

## THE REVISED SYLLABUS

### A: NUMBERS, NUMBER PATTERNS AND PLACE VALUE

Place value is significant because it helps you understand the meaning of a number. Thus, we can say that understanding of place value is central to developing number sense. It is also the basis for the four fundamental operations on numbers. Consequently, place value connects to many other important concepts.

#### YEAR 1

<b>LEARNING OPPORTUNITIES</b>		<b>KEY VOCABULARY</b>
<b>Children should be given a range of opportunities such as:</b>		
<b>A.1.1</b>	count reliably forward and backwards up to 10 everyday objects.	one... twenty before after next count count on/forward count back/backward How many? correct less than more than few/fewer/fewest more/most small/smaller/smallest large/larger/largest
<b>A.1.2</b>	understand the value of each number.	
<b>A.1.3</b>	recognise and write numerals 1 to 9, then 0 and 10, then beyond 10.	
<b>A.1.4</b>	compare and order numbers including ordinal numbers.	
<ul style="list-style-type: none"> <li>• saying and using the number names in order in familiar contexts such as number rhymes, songs, stories, counting games and activities (first to five, then ten, then twenty and beyond).</li> <li>• counting on and back on the number line.</li> <li>• counting reliably in different contexts such as clapping sounds or hopping movements.</li> <li>• counting on from any number.</li> <li>• counting up to 10 objects, knowing that the next number in the count is the total.</li> <li>• using a number line to help them identify largest/smallest of three numbers.</li> <li>• estimating a number of objects up to 10.</li> <li>• recognising small amounts without counting (first to 5, then 10, then beyond), then check by counting.</li> </ul>		

A.1.5	talk about, recognise and recreate simple patterns e.g. counting in 2's and 10's.	<ul style="list-style-type: none"> <li>recognising 'none' and 'zero' in stories, rhymes and when counting.</li> <li>saying a number which lies between two given numbers.</li> <li>recording numbers, initially by making marks, then progressing to simple tallying to writing numerals.</li> <li>recognising that when a dice is thrown, we can identify patterns.</li> <li>using developing mathematical ideas and methods to solve practical problems involving counting and comparing in a real or role play context.</li> </ul>	<p>along guess close/closer/closest order between ten, twenty... hundred tens twos</p>
<b>YEAR 2</b>			
<b>LEARNING OPPORTUNITIES</b> Children should be given a range of opportunities such as:			<b>KEY VOCABULARY</b>
A.2.1	count reliably at least 30 objects.	<ul style="list-style-type: none"> <li>knowing the number names and recite them in order to 30 (then extend), from and back to zero.</li> <li>counting up to 30 objects and understand that if they re-arrange the objects the numbers stay the same.</li> <li>using a number line and a number grid.</li> <li>estimating a number of objects up to 30.</li> <li>comparing two 2-digit numbers, recognising the larger and smaller and giving a number which lies between them.</li> <li>reading and recognising number names and matching them to the numerals.</li> <li>counting by grouping objects.</li> <li>knowing that in a two digit number e.g. 14, is <i>one ten</i> and <i>four ones</i> (units).</li> <li>rehearsing counting in 10's by <i>spider counting</i>.</li> <li>understanding that even numbers make two equal towers and odd numbers do not.</li> <li>recognising the unit digit in an odd or even number.</li> <li>recognising and predicting a number pattern and their relationships.</li> <li>knowing that the between numbers are those found in the middle of two numbers.</li> <li>investigating a general statement about familiar numbers by finding</li> </ul>	<p>zero, one, two... thirty ones. twos, threes, fives, tens ten, twenty... hundred is equal to (=) answer total number name large/larger/largest small/smaller/smallest between count on/back guess/estimate How many... do you think? close/closer/closest more/more than less/less than left over grid column row</p>
A.2.2	count on and back in steps of 1s, 10s, 2s, 5s and 3s.		
A.2.3	recognise odd and even numbers up to 30.		
A.2.4	read and write numerals from 0 to at least 30.		
A.2.5	know what each digit in a two-digit number represents.		
A.2.6	partition a 'teens' number and also partition larger two-digit numbers into a multiple of ten and ones (TU).		

<b>A.2.7</b>	compare and order numbers to at least 30, and position them on a number track.	examples that satisfy it.	ones (units)
<b>A.2.8</b>	use the = sign to represent equality.		odd even first, second, third ... tenth position order/in order next beside

## B: ADDITION AND SUBTRACTION

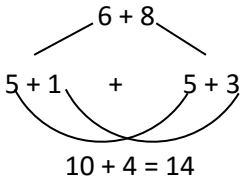
Addition and subtraction are basic operations in mathematics and are inversely related. These are powerful foundational concepts in mathematics with applications to many problem situations and connections to many other topics. Undoubtedly, their importance extends to real-life situations.

### YEAR 1

LEARNING OPPORTUNITIES		KEY VOCABULARY
Children should be given a range of opportunities such as:		
<b>B.1.1</b>	use (begin to) the vocabulary involved in adding and subtracting.	one more one less counting on / forward counting back / backward total take away How many ... are left? How many more ...?
<b>B.1.2</b>	say and show 'one more' and 'one less' than a number from 1 to 9.	
<b>B.1.3</b>	understand addition as the combination of two sets (extend to three sets).	
<b>B.1.4</b>	relate addition, including that of doubles, to counting on.	
<b>B.1.5</b>	select two groups of objects to make a given total.	
<b>B.1.6</b>	subtract from a number of objects (up to 10) by taking away	
<b>B.1.7</b>	understand subtraction as counting back.	
<ul style="list-style-type: none"> <li>• using the number line.</li> <li>• using concrete objects, pictures and practical activities.</li> <li>• separating (partition) a given number of objects into two groups.</li> <li>• using strategies such as:                             <ul style="list-style-type: none"> <li>• starting with the larger and counting on, when adding two quantities.</li> <li>• making 5</li> <li>• making 10</li> </ul> </li> <li>• working out a total by counting on when one group of concrete objects is hidden/removed.</li> <li>• working out how many have been removed from a larger group of objects by counting up from a number e.g. If I start with 7 and 5 are left over, I count up from 5 to 7 to find out that 2 have been removed. (Practical Activity).</li> <li>• working out how many more are needed to make a larger number</li> <li>• listening to stories, poems or songs that will give them the opportunity to reinforce understanding, allow for application and may also provide the opportunity for creation e.g. role play.</li> </ul>		

## YEAR 2

LEARNING OPPORTUNITIES		KEY VOCABULARY
<b>Children should be given a range of opportunities such as:</b>		
<b>B.2.1</b>	understand the operation of addition, and of subtraction (as 'take away', 'difference', and 'how many more to make'), and use the related vocabulary.	add subtract take away difference count on/forward count back/backward more/less larger/smaller total make equal to leaves/left answer pairs double/doubling near doubles nothing/zero How many more...?
<b>B.2.2</b>	recognise that addition can be done in any order.	
<b>B.2.3</b>	use the +, – and = signs to write a number sentence and recognise the use of symbols such as $\square$ or $\triangle$ to stand for an unknown number.	
<b>B.2.4</b>	recognise and demonstrate that more than two numbers can be added together.	
<b>B.2.5</b>	identify the number that is 1 or 10 more or less than any given number within the range 0 to 30.	
<b>B.2.6</b>	<b>know by heart</b> all pairs of numbers with a total of 10; e.g. 3 + 7 and their corresponding subtraction facts.	
<ul style="list-style-type: none"> <li>• solving addition and /or subtraction calculation using number line and/or number grid as needed.</li> <li>• using concrete objects, pictures, and practical activities in real life context.</li> <li>• using and exploring different strategies such as:                             <ul style="list-style-type: none"> <li>• starting with the larger and counting on, when adding two quantities.</li> <li>• making 5.</li> <li>• making 10.</li> <li>• adding and subtracting 10 using number grid.</li> <li>• use facts to 10.</li> <li>• bridging to 10 (Example 3).</li> <li>• bridging to 20 (Example 4).</li> <li>• writing the bigger number first (Example 5).</li> <li>• use partitioning into '5 and a bit' when adding 6,7,8 or 9, then recombine (Example 6).</li> </ul> </li> </ul> <p>(Children should be given the opportunity to discover and experiment with other strategies related to addition and subtraction using place value and number patterns.)</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <p><b>example 3</b>    Bridging to 10 8 + 4 seen as</p> </div> <div style="text-align: center;"> <p><b>example 4</b>    Bridging to 20 18 + 4 seen as</p> </div> </div>		

<b>B.2.7</b>	<b>know by heart</b> addition doubles of all numbers to at least 5 (up to a total of 10).		
<b>B.2.8</b>  <b>i</b>  <b>ii</b>  <b>iii</b>  <b>iv</b>  <b>v</b>  <b>vi</b>	<b>use the following Mental Strategies:</b>  use knowledge that addition can be done in any order to do mental calculations more efficiently.  identify near doubles, using doubles already known.  add 9 to single-digit numbers by adding 10 then subtracting 1.  use patterns of similar calculations. e.g. $10 - 0 = 10$ , $10 - 1 = 9$ , $10 - 2 = 8$  use known number facts and place-value to add or subtract a pair of numbers mentally within the range 0 to at least 10, then 0 to at least 20.  bridge to 10, when adding a single digit number.	<p><b>example 5</b></p> $5 + 9 = 9 + 5 \quad (\text{and using facts to 10})$ $= (9 + 1) + 4$ $= 10 + 4$ $= 14$ <p><b>example 6</b></p>  <p>The diagram shows the equation <math>6 + 8</math> at the top. Two lines branch down from it to <math>5 + 1</math> on the left and <math>5 + 3</math> on the right. A plus sign is placed between these two equations. Below them, a curved line connects the 5 in <math>5 + 1</math> to the 5 in <math>5 + 3</math>, and another curved line connects the 1 in <math>5 + 1</math> to the 3 in <math>5 + 3</math>. Below the diagram, the equation <math>10 + 4 = 14</math> is written.</p>	

## E: MASS (WEIGHT)

Weight is a quantity. Measuring and understanding weight is of utmost importance. Undoubtedly, you have experienced the measurement of weight many times, such as at the time of physical health check-ups. Or perhaps you may have asked yourself: Is that object too heavy to pick up by myself or do I need something to lift it?

When you go to the greengrocer to buy vegetables and fruit, for example, there will be tags attached that tell you the price per kilogram so you can compare the cost of one brand/item over another. Without a standard measure of weight, in this case a kilogram, you wouldn't know exactly what you are paying for.

Unlike other quantities, it is very difficult to measure weight in a visible way like length and size. Weight is difficult to judge visually. While you can always make an estimate of the weight of an object, you will need to use a measuring tool such as a measuring tape, a ruler or a trundle wheel to have an accurate measure in grams and/or kilograms. To do this, you need to be able to read a scale.

The above are only a few life situations where being able to read, measure and understand weight is important. Helping our children understand and appreciate this may be fruitful. Note: The terms mass and weight are different, yet are used interchangeably throughout the Primary years.

### YEAR 1

LEARNING OPPORTUNITIES		KEY VOCABULARY
<b>Children should be given a range of opportunities such as:</b>		
<b>E.1.1</b>	use language such as heavier or lighter to compare two quantities, then more than two, by making direct comparisons of masses.	heavy light heavier than lighter than weigh/s larger/smaller balance scales
<b>E.1.2</b>	compare the weights of two objects directly, using balance scales.	
		<ul style="list-style-type: none"> <li>▪ feeling the weight of various familiar objects to compare them by using words such as 'heavier' or 'lighter'.</li> <li>▪ estimating the weight of familiar objects by comparing two objects and guessing which one is 'heavier' or 'lighter'.</li> <li>▪ identifying objects around them which they consider to be lighter or heavier than their weight.</li> <li>▪ recognising that a larger object can be lighter and a smaller object can be heavier.</li> <li>▪ using simple measuring scales such as the balance scales (rocker balance or pan scales) to understand that the heavier object is pulled down. This can also be compared to the idea of a see-saw.</li> </ul>

## YEAR 2

<b>LEARNING OPPORTUNITIES</b>			<b>KEY VOCABULARY</b>
<b>Children should be given a range of opportunities such as:</b>			
<b>E.2.1</b>	understand and use the vocabulary related to mass to compare two masses by direct comparison; extend to more than two.	<ul style="list-style-type: none"> <li>• suggesting suitable uniform non-standard units and measuring equipment to estimate, then measure, a mass</li> <li>• recording estimates and measurements e.g. ‘about as heavy as 20 cubes’.</li> <li>• practising comparing the mass (weight) of two objects using the balance scales (rocker balance or pan scales) and choosing which object is heavier or lighter (understanding that the heavier side goes down and the lighter side goes up).</li> <li>• understanding that smaller objects are not necessarily lighter than bigger objects, i.e. recognising that mass (weight) and size are not necessarily related. This could be carried out using toys or vegetables and fruits.</li> <li>• being exposed to the standard units in their environment (to become aware), i.e. kilograms and grams.</li> </ul>	heavy light heavier than lighter than balance scales weigh/s weight order
<b>E.2.2</b>	measure using uniform non- standard units.		



## F: CAPACITY

Understanding capacity is especially important in the field of medicine or chemistry when one is dealing constantly with liquid measurement. Nonetheless, understanding capacity is also important in our everyday life.

When you are sick and your doctor prescribes medicine you need to take your medicine in the proper amounts. Your health will not benefit if you take too little or too much. Cooking also involves a lot of measurement such as: add 120 ml of water or 50 ml of olive oil. In fact, the kitchen is a good place, though not the only, to measure different capacities. Using a measuring jug you can check the capacity of different items such as cups, glasses, bottles and perhaps the capacity of a kettle. What is the capacity of the milk carton in your fridge? And do you have anything in your kitchen, in the cupboards or in the fridge, which has a capacity of 1 litre? Estimate and then check by reading the label on the container/s.

The above are only a few life situations where being able to read, measure and understand capacity is important. Helping our children understand and appreciate this may be fruitful.

### YEAR 1

LEARNING OPPORTUNITIES		KEY VOCABULARY
Children should be given a range of opportunities such as:		
<b>F.1.1</b>	understand and use the vocabulary related to capacity.	fill pour full empty half full half empty nearly full nearly empty holds more / most less / least
<b>F.1.2</b>	use language such as more or less to compare two quantities, then more than two, by making direct comparisons and filling and emptying containers.	
	<ul style="list-style-type: none"> <li>filling a collection of containers with dry filling material (e.g. peas, rice, lentils, sand, etc) to show different capacities, such as full, nearly full, half full, nearly empty and empty.</li> <li>sorting different transparent containers according to capacity and describing how full or empty they are.</li> <li>filling a transparent container with coloured water and then pouring the same water from one container to the next and discussing what they see.</li> </ul> estimating the capacity of different containers by responding to questions such as: 'Which containers do you think holds the most or the least?'	

## YEAR 2

<b>OPPORTUNITIES</b>			<b>KEY VOCABULARY</b>
<b>Children should be given a range of opportunities such as:</b>			
<b>F.2.1</b>	understand and use the vocabulary related to capacity.	<ul style="list-style-type: none"> <li>• measuring using uniform non-standard units (e.g. yoghurt pots, jam jar, beaker, eggcup) or standard units (e.g . litre jugs).</li> <li>• suggesting suitable standard or uniform non-standard units and measuring equipment to estimate, then measuring a capacity, recording estimates and measurements as ‘about 3 beakers full’ or ‘almost 5 tea cups full’, etc.</li> <li>• filling containers to given capacities, e.g show half full, then nearly full, then full, etc.</li> <li>• estimating the order of capacity of a set of containers and later measuring each container using non-standard units to find the actual capacity in terms of yoghurt pots, cups, eggcups, etc.</li> </ul>	fill pour empty /nearly / half empty full / half / nearly full capacity holds more / the most less / the least largest smallest
<b>F.2.2</b>	compare two capacities by direct comparison; extend to more than two.		

## G: LENGTH, PERIMETER AND AREA

Learning how to measure length is an important life skill. Measurements in millimetres, centimetres, metres and kilometres are also very much present in sports and not only. Sometimes, measurements need to be accurate, however many times we simply need to make estimates.

Measuring length is also essential for calculating perimeter and area: two important and fundamental mathematical topics. They help you to measure physical space. Perimeter is a measurement of the distance around a shape and the area gives us an idea of how much surface the shape covers. Knowledge of perimeter and area is applied practically by people on a daily basis, such as architects, engineers, and graphic designers... it is mathematics that is very much needed by people in general. Understanding how much space you have and learning how to fit shapes together exactly will help you when you paint a room, buy a home, remodel a kitchen, or build a deck.

The above are only a few life situations where being able to read, measure, calculate and understand length, perimeter and area is important. Helping our children understand and appreciate this may be fruitful.

### YEAR 1

LEARNING OPPORTUNITIES			KEY VOCABULARY
Children should be given a range of opportunities such as:			
<b>G.1.1</b>	use language such as long/short and longer/shorter... to compare two quantities.	<ul style="list-style-type: none"> <li>recognising that different units can be used to measure length e.g. crayons, straws, and that they must be placed end to end with no gaps.</li> <li>recognising that length is not usually an <b>exact</b> number of units, it is often <b>nearly</b> a number of units</li> <li>using long objects of different lengths such as, metre stick, pole, shelf, drinking straws etc.</li> <li>using tall objects of different heights such as, chair, pole, bin, and drinking straws.</li> <li>recognising that different units of different lengths can be used to measure heights.</li> <li>understanding that to measure the height of an object you can often measure its length when it is lying flat.</li> </ul>	length long/longer short/shorter measure height tall/taller How long/tall... do you think...?
<b>G.1.2</b>	understand the vocabulary associated with length and height.		
<b>G.1.3</b>	estimate (begin to) and measure length using non-standard units.		
<b>G.1.4</b>	estimate (begin to) and measure height using non-standard units.		

<b>G.1.5</b>	record estimates and measurements using non-standard units.		
<b>YEAR 2</b>			
<b>OPPORTUNITIES</b> Children should be given a range of opportunities such as:			<b>KEY VOCABULARY</b>
<b>G.2.1</b>	understand and use the vocabulary related to length.	<ul style="list-style-type: none"> <li>• comparing two lengths and recognising that one is longer, the other is shorter.</li> <li>• comparing two heights and recognising that when one is taller and the other is shorter.</li> <li>• choosing two objects and predicting which one is longer / taller / shorter using appropriate vocabulary and then putting them side by side and checking.</li> <li>• recognising that different units can be used to measure length or height. (e.g. towers of ten interlocking cubes, drinking straws, strips of squared paper, paper clips etc.)</li> <li>• recognising that the units must be placed end to end and should be the same length.</li> <li>• recognising that the first unit must be lined up with the end of the object to be measured.</li> <li>• recognising that the length is not usually an exact number of units</li> </ul>	long/longer short/shorter tall/taller high/higher length height compare measure correct / correctly closest furthest
<b>G.2.2</b>	compare two lengths/heights by direct comparison; extend to more than two.		
<b>G.2.3</b>	suggest suitable standard or uniform non-standard units and measuring units to estimate.		
<b>G.2.4</b>	measure the length or height of an object using non-standard units.		

## H: TIME

Being able to tell time is a functional mathematical skill. Being punctual is important: whether at school or whether you are meeting your friends. When you grow up you would want to be punctual at work too. Moreover, being able to tell time will help you catch a bus or a flight on time. Usually it is suggested to be at the airport two hours before the departure of our flight. On the other hand if you park your car in a 150 minute parking space, you will need to be careful not to get a ticket.

Being able to tell time will further help you not to miss your favourite television programme. And what if you are baking a cake and on the recipe it says that bake time is 45 minutes, you would want to know how to keep the time on your analogue watch or on the digital time display on your oven. Likewise, if your favourite football team is winning 2 – 1, you would want to be able to know how many minutes are left to end of the match. And in order to remember to prepare a birthday card for your best friend you need to be able to read a calendar.

The above are only a few life situations when being able to tell time is important. Helping our children understand and appreciate this may be fruitful.

### YEAR 1

LEARNING OPPORTUNITIES		KEY VOCABULARY
Children should be given a range of opportunities such as:		
H.1.1	understand and use the vocabulary of time.	minute before after night day days of the week week the day before the day after minute hand hour hand hands clock face o'clock
H.1.2	sequence familiar events.	
H.1.3	recognise that there are seven days in a week and put them in order.	
H.1.4	read the time to the hour.	
H.1.5	show the time to the hour on an analogue clock.	
<ul style="list-style-type: none"> <li>sequencing events according to time and explaining the appropriateness of events at different times of the day, e.g. lunch at 3 o'clock in the afternoon.</li> <li>constructing a clock face.</li> <li>drawing the hands to show the hour.</li> <li>practicing telling the time from both analogue and 12-hour digital clocks and connect time to the events of a day using 'o'clock'.</li> <li>creating and using an analogue/digital timeline.</li> <li>listening to stories, poems or songs that will give them the opportunity to reinforce understanding, allow for application and may also provide the opportunity for creation e.g. role play.</li> </ul>		

## YEAR 2

<b>LEARNING OPPORTUNITIES</b>			<b>KEY VOCABULARY</b>
<b>Children should be given a range of opportunities such as:</b>			
<b>H.2.1</b>	understand and use the vocabulary related to time.	<ul style="list-style-type: none"> <li>• experiencing the duration of 1 minute, e.g. by clapping rhythmically and counting up to 60, or by using a minute egg/sand timer.</li> <li>• counting the number of times something occurs in one minute.</li> <li>• identifying and talk about events that last 1 hour/half hour e.g. the Maths lessons lasts half an hour.</li> <li>• talking about activities using vocabulary such as yesterday, today and tomorrow.</li> <li>• sequencing events according to time and explain the appropriateness of events at different times of the day, e.g. lunch at 3 o'clock in the afternoon.</li> <li>• constructing a clock face.</li> <li>• drawing the hands to show the hour and half hour.</li> <li>• practicing telling the time from both analogue and 12-hour digital clocks and connecting time to the events of a day.</li> <li>• creating and using an analogue/digital timeline.</li> <li>• listening to stories, poems or songs that will give them the opportunity to reinforce understanding, allow for application and may also provide the opportunity for creation e.g. role play.</li> <li>• creating their own journal.</li> </ul>	minutes night day days of the week weeks the day before the day after minute hand hour hand hands clock face o'clock half past seasons of the year
<b>H.2.2</b>	order familiar events in time.		
<b>H.2.3</b>	know the days of the week in order and the seasons of the year.		
<b>H.2.4</b>	read the time to the hour <del>or half hour</del> .		
<b>H.2.5</b>	show the time to the hour <del>or half hour</del> on an analogue clock on analogue clocks (o'clock).		

# I: MONEY

Being able to compare offers, read and understand receipts and pay bills at the supermarket, at a restaurant or at our favourite toy shop is very important. Then, you would want to make sure that you have received the correct change if you pay by cash and you do not have the exact amount. However, when you grow older you can also pay by cheque or card.

Equally important is being able to make plans related to money. This is what we refer to as budgeting. If you are saving to buy something special, you would want to be able to calculate how much more you need to save and also to know how long it will take you to save up for it.

If you or someone within your family have saved up to go on a family holiday, make sure to check the currency used in the country you are travelling to. The euro is the currency used in 18 of the 28 member states of the European Union.

The above are only a few life situations when being financially literate is important. Helping our children understand and appreciate this may be fruitful.

**Note:** use the words **euro** and **cent** as both singular and plural

## YEAR 1

LEARNING OPPORTUNITIES		KEY VOCABULARY
Children should be given a range of opportunities such as:		
<b>I.1.1</b>	understand (begin to) and use the vocabulary related to money.	coin/s cent euro how much? worth most worth least same cost/s change
<b>I.1.2.</b>	sort and recognise euro coins including the one euro coin.	
<b>I.1.3</b>	order coins starting from 1 cent going up to the highest value.	
<b>I.1.4</b>	use coins to pay.	
<ul style="list-style-type: none"> <li>• handling coins.</li> <li>• sorting coins by colour and size.</li> <li>• familiarising themselves with coins through activities such as coin rubbing, printing in play dough and feely bag.</li> <li>• handling and using coins to better understand that having one coin can be more valuable than having many of a different type. e.g. A 10c coin is more valuable than five 1c coins.</li> <li>• using coins to pay in role play and shopping activities in the classroom, by visiting shops or finding priced items at home e.g. What items can you really buy with 10c or 20c?                      understanding that change is giving back the extra amount paid.</li> </ul>		

## YEAR 2

<b>LEARNING OPPORTUNITIES</b>		<b>KEY VOCABULARY</b>
<b>Children should be given a range of opportunities such as:</b>		
<b>1.2.1</b>	recognise coins of different values up till two euro.	coins cent euro more how much? makes amount worth cost/s change
<b>1.2.2</b>	work out totals up to 20 cent.	
<b>1.2.3</b>	work out change from twenty cent.	
<b>1.2.4</b>	understand notation € for euro and c for cent.	
		<ul style="list-style-type: none"> <li>• using coins in role play and shopping activities in the classroom.</li> <li>• exploring different ways of making up a total.</li> <li>• handling coins to reinforce understanding that having one coin can be more valuable than having many of a different type. e.g A 10c coin is more valuable than five 1c coins.</li> <li>• discovering the real value of amounts of money in life by visiting shops or finding priced items at home e.g. What items can you really buy with 10c or 20c? – financial literacy.</li> </ul>



## J: SHAPES AND SYMMETRY

There is evidence of geometry everywhere. Buildings, planes, cars and maps all use geometry. For example, the home you live in is made of basic geometry shapes and some skyscrapers have windows made of rectangles and squares. Very often these structures are also symmetrical.

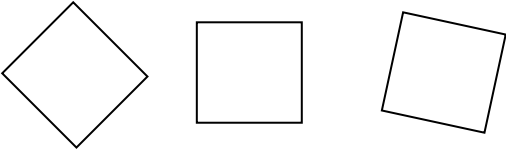
Symmetry can be seen almost everywhere in daily life. The human body is an example of symmetry: the kidney, the lungs the brain and to some extent even the face is.

Being able to understand the basic properties of 2-D and 3-D shapes, to draw shapes and to create your own patterns, whether symmetrical or not, will help you appreciate better the world we live in and will probably help you in your future career should you wish to become an engineer, a doctor, a scientist, a designer or a mechanic. However there are many other occupations that entail competence in geometry.

The above are only a few life situations where understanding of shapes and symmetry is important. Helping our children understand and appreciate this may be fruitful.

### YEAR 1

OPPORTUNITIES		KEY VOCABULARY
Children should be given a range of opportunities such as:		
J.1.1	name (begin to) 3D (solid) shapes and 2D (flat) shapes.	Shape square circle triangle rectangle side corner straight cube cuboid cylinder cone
J.1.2.	put sets of objects and shapes in order of size.	
J.1.3	talk about, recognise and recreate patterns.	
J.1.4	identify symmetrical objects in the environment.	
<ul style="list-style-type: none"> <li>handling common 2D and 3D shapes and find corresponding shapes in the surrounding environments through fun activities such as shape hunts.</li> <li>explaining the differences and similarities between two given shapes in response to questions such as, "Why is this a square?" using vocabulary related to properties of shapes.</li> <li>predicting if 3D shapes will roll or slide on an elevated surface, justifying the reason/s why, then confirming through practical activities.</li> <li>using a variety of shapes to make models, pictures and patterns, and describe them.</li> </ul>		

		<ul style="list-style-type: none"> <li>recognising shapes in different orientations as in <i>Figure 1</i> and sizes. e.g. while being partly revealed from an envelope or using the hide and reveal technique on the interactive whiteboard.</li> </ul> <div style="text-align: center;">  <p>Figure 1</p> </div> <ul style="list-style-type: none"> <li>creating 2D shapes e.g. by using geoboards, lolly sticks, straws.</li> <li>identifying patterns in the environment such as on tiles, clothing, jewellery and patterns found in nature.</li> <li>recognising and recreating patterns through practical activities and crafts using resources such as shapes, cubes, counters, paint, food items, coins, sequins and stickers, threading beads and pasta shapes.</li> <li>identifying symmetrical objects around us such as buildings, animals and insects, traffic signs, clothing items (check by folding).</li> <li>extending their learning experience through exposure to existing media broadcasts e.g. Umizoomi – Nickelodean productions or short online video clips or songs.</li> <li>predicting and recognising hidden or partially hidden shapes (in feely bag or covered with a piece of cloth) by using the sense of touch.</li> </ul>	<p>pyramid face flat solid curved roll bigger/est smaller/est larger/est</p>
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## YEAR 2

LEARNING OPPORTUNITIES		KEY VOCABULARY	
Children should be given a range of opportunities such as:			
<b>J.2.1</b>	name and talk about 2D (flat) shapes and their properties such as the number and type of sides and the number of corners.	<ul style="list-style-type: none"> <li>handling common 2D and 3D shapes and find corresponding shapes in the surrounding environments through fun activities such as shape hunts.</li> <li>explaining the differences and similarities between two given shapes in response to questions such as, “Why is this a square?” using</li> </ul>	<p>Shape square circle triangle rectangle side</p>

<b>J.2.2</b>	name and talk about 3D (solid) shapes and their properties such as the number and shape of faces, edges and corners.	<p>vocabulary related to properties of shapes.</p> <ul style="list-style-type: none"> <li>• comparing and contrasting 2D and 3D shapes by stating their properties.</li> <li>• making models using various 3D shapes from real-life and describe them.</li> <li>• making patterns and pictures with 2D shapes using construction kits, geoboards, playdough and other materials and describe them.</li> <li>• relating solid shapes to pictures of them.</li> <li>• exploring the line of symmetry of different pictures or shapes using folding and mirrors.</li> <li>• completing the missing half of a symmetrical shape, picture or pattern using mirrors, shape construction kits, drawing.</li> <li>• exploring symmetrical patterns through interactive whiteboard activities.</li> </ul>	<p>corner straight cube cuboid cylinder cone pyramid face flat solid curved half line of symmetry</p>
<b>J.2.3</b>	recognise and draw the line of symmetry of familiar objects and shapes around them.		
<b>J.2.4</b>	recognise line symmetry.		

## K: Position, Direction and Angles

Being able to read a map to follow and/or give directions are functional skills. Distinguishing between left and right, between clockwise and anticlockwise turns and among the eight compass points will equip you with these skills. A pilot, a sailor, a fisherman, a policeman... and any driver need to have a good grasp of these skills. Furthermore engineers, architects, product designers use knowledge of angles daily.

The above are only some instances where position, direction and angles are important. Helping our children understand and appreciate these through their own experiences may be fruitful.

### YEAR 1

LEARNING OPPORTUNITIES			KEY VOCABULARY
Children should be given a range of opportunities such as:			
K.1.1	follow instructions about positions, directions and movement.	<ul style="list-style-type: none"> <li>following instructions about positions, directions and movements in PE and other activities (e.g. clearing up and scavenger hunts).</li> <li>following instructions and/or describe positions, direction and movements on grids (e.g. bee-bot). giving instructions to each other during games and other activities.</li> </ul>	above below beside next to before after up down left right between
K.1.2	recognise and use the language of movement.		
K.1.3	recognise and use the language of position.		
K.1.4	recognise and use the language of direction.		

### YEAR 2

LEARNING OPPORTUNITIES			KEY VOCABULARY
Children should be given a range of opportunities such as:			
K.2.1	follow instructions related to positions, direction and movement.	<ul style="list-style-type: none"> <li>following a sequence of instructions, use and experience positional vocabulary in different contexts (e.g. PE, games, online activities,</li> </ul>	before after in front of

<b>K.2.2</b>	use everyday language to describe position, direction and movement.	<p>maths trails).</p> <ul style="list-style-type: none"> <li>programming instructions using a roamer (e.g. bee-bot).</li> <li>combining two movements into one (e.g. forward 3 and forward 4 is forward 7, forward 5 and backwards 2 is forward 3).</li> <li>using task cards to create models and/or drawing using positional vocabulary.</li> <li>recognising opposites in everyday language related to position, direction and movement.</li> <li>talking about things that turn (e.g. clock hands, roamers, cars, themselves)</li> <li>identifying the difference between left and right through practical situations (may also include games like <i>Twister</i>).</li> </ul> <p>comparing whole and half turns with the movement of the clock hands and other similar activities. (e.g. physical movements, drawings).</p>	<p>between up down left right forward backwards sideways opposites whole half turn</p>
<b>K.2.3</b>	recognise right and left.		
<b>K.2.4</b>	recognise whole and half turns.		

## L: Data Handling

Data handling is an essential activity in which we engage in our everyday life. We are frequently presented with data in various contexts which we need to analyse and interpret. Data can be presented in a variety of forms such as bar charts or pictograms. We often look for patterns and generalities within them and analysis is often confined to identifying the most popular or least popular item. However, we need to engage in more critical thinking. For example, drawing on real data in 2014 NSO has reported that from 2004 to 2013, both rainfall intensity and variability of total rainfall from the climatic norm were the lowest in the past four decades. And in the End of Primary Benchmark, in mathematics, the mean score was 69.20. We can attempt to look deeper into this data.

The above are only two instances of data analysis. Helping our children understand and appreciate data handling through their own experiences may be fruitful. **Note:** At Primary level mean and average are used interchangeably.

### YEAR 1

LEARNING OPPORTUNITIES		KEY VOCABULARY
<b>Children should be given a range of opportunities such as:</b>		
<b>L.1.1</b>	solve a given problem by sorting, classifying and organising information in simple ways.	sort label
<b>L.1.2</b>	discuss and explain results.	
<b>• sorting different shapes, colours, animals, vehicles etc. into two distinct categories (categories can be identified by teacher or by children themselves).</b>		

### YEAR 2

LEARNING OPPORTUNITIES		KEY VOCABULARY
<b>Children should be given a range of opportunities such as:</b>		
<b>L.2.1</b>	solve a given problem by sorting, classifying and organising information in simple ways.	sort set label list table
<b>L.2.2</b>	discuss and explain results.	
<b>• sorting objects or pictures in two distinct categories (categories can be identified by teacher or by children themselves).</b>		
<b>• looking closely at categories to understand that the same objects can be sorted in different ways.</b>		
<b>• sorting objects or pictures in a list or simple table.</b>		