

## Mathematics

*“Mathematics involves providing children with opportunities to develop and improve their skills in counting, understanding and using numbers, calculating simple addition and subtraction problems; and to describe shapes, spaces, and measure” (DfE, 2017).*

Children need to explore Mathematical concepts in playful ways from an early age. Children build key foundations, develop mathematical thinking and a positive attitude that allows them to become Mathematicians.



### Promoting an Understanding of Numbers

Activity	Tips	Learning (DfE, 2013)
<b>Number Hunt</b>	Hide numbers around the house and/or in the garden Encourage your child to find these, match similar numbers and order numbers. You can also use objects that can be counted and then matched to the numeral	Match numerals Number recognition Order numbers Match numeral and quantity
<b>Pretend Shop Play</b>	Discuss the idea of creating a shop with your child and set up the chosen shop , price objects in low amounts and use real coins Have mark making resources available to encourage writing of words and numbers Play with your child, allowing them to lead and swap roles	Organise and categorise objects Number recognition Money has value Uses everyday language related to money e.g. cost, change, price, total
<b>Number Songs</b>	Source number songs online to have a variety and allow familiarity to build before adding a new song. Sing them over and over so your child gets to know them Sing together and use actions wherever possible .	Uses number names Develops understanding of number and counting forwards and backwards Use the vocabulary involved in adding and subtracting
<b>Number Lines</b>	Provide number labels and number lines for children to use and refer to in their play You can use string (never leave your child alone with this) with pegs that your child can explore by moving numbers around.	Number recognition  Order numbers

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Activity	Top Tips	Learning (DfE, 2013)
<b>Use everyday situations to develop mathematical language &amp; thinking</b>	<p>Count in everyday situations e.g. the stairs, building.</p> <p>Spot numbers in the environment e.g. house/ bus numbers</p> <p>Play games that encourage counting and number recognition</p> <p>Talk about birthdays - dates and months</p> <p>Use snacks as opportunities to discuss amounts and sharing e.g. half, fair, more, less</p>	<p>Number names in sequence</p> <p>Develop an interest in numerals</p> <p>Make comparisons between quantities</p> <p>Recognise numerals of personal significance, sequencing</p> <p>Solve mathematical problems</p>
<b>Writing Numerals</b>	<p>Encourage mark making in number writing and representations</p> <p>Encourage number writing for a purpose in play e.g. football numbers, car registrations, taking the register</p>	<p>Number recognition</p> <p>Experiment with symbols/ marks representing ideas of number</p> <p>Match numeral and quantity</p>
<b>Hand/ Finger Play</b>	<p>Encourage children to match their fingers and or toes to numbers</p> <p>Put hands behind backs and count together, one, two, three, four, five. Bring out hands with the correct number showing</p>	<p>Estimates how many objects they can see and checks by counting them</p> <p>Ordering number names</p>
<b>Small World Play</b>	<p>Provide resources and model counting</p> <p>Count groups of objects in different layouts</p> <p>Provide small world play from familiar stories, giving reasons for counting and encourages number talk</p>	<p>Use language 'more' and 'fewer' to compare sets of objects</p> <p>Organise and categorise objects</p> <p>Knows that a group of things changes in quantity when something is added or taken away</p> <p>Know that numbers identify how many objects are in a set</p>

## Promoting an Understanding of Shape, Space & Measure

Activity	Top Tips	Learning (DfE, 2013)
<b>Positional Games</b>	<p>Use toys to talk about the position: where is...? behind, inside, on top, in front of .....</p>	Positional language
<b>Heuristic Play (Natural Objects)</b>	<p>Provide children with a range of age appropriate objects e.g. buttons, shells, fir cones, milk bottle lids and various containers to explore</p>	Understands mathematical concepts e.g. size, shape, sorting, properties
<b>Pattern Play</b>	<p>Take opportunities to observe and explore patterns such as drawing and bead threading,</p> <p>Point out patterns around the house e.g. shapes and colours on bedding (red flower, purple square, red flower, purple square).</p>	<p>Notice shapes and patterns in pictures</p> <p>Recognises, creates and describes patterns</p>
<b>Exploring shape</b>	<p>Set up shape hunts inside and outside</p> <p>Encourage building using blocks, construction kits, recycled materials.</p> <p>Model correct shape language.</p> <p>Discuss the properties of shape e.g. a dice has 6 faces</p> <p>Feely bag of different shaped objects for guessing from the feel</p>	<p>Identifies shapes accurately</p> <p>Uses mathematical terms to describe shapes</p>
<b>Exploring Weight</b>	<p>Cook using spoons, cups and kitchen scales</p> <p>Discuss weight e.g. mine is heavier, are they the same weight ?</p> <p>Use a sand timer to measure 2 minutes of teeth brushing</p>	Uses language of weight/time/capacity/measure
<b>Exploring Time</b>	<p>Discuss times of the day/ make a timeline e.g. morning, before snack time, 5 minutes time. Talk about yesterday, today, tomorrow.</p> <p>Use objects (non-standard measures) to measure length e.g. the chair is 6 spoons long, the flower pot is 2 sticks high</p>	Understands some talk about present, past and future
<b>Exploring Measure</b>	<p>Provide standard measures too e.g. rulers, tape measures for exploration</p> <p>Opportunities to explore space with their bodies e.g. crawling in spaces</p>	Orders by length
<b>Exploring Capacity</b>	<p>Provide different sized containers for filling and pouring in the bath, water/sand play. Model language e.g. empty, full, half full/ empty</p>	
<b>Matching &amp; Sorting Games</b>	<p>Provide a wide range of natural objects and materials as well as general toys that motivate children to naturally match, sort and categorise</p>	Categorise objects according to properties such as shape or size

## References

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This document and other information related to SKIP for Early Years Educators can be freely accessed and downloaded from:

<https://www.skipforeyeducators.co.uk>

