TROON PRIMARY SCHOOL AND EARLY YEARS CENTRE

NUMERACY AND MATHS

PARENT INFORMATION GUIDE

The following guide provides tips and ideas for games and activities to help your child understand number through play. It also gives examples of what your child will be learning in school and how you can use toys and resources that you have in your home to support their learning.

Early – the pre-school years and Primary 1, or later for some

First – to the end of Primary 4, but earlier or later for some

Second – to the end of Primary 7, but earlier or later for some

THE PRE-SCHOOL YEARS AND P1, OR LATER FOR SOME

Supporting Your Child's Learning
Numeracy and Maths at Early Level CfE: A Guide for Parents

What Is Numeracy and Mathematics?

Numeracy and Mathematics at Early Level covers many areas of maths including number, fractions, money, measurement, shape and time. In school, your child will learn through play using practical resources and activities to help their learning. It is important that children can apply their knowledge of maths in real life situations. Parents can support this at home using everyday items to reinforce different maths concepts.

Number

Use things you have round the house to help with number. Things like pasta, breakfast cereal, fruit or sweets. Ask your child to count out different amounts. For example, ask them to show 5 pieces of pasta. Use the items to ask questions: I had 5 but then I took one away, how many are left? I had 6 sweets and shared them with my friend, how many did we get each? Use a bundle of things to check that every item is counted; younger children can often recite numbers in order but make mistakes when they don't include every object.

Subitising

Use blank 5 or 10 frames to help your child practise recognising numbers without counting items out one by one. Start with an empty 2 x 5 grid and add different amounts to help your child practice identifying the total.

Skip Counting

Let children start counting from different numbers. Children don't always have to start at 0 or 1. For example, start at 3 and count forwards or start at 10 and count backwards. Count from zero and say buzz instead of one of the numbers to check that they can continue the sequence.

Pairs

Everyday tasks can help understanding of number. Give your child socks to put in pairs and ask questions about how many pairs and how many socks in total. Count in 2s and talk about odd and even numbers.

Ordinal Numbers

Use everyday tasks, toys and games to help your child understand order. Try using first, second, third, fourth, etc. when talking about order. For example, you might eat your breakfast first and brush your teeth second or you might have been fourth in a game.

Early Level Goals

Within 0 to 20

- Recognise and order.
- Identify missing numbers and numbers before and after;
- Count on and back in ones to add and subtract;
- Use one-to-one correspondence to count;
- Identify 'how many?' in dot patterns;
- Group items recognising that the appearance of the group has no effect on the overall total (conservation of number).

WEBSITES FOR EARLY LEVEL

TEN TOWN

https://www.tentown.co.uk/

Early Level Goals

Within 0 to 10

- Add, subtract and double numbers mentally to 10;
- Partition quantities to 10 into two or more parts and recognise that this does not affect the total;
- Use ordinal numbers in real life contexts;
- Recall numbers from 0 to 30 forwards from any given number;
- Use mathematical symbols +, - and = ;
- Solve simple missing number problems.

Money

Let your child play with money and ask them to name the different coins. Challenge your child to choose different coins to show the same amount. For example, make 10p in different ways.

Early Level Goals

- Identify coins up to £2;
- Apply addition and subtraction skills and uses 1p, 2p, 5p and 10p coins to pay the exact value for items to 10p;
- Use at least the 1p, 2p, 5p and 10p coins to pay the exact value for items costing up to 10p.

Measurement

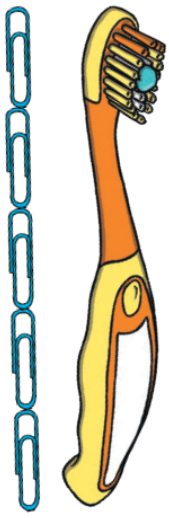
Talk about size using words, examples and questions. Who is the tallest in the house? Who is the smallest in the house? Encourage your child to draw simple pictures showing what this looks like.

If you are cooking, talk about the ingredients. Which ones are heavier? Which ones are lighter? Chat about why scales or cups and spoons might be used to help us measure.

Practise estimating how long objects are using paper clips or lolly pop sticks. Ask your child to estimate how long a pencil is using paper clips then help them check their answer.

Early Level Goals

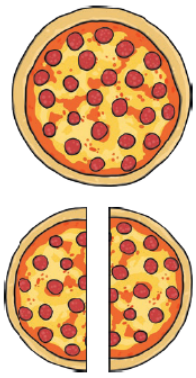
- Use appropriate language to describe aspects of measurement including the words tall, heavy, empty, longer, shorter, heavier, lighter, more and less;
- Estimate and measure, the length, height, mass and capacity of familiar objects using a range of non-standard units.



WEBSITES FOR EARLY LEVEL

SUMDOG

https://pages.sumdog.com/



Fractions

Use words like whole, half, quarters, equal and parts to help your child understand fractions. When you have pizza or cake, talk about cutting or dividing the food into different parts. Ask questions about the number of parts needed and if they are the same (or equal) in size.

Early Level Goals

- Split a whole into smaller parts and explain that equal parts are the same size;
- Use appropriate vocabulary to describe halves.

Symmetry and Transformation

Look at symmetry using mirrors, paint with folding or pattern making with different coloured toy bricks.

Encourage your child to talk about movement as they play with cars, bikes or remote control games. Explore things that turn like wheels, taps, keys in locks and crew top lids on jars. Use books to check your child understands position by asking questions about the pictures. Get your child to look at something in the picture and tell you what it is next to, on top of or beside.

Early Level Goals

- Use the language of position and direction, including in front, behind, above, below, left, right, forwards and backwards, to solve simple problems in movement games;
- Identify, describe and create symmetrical pictures with one line of symmetry.

Data Collection

Use toys or sweets to allow your child to sort and count objects. Sort by colour and ask different questions. How many do you have altogether? How many red, green or yellow objects are there? Make simple bar charts from objects or pictures to organise information.

Early Level Goals

- Collect and organise objects and apply counting skills to ask and answer questions;
- Contribute to concrete or pictorial displays where one object or drawing represents 1 number;
- Use knowledge of colour, shape, size and other properties to match and sort items in different ways;
- Use simple graphs and charts to answer questions.

WEBSITES FOR EARLY LEVEL

CBEEBIES

https://www.bbc.co.uk/cbeebies/topics/numeracy

Shape

Talk about the different 2D and 3D shapes that are found in everyday life. Ask your child to identify different examples of the same shape and describe features of shapes using words like sides and angles. Play guessing games about shapes without using the shape name. For example, my shape has 4 sides. What could it be?

Early Level Goals

- Recognise, describe and sort common 2D shapes and 3D objects according to various criteria, for example, straight, round, flat and curved.

Time

Talk about the different places time is displayed about the home. Point out where in the house the time is displayed, e.g. alarm clock, microwave, phone or tablet, and chat about why this is useful. Use stories and books to talk about the time and the seasons.

Early Level Goals

- Name the days of the week and months of the year and talk about the differences between the four seasons;
- Work with everyday devices used to measure or display time, including clocks, calendars, sand timers and visual timetables;
- Read 12 hour analogue and digital o'clock times and represent these on a digital display or clock face.

Remember, children learn through play so have fun!

TO THE END OF PRIMARY 4, BUT EARLIER OR LATER FOR SOME

Supporting Your Child's Learning
Numeracy and Maths at First Level CfE: A Guide for Parents

What Is Numeracy and Mathematics?

Numeracy and Mathematics at First Level is organised under 8 different areas which are explained in this document.

Children are encouraged to develop numeracy skills using a CPA (Concrete, Pictorial, Abstract) approach where pupils work with resources such as counters, number beads and cubes and then draw pictures to show their answer. When pupils can demonstrate their understanding using resources and pictures they will then move on to noting their answer in an abstract way using more traditional methods like sums. Teachers will encourage children to make real life connections in their maths to demonstrate that numeracy is a skill for lifelong work and learning.

Estimation and Rounding
Practice rounding skills when shopping. Ask your child to look at the items in your trolley or basket and estimate a total cost of the items you are buying. Talk about the actual cost of the items and whether you would round up or down to the nearest £.
First Level Estimation and Rounding Goals • Round whole numbers to the nearest 10 and 100 and use doubling and rounding strategies to estimate an answer

Number and Number Processes
Support your child with their homework by encouraging them to show you different ways of obtaining the answer. Your child will have spent time in school using different strategies to work out the same sum. They might use beads, counters, cubes or number lines to show different ways of answering a question. Let your children draw pictures to enable them to use these strategies at home. Children do not have to lay out their sums in columns the way you might have done at school.
First Level Number and Number Processes Goals • Work with whole numbers to 1000 • Use maths language including, subtract, add, sum, total, multiply, product, divide and share • Identify the value of each digit in a 3 digit number: 568 = 500 + 60 + 8 • Count forwards and backwards in 2s, 5s, 10s and 100s • Show understanding of the commutative law: 6 + 3 = 3 + 6 or 2 × 4 = 4 × 2 • Use arrays, repeated addition/subtraction and grouping with multiplication and division • Solve addition and subtraction problems with three digit whole numbers • Add, subtract, multiply and divide with 10 and 100 • Use multiplication and division facts to solve problems within 0 to 1000 • Apply knowledge of inverse operations (addition and subtraction, multiplication and division) • Solve two part problems

WEBSITES FOR FIRST LEVEL

BBC BITESIZE

https://www.bbc.co.uk/bitesize/subjects/zpdj6sg

Fractions, Decimal Fractions and Percentages

Talk about fractions when sharing pizza or cakes. Show your child that the more pieces you have the smaller the fractions. Use words like halves and quarters and make links with a clock face and telling the time. Is it half past or quarter past? Explore fractions when sharing. Use packets of sweets and get your child to share them between 2, 3, 4, up to 10 people using words like halves, thirds, tenths, etc. Point out percentages in real life when you see sales in shops with 50% or 10% off. Look at the numbers and work with your child to calculate the savings involved.

First Level Fractions, Decimal Fractions and Percentages Goals

- Use concrete materials, pictures and mathematical vocabulary to explain what a fraction is
- Demonstrate that the greater the number of equal parts, the smaller the size of each share
- Use the correct notation for common fractions to tenths
- Compare fraction sizes and order simple fractions on a number line
- Use pictures and models to show simple equivalent fractions
- Explain the role of the numerator and denominator
- Find fractions of whole numbers using multiplication and division facts

Money

Involve your child in your online shopping or banking. Show them the apps or websites you use and how you track purchases and payments. Talk about passwords and how to check if a website is real and secure. Show them debit and credit cards and talk about how they work. Let your child handle money and ask them to calculate how much you have spent and the change you would get from certain amounts.

First Level Money Goals

- Use coins and notes to £20 and show different ways of making the same total
- Record amounts in different ways using monetary symbols, e.g. 149p = £1·49
- Use different coins and notes to pay for items and give change within £10
- Calculate total spend and change in a shopping situation
- Demonstrate awareness of digital and card payments

Time

Talk about time in everyday life. Let your child set the alarm clock and talk about how much time you need for morning tasks in order to arrive at school on time. Involve your child when you are cooking and show them how you time different recipes. Look at all the different ways you measure time and where clocks are used in your home. Discuss how you plan your day, week, months and year by talking about work, school, birthdays, holidays and other special events. Do you use a calendar on your mobile phone, a timer for the oven or washing machine? Look at transport timetables or cinema timings to plan events.

WEBSITES FOR FIRST LEVEL

TOP MARKS

https://www.topmarks.co.uk

First Level Time Goals

- Use analogue and 12hr digital clocks to tell the time using half past, quarter past and to
- Use am and pm to record 12 hour times and identify 24 hour clock on different devices
- Use words and numbers to record the date
- Plan key events using a variety of calendars and 12 hour timetables
- Know the number of seconds in a minute, minutes in an hour, hours in a day, days in each month, weeks and days in a year
- Order the months of the year and relate these to the appropriate seasons
- Use appropriate timers for specific purposes

Measurement

Involve your child in everyday measurement by looking at clothes, carpets, curtains and cooking. Use everyday items in your cupboard or fridge to talk about volume and capacity. Look at the weights on packets and jars and the volume on bottles and cartons. When you are buying new carpets, curtains, blinds, or clothes talk about the measurements you need to make you purchase.

First Level Measurement Goals

- Estimate length, height, mass and capacity using knowledge of everyday objects
- Measure lengths, heights, mass and capacities using a range of different instruments
- Use millimetres (mm), centimetres (cm), grams (g), kilograms (kg), millilitres (ml) and litres (l) to record measurement of length, height, mass and capacity to the nearest standard unit
- Compare measures with estimates
- Make simple conversions, for example, 1 m 58 cm = 158 cm
- Read scales on measuring devices including those with fractions, for example, ½ litre
- Use square grids to measure area of simple 2D shapes to the nearest half square
- Use square tiles or grids to create shapes with a given area to the nearest half square
- Recognise that different shapes can have the same area (conservation of area)

Its Impact on the World, Past, Present and Future

Talk about how you use maths in work, at home and if what you learned at school has come in useful or not. Use current news stories to chat about the impact of maths and money across the world. Point out when you see numbers written in different ways; for example Roman Numerals on the BBC logo or in other languages. Use this to talk about how numbers have changed over time.

First Level Its Impact on the World, Past, Present and Future Goals

- Investigate the importance of numbers in learning, life and work
- Investigate a variety of number systems used throughout history

WEBSITES FOR FIRST LEVEL

SUMDOG

https://pages.sumdog.com/

Patterns and Relationships

Encourage your child to look for patterns in both number sequences and also in art and design. Investigate patterns on fabrics and tiling and get your child to spot the repeat in the pattern. Use objects like pasta or sweets to show the pattern in times tables. For example, lay out 3 rows of 4 things and let your child describe the pattern they see. Practise counting and times tables in lots of different ways. You could try clapping or writing numbers in a sequence and if your child gets stuck, show them the number they have to add on. Practice times tables in different ways; try reciting, questioning or using a times table app to help your child become more fluent.

First Level Goals

- Count forwards and backwards in 2s, 5s and 10s from any whole number up to 1000
- Describe patterns in number, for example, in the multiplication tables and hundred square
- Continue and create repeating patterns involving shapes, pictures and symbols
- Use addition, subtraction, doubling, halving, skip counting and known multiples to describe, continue and create number patterns

Expressions and Equations

Use everyday items and number stories to help your child understand algebra and picture the problem. For example, I have 20 cups and 14 children are coming to the party, how many extra do I have? Chat about the problem and help your child note the answer as a sum.

Use questioning to help your child become familiar with mathematical terms. For example, what number is greater than 120 and less than 200?

First Level Expressions and Equations Goals

- Use the terms 'equal to', 'not equal to', 'less than', 'greater than', and related symbols
- Solve simple algebraic problems where a symbol represents a number, e.g. a + 17 = 30

Properties of 2D Shapes and 3D Objects

Give examples of where we hear the words tri and quad, for example, in tricycle or quad bike, and what this means. Use 3D objects like cereal boxes and tins in your house and get your child to make the link between 2D and 3D shapes by spotting any 2D shapes they see. Play with tiling and mosaic toys to create different shapes and patterns.

First Level Properties of 2D Shapes and 3D Objects Goals

- Name, identify and classify a range of simple 2D shapes and 3D objects
- Use mathematical language including side, face, edge, vertex, base and angle to describe common 2D shapes and 3D objects
- Identify 2D shapes within 3D objects and recognise 3D objects from 2D drawings
- Identify examples of tiling and apply knowledge of 2D shapes to create tiling patterns with two different shapes

WEBSITES FOR FIRST LEVEL

OXFORD OWL

https://www.oxfordowl.co.uk/for-home/kids-activities/fun-maths-games-and-activities/

Angle, Symmetry and Transformation

Use remote control toys, online games or coding apps to help your child become familiar with direction. Try creating paths in online games or for remote control toys to follow. Use words like half turn, right turn, etc. to describe their movement.

Use a clock face when describing full, half and quarter turns and clockwise and anticlockwise direction. Talk about the angles as toys makes turns and compare the turn to a right angle.

Use Sat Nav or maps apps on your phone to talk about compass points north, south, east and west.

Look for symmetry in art and patterns on clothes, curtains and wallpaper.

First Level Angle, Symmetry and Transformation Goals

- Use technology and other methods to describe, follow and record directions using directional vocabulary including, full turn, half turn, quarter turn, clockwise, anticlockwise, right turn, left turn, right angle
- Know that a right angle is 90°
- Identify north, south, east and west on a compass.
- Compare and describe the size of angles in relation to a right angle
- Find right angles in the environment and in well-known 2D shapes
- Identify where grid references are used and use accurate two figure grid references
- Identify symmetry in patterns, pictures, nature and 2D shapes
- Create symmetrical pictures and designs with more than one line of symmetry

Data and Analysis

Relate data handling to things that your child knows and uses. For example, likes on social media and favourite games and toys. Talk about what games are popular and how shops and websites put this information in tables and charts to influence what we buy.

First Level Data and Analysis Goals

- Extract key information from data sets including charts, diagrams, bar graphs and tables
- Select and use the most appropriate way to gather and sort data for a given purpose, for example, a survey, questionnaire or group tallies
- Use different methods, including the use of digital technologies, to display data, for example, as block graphs, bar graphs, tables, Carroll diagrams and Venn diagrams
- Include a suitable title, simple labelling on both axes and an appropriate scale where one unit represents more than one data value in graphs

Ideas of Chance and Uncertainty

Talk about the chance of things happening using language like likely, unlikely, certain and impossible. Ask questions about the possibility of things happening, for example, what is the chance of winning the lottery or of it raining today? Use this vocabulary when playing games with dice or tossing coins. How likely is it to land on a 6 or land on heads or tails?

First Level Ideas of Chance and Uncertainty Goals

- Use mathematical vocabulary to describe the likelihood of events occurring in everyday situations including, probable, likely/unlikely, certain/uncertain, possible/impossible, and fair/unfair
- Interpret data gathered through every day experiences to make reasonable predictions of the likelihood of an event occurring

TO The END OF PRIMARY 7, BUT EARLIER OR LATER for some

Supporting Your Child's Learning

Numeracy and Maths at Second Level CfE: A Guide for Parents

What Is Numeracy and Mathematics?

Numeracy and Mathematics at Second Level covers lots of different areas of maths which are explained in this document. As children get older, the links between learning in school and real life become clearer and teachers will try to show these using relevant questions and examples.

Increasingly, children are being encouraged to display their understanding of mathematical concepts through the use of the CPA (Concrete, Pictorial, Abstract) approach. The use of materials such as cubes, number lines and counters is no longer limited to younger children. Pupils will be given materials to work with to help them show how they got an answer as opposed to just writing out the sum. This approach is very useful in helping children 'see' an answer and make links between different areas of maths. The CPA method is also being developed at high school and university level maths. This means that homework and school maths tasks might not be set out in traditional sums and children might draw number lines, boxes or pictures to calculate an answer.

Estimation and Rounding

These skills are used as part of everyday life and work when we guess, estimate and approximate. For example, we often round decimal numbers when measuring or use estimation skills in food preparation or timing events. Talk to your child when carrying out rounding and estimation tasks using words like roughly, approximately, exactly, few and many. When you are measuring something, ask your child what the number is closer to. For example, is 1.8 metres closer to 1m or 2m? Involve your child when ordering or preparing food. For example, I'm guessing everyone will eat ¾ of a pizza so we will round to 1 and order 4.

Second Level Estimation and Rounding Goals

- Round whole numbers to the nearest 1000, 10,000 and 100,000
- Round decimal fractions to the nearest whole number, one and two decimal places
- Apply rounding knowledge to give an estimate to a calculation

Number and Number Processes

Children often misread larger numbers and may struggle to read numbers accurately when written as words. A common mistake is thinking 502 is the same as 5002. Encourage your child to read and write numbers both as digits and in words. Try using high scores in online games to check your child understands the value of the digits in a number in millions, hundreds of thousands, tens of thousands, thousands, hundreds, tens and units.

Use money or measurement to help your child understand decimals. If you are measuring something in centimetres talk about what the number would be as a decimal in metres. Show your child how amounts of money in pounds and pence are actually decimals.

Children start to work with negative numbers at second level and often get confused when ordering these. Talk to your child about negative temperatures or even being overdrawn at the bank! Ask questions about the value of negative numbers, which is colder minus 1 or minus 5 or which is less minus £23 or minus £35? Give them a few examples and ask them to put them in order.

WEBSITES FOR SECOND LEVEL

BBC BITESIZE

https://www.bbc.co.uk/bitesize/subjects/znwqtfr

Second Level Number and Number Processes Goals

- Read, write and order whole numbers to 1 million and sets of decimals to three decimal places
- Explain the link between a digit, its place and its value for whole numbers to 1 million and decimal numbers to 3 decimal places
- Partition whole numbers and decimals to three decimal places, for example, 3·6 = 3 ones and 6 tenths = 36 tenths
- Add and subtract multiples of 10, 100 and 1000 to and from whole numbers and decimals to two decimal places
- Add and subtract whole numbers and decimals to two decimal places from 0 to 1 million
- Uses multiplication and division facts for times tables up to 10
- Multiply and divide whole numbers and decimals by 10, 100 and 1000 to two decimal places
- Multiply whole numbers by two digit numbers
- Multiply decimal numbers to two decimal places by a single digit
- Divide whole and decimal numbers to two decimal places by a single digit
- Apply the correct order of operations in calculations when solving multi-step problems
- Identify contexts where negative numbers are used, order numbers less than zero and locate them on a number line

Multiples, Factors and Primes

A sound knowledge of times tables will help your child with their understanding of multiples, factors and prime numbers. Encourage your child to practise their time tables in different ways by reciting, asking and answering questions or using games or apps. Being fluent in their times table will help them problem solve the answer to more difficult questions. Work together to help them identify multiples within a number to help them breakdown questions into easier parts. For example, 28 x 45 is the same as 4 x 7 x 9 x 5.

Second Level Multiples, Factors and Primes Goals

- Identify multiples and factors of whole numbers and apply knowledge of these when solving problems

Fractions, Decimal Fractions and Percentages

Use practical materials such as pasta or sweets to help your child see the link between times tables and equivalent fractions. For example, in a packet of 24 coloured sweets, 6 were yellow. Show this as a fraction. Encouraging your child to group the items in bundles of 6 will show that 6 out of 24 is the same as ¼. Talk about equivalent fractions when cutting pizza or cake by cutting the item into quarters then eighths. Make the link between fractions, decimals and percentages in everyday life. For example when shopping, 10% discount means one tenth off the price.

Second Level Fractions, Decimal Fractions and Percentages Goals

- Solve problems using knowledge of equivalent forms of common fractions, decimals and percentages, for example, ¾ = 0.75 = 75%
- Calculate simple percentages and fractions of a quantity
- Create equivalent fractions and put sets of commonly used fractions in order
- Express fractions in their simplest form

WEBSITES FOR SECOND LEVEL

TOP MARKS

https://www.topmarks.co.uk

Money

Encourage your child to think of money problems as calculations to 2 decimal places. Involve your child in shopping activities and let them work to a budget to calculate what you can afford to buy. When ordering items, encourage your child to round and estimate to work out what your total bill will be. Let them help you when making online purchases or banking and talk about passwords and security and how to check if a website is real.

Second Level Money Goals

- Carry out money calculations involving the four operations
- Compare costs and determines affordability within a given budget
- Show understanding of the benefits and risks of using bank cards and digital technologies
- Calculate profit and loss, for example, when working with a budget for an enterprise activity

Time

Talk about time when you are planning a trip and ask questions to help you organise your journey. For example, if the journey takes 1hr 15 minutes and we leave at 9.05am what time will we arrive? Look at bus, train, flight and travel times to help your child calculate how much time is needed to arrive on time. Talk about timings when watching sporting events, highlighting why more precise measurements of time might be required.

Second Level Time Goals

- Read and record time in 12 hour and 24 hour notation and convert between the two
- Know the relationships between units of time and carry out conversion calculations, for example, change 1 ½ hours into 90 minutes
- Use and interpret timetable and calendars to plan events and solve real life problems
- Calculate durations of activities using both 12 hour clock and 24 hour notation
- Estimate the duration of a journey based on knowledge of the link between speed, distance and time
- Choose the most appropriate timing device in practical situations and record using relevant units, including hundredths of a second
- Select the most appropriate unit of time for a given task and justify choice

Measurement

Talk about measurement when cooking by looking at units of measurement in your kitchen. What is the scale on the measuring jug, spoon or kitchen scale? Look at the units of measurement on items of food and drink that you have at home and encourage your child to think about what these mean. For example, why does a can of juice have 330ml on it but a large bottle is 2l?

Use measurement when you are moving furniture, laying carpet or working in the garden. Ask your child to estimate the lengths and heights of different things then check their estimate using a tape measure.

Highlight how imperial measurement is still used when we talk about our weight or our speed and distance in a car.

WEBSITES FOR SECOND LEVEL

OXFORD OWL

https://www.oxfordowl.co.uk/for-home/kids-activities/fun-maths-games-and-activities/

Second Level Measurement Goals

- Use the size of familiar objects to make estimations of length, mass, area and capacity
- Estimate to the nearest appropriate unit, then measure accurately: length, height and distance in millimetres (mm), centimetres (cm), metres (m) and kilometres (km); mass in grams (g) and kilograms (kg); and capacity in millilitres (ml) and litres (l)
- Calculate the perimeter of simple straight sided 2D shapes in millimetres (mm), centimetres (cm) and metres (m)
- Calculate the area of squares, rectangles and right-angled triangles in square millimetres (mm^2), square centimetres (cm^2) and square metres (m^2)
- Calculate the volume of cubes and cuboids in cubic centimetres (cm^3) and cubic metres (m^3)
- Convert between units of measurement using decimal notation, for example, 550cm = 5·5m; 3·009kg = 3009g
- Choose the most appropriate measuring device for a given task and carry out the required calculation, recording results in the correct unit
- Read a variety of scales accurately
- Draw squares and rectangles accurately with a given perimeter or area
- Demonstrate understanding of the conservation of measurement, for example, draw three different rectangles each with an area of $24cm^2$
- Show awareness of imperial units used in everyday life, for example, miles or stones

Its Impact on the World, Past, Present and Future

Make links to technology and its uses to highlight the link between recent inventions and maths. Things like mobile phones, computers and gaming systems all needed maths in their design and manufacture. Look at bridges and buildings to highlight shape and angle and talk about how maths would be needed in design and construction.

Second Level Its Impact on the World, Past, Present and Future Goals

- Research and present examples of the impact mathematics has in the world
- Contribute to discussions and activities on the role of mathematics in the creation of important inventions, now and in the past

Patterns and Relationships

Find patterns in numbers by looking at written number sequences or using beads to make square and triangular numbers. Talk about the Fibonacci sequence where each number is the sum of the previous two. Use nature to look for the Fibonacci pattern as it can be seen in spirals in pinecones, pineapples and cauliflower. Try counting these spirals to check your total is a Fibonacci number.

Second Level Goals

- Explain and uses a rule to extend well known number sequences including square numbers, triangular numbers and Fibonacci sequence
- Apply knowledge of multiples, square and triangular numbers to generate number patterns

WEBSITES FOR SECOND LEVEL

NRICH MATHS

https://nrich.maths.org/primary

Expressions and Equations

Children often struggle with letters being used as unknown numbers but can work out similar calculations when they are explained in different ways. Spend time working with a variety of number stories. For example, I had 26 sweets, I ate some and had 18 left, how many sweets did I eat? Show your child how these number stories can be written as a sum with the unknown number represented as a letter.

Second Level Expressions and Equations Goals

- Solve simple algebraic equations with one variable

Properties of 2D Shapes and 3D Objects

Encourage your child to unfold cereal boxes, food packets and gift packaging to investigate shapes, measure dimensions and make links to perimeter/area. Try making 3D objects using straws and playdough and construction sets. Use games and apps to build 3D objects talking about the differences between 3D and 2D pictures.

Second Level Goals

- Describe 3D objects and 2D shapes using vocabulary including regular, irregular, diagonal, radius, diameter and circumference. Apply this knowledge to demonstrate understanding of the relationship between 3D objects and their nets.
- Identify and describe 3D objects and 2D shapes and explain why their properties match their function.
- Know that the radius is half of the diameter.
- Use digital technologies and mathematical instruments to draw 2D shapes and make representations of 3D objects, understanding that not all parts of the 3D object can be seen.

Angle, Symmetry and Transformation

Look for angles in the environment. For example, talk about the angles you can see on bridges and use words like right, straight, acute or obtuse to describe them. Look for symmetry in pattern and in nature, pointing out where lines of symmetry could be drawn. Use a map app or sat nav to talk about north and other compass points and use knowledge of angles and degrees to describe direction. For example, a quarter turn is 90 degrees and a half turn is 180 degrees. Use remote control or simple coding toys to experiment with directional instructions. Can you make a toy follow a certain path?

Second Level Goals

- Use mathematical language including acute, obtuse, straight and reflex to describe and classify a range of angles identified within shapes in the environment
- Measure and draw a range of angles
- Know that complementary angles add up to 90° and supplementary angles add up to 180° and use this knowledge to calculate missing angles
- Use knowledge of the link between the eight compass points and angles to describe, follow and record directions
- Interpret maps, models or plans with simple scales, for example, 1cm: 2km
- Describe, plot and record the location of a point, in the first quadrant, using coordinate notation
- Identify and illustrate lines of symmetry on 2D shapes and apply this understanding to complete a range of symmetrical patterns, with and without the use of digital technologies

WEBSITES FOR SECOND LEVEL

RIGOUR MATHS - FOR CHALLENGE!

https://www.cdmasterworks.co.uk/the-daily-rigour/

Data and Analysis

Look for examples of data that we use in everyday life. We might check the 7 day weather forecast or look at the most popular toys and games. Carry out online searches with your child to look for information that interests them. How many children age 10 have a mobile phone or gaming system? Talk about the way information is presented to make it easy to understand. Is a table, graph or chart better for seeing a trend or pattern? Look at how data is used to influence what we might like to buy.

Second Level Goals

- Devise ways of collecting data in the most suitable way for the given task
- Collect, organise and display data accurately using digital technologies, for example, creating surveys, tables, bar graphs, line graphs, frequency tables, simple pie charts and spreadsheets
- Analyse, interpret and draw conclusions from a variety of data
- Draw conclusions about the reliability of data taking into account the author, the audience, the scale and sample size used
- Display data appropriately making effective use of technology and choose a suitable scale when creating graphs

Ideas of Chance and Uncertainty

Look at the idea of chance using coins, cards and dice. For example talk about heads and tails on a coin and the chance or likelihood of throwing heads. Play with cards and predict the chance of picking out an ace. When making predictions try to link the chance of something happening to fractions or percentages. For example, I have a 50% chance of throwing heads or a 1 in 4 chance of picking hearts from a suit of cards.

Second Level Goals

- Use the language of probability accurately to describe the likelihood of events, for example equal chance; fifty-fifty; one in two, two in three and percentage chance
- Plan and carry out simple experiments involving chance with repeated trials, for example, 'what is the probability of throwing a six if you throw a dice fifty times?'
- Use data to predict the outcome of a simple experiment

This session we are working closely with Chris McKenna -

FIND OUT MORE ABOUT CHRIS AT: https://www.countonus.org.uk/