that?
The movie is 110 minutes long, when should I pick you up at the cinema?
It says the roast needs to be in for 2 hours, when will it be done?
2. If calling people overseas have your child work out what time it will be. The different time zones are given in the front of the phone book