

Mathematics In The Foundation Stage

The Early Years Foundation Stage Framework (EYFS) sets out the learning and development stages for children as they grow from birth to five years. The EYFS is divided up into age bands which overlap. This is because every child is different and children do not grow and develop at the same rate. The Early Learning Goals are the expectations for where children may have reached at the end of The Foundation Stage in John Hampden. Some children exceed the expectation of the Early Learning Goals.

	Number	Shape Space and Measure
30 - 50 months	<ul style="list-style-type: none"> • I can use some number names and words like "more than" and "fewer than", when I am playing. • I can say numbers in order from 1 to 10. • I know that numbers tell me how many things there are altogether, like 8 biscuits on a plate. • I use my fingers, pictures or marks to show you how many things there are. • Sometimes I can match a numeral to the right number of things, like "3" to three balls. • I am interested in numbers and I talk about them and ask you questions. • I know when there are the same number of things, like 2 cakes, one for you and one for me. • I show I am interested in playing with numbers when I share things out in different ways, like putting my 10 farm animals in 2 fields and then in 3 fields and I am beginning to know there are still 10 animals. • I talk about the numbers I see when we are outdoors. • I am interested in making marks and calling them numbers. • I know that I can count claps and jumps as well as things like apples and buses and dinosaurs. 	<ul style="list-style-type: none"> • I like lining up shapes, fitting shapes and different things into boxes. • I see shapes when we are outdoors, like square windows and triangle and circle shapes in road signs. • I can use words like "under", and "next to" to describe where things are. • I choose to play with different sorts of building sets and talk about what I am making. • When I am doing puzzles, I look at the missing shapes to see what could fit. • I am beginning to use words like "round" and "straight" when I talk about the shapes I see.
40 - 60	<ul style="list-style-type: none"> • I can recognise numbers that are important to me like 	<ul style="list-style-type: none"> • I am beginning to use shape names like "circle", "square", "cube"

<p>months</p>	<p>my age, my house number or the bus number that I go to town on.</p> <ul style="list-style-type: none"> • I can recognise the numbers 1 to 5. • I can touch one thing and say the number name at the same time to help me count up to 3 or 4 things. • I can count the number of things on a page in a book or on a birthday card. • I can match the right number to a group of things from 1 to 5 to begin with, and then from 1 to 10. • I can guess how many things I can see in a bucket and then count them to see how close my guess was. • I can tell you which basket or bucket has got "more" or "fewer" things in. • I can put two baskets of things together and tell you how many things I have altogether. • I can tell you what "one more" is when you say a number. • I can tell you what "one more" or "one less" is when you give me a group of up to 5 things, then up to 10 things. • I can use words like "more", "add", "less" and "take away" • I can use marks and pictures to show you my counting. • I can use counting to help me solve problems that are important to me, like splitting my sandwich in half to share with my friend. 	<p>and "cylinder".</p> <ul style="list-style-type: none"> • When I am playing on an obstacle course I can use words like "under", "behind", "on" or "in" to tell you where I am. • I can tell you which thing is "heavy" and which thing is "light" when you give me 2 things. • I can tell you which thing is "full" and which thing is "empty" when I am filling and emptying bottles. • I can use things to make patterns, like buttons and bricks. • I am beginning to use words like "money", "pound" and "pence" when playing "shop". • I know the order I put my clothes on • I can tell you what is happening tomorrow or what happened yesterday. I can tell you what day today is.
<p>ELG</p>	<p>Children count reliably with numbers from one to 20, place them in order and say which number is one more or one less than a given number. Using quantities and objects, they add and subtract two single-digit numbers and count on or back to find the answer. They solve problems, including doubling, halving and sharing.</p>	<p>Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects and to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects and shapes and use mathematical language to describe them</p>

I can	<ul style="list-style-type: none"> • I can use numbers from 1 to 20 in the right order when I am counting things or singing rhymes. • I can tell you what "one more" or "one less" is when you say a number. • I can add groups of 2 things together and tell you how many I have got altogether and take things away from a group to tell you how many things I have got left. • I can solve problems that are important to me like sharing snacks between me and my friends so that we all have the same number of pieces of fruit. 	<ul style="list-style-type: none"> • I can use words like "big", "small", "heavy", "light", "in", "under", "pound", "pence", "morning" and "night" when I am playing with groups of things. • I can make patterns and tell you about them.
Exceeding ELG	Children estimate a number of objects and check quantities by counting up to 20. They solve practical problems that involve combining groups of 2, 5 or 10, or sharing into equal groups.	Children estimate, measure, weigh and compare and order objects and talk about properties, position and time.
	<p>John Hampden: An Exceeding Mathematician in FS Number</p> <p>Examples:</p> <ul style="list-style-type: none"> • I can estimate a number of objects and check quantities by counting up to 20 • I can solve practical problems that involve combining groups of 2, 5 or 10, or sharing into equal groups. • I can count on and back in 1's, 2's, 5's and 10's • I can count reliably to 100 • I can say a number that is 1 more or 1 less than a number to 100 • I can add and subtract 1 digit numbers and 2 digit numbers to 20, including zero • I know the signs + - = • I can solve a missing number problem 	<p>John Hampden: An Exceeding Mathematician in FS Space and Measure</p> <p>Examples:</p> <ul style="list-style-type: none"> • I can recognise coins - 1p, 2p, 5p, 10p • I can recognise and name the 2D shapes such as circle, triangle, square and rectangle • I can recognise and name the 3D shapes such as cuboid, pyramid and sphere • I can recognise 2d and 3D shapes in the environment • I can name the days of the week and the months of the year • I can use my knowledge of time to know when key periods of the day happen, for example, lunchtime, home time • I can name the days of the week • I can tell the time to o'clock

Children learn and develop through playing, exploring, being active creative and being asked questions to help their thinking. Here are just some examples of ideas as to how you can help your child's learning and development.

	
30 - 50 months Number	<ul style="list-style-type: none"> • Make a train shed with numbers on so that I can match my trains into a shed with the same number on • Put numbers on a skittles game from plastic bottles. Ask me what the number was on a bottle I knocked down
30 - 50 months Shape, Space and Measure	<ul style="list-style-type: none"> • Let me build from cardboard boxes or wooden bricks. Use words like "long" or "tall" to describe my model • Go on a shape walk inside or outside to find things which are the same like "circles" or "spheres"
40 - 60 months Number	<ul style="list-style-type: none"> • Plan a picnic with me and help me to decide how many sandwiches and bananas we will need • Make a number line with me using birthday cards • Play number snap or bingo with numbers that we have cut out of a magazine • Sing number songs where I have to count backwards like, "Five Little Ducks" or "Ten Fat Sausages" • Roll a dice (4,5,6) and collect the right number of objects. • Role-play area - selling groups of objects, 2 bananas and 3 apples... • Count a frogs jumps forwards and backwards along a number line or number track. • Frog is on number 4 and he jumps on 2 more. Where will he land? 

40 - 60 months Shape, Space and Measure

- Let me sort out pairs of shoes so that they go from small to big
- Let me make patterns with buttons or lids like "big", "small", "big"
- Let me give you instructions for an obstacle course, like, "Go under the blanket," "Go through the tunnel", and "Go behind the chair."

ELG Number

one, two, four,
three, five ...

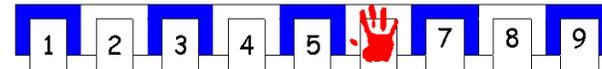


- Talk about the numbers. Ask me to describe a number in relation to another e.g. my number is 1 more than 8, John's number is 1 less than 4. Develop the game by adding a puppet who has taken a number. Ask me to guess which number by asking question e.g. is your number bigger than 3? Is it between 6 and 9?
- Ask me to identify mistakes made by a puppet
- Play games to encourage me to guess the number that you or a teddy is thinking of. E.g. wear a hat and put a number underneath or in a bag and describe the number: 'I am thinking of a number that is 1 more than 8'. Teddy hides a number under his jumper and says 'My number is bigger than 5, but is less than 7'.
- Recite number rhymes and sequences at the park e.g. jump inside hoops and recite number names, how many skips/hops/jumps will it take to reach the end of the playground. Develop by starting from a different number and counting backwards.
- Play games to encourage me to know how many without counting e.g. play games using large plastic dice to recognise the pattern of numbers. Throw the dice and jump that many along the number line without counting the dots. Throw 3 beanbags into a hoop and say how many without counting them.
- Use a washing line to count socks, beanbags, and dolls clothes.



- Ask me to spot the number 8 on a clock face, till, telephone, calculator ...

- Ask me to spot numbers on the way to the shops ...
- Teddy takes a number from the number line or track - can you guess which number is missing?



- Let me find out by counting which of 2 sets has more/fewer objects;
- Ask me to find or pick objects that are taller, shorter, wider, thinner, heavier or lighter than one I am given like: A shell that is lighter than this one...
- Let me check which set contains more/fewer by lining up and matching one-to-one.
- Ask me the number that is one more or one less than 7, 14, 5, 12
 - What number comes after 3, before 10?
 - What numbers are next to 12?
- Ask me which fruit costs more / less:  
- Let me answer 'silly' questions, e.g. Could there be a bike in this tiny box?

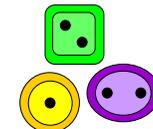
- Let me use the vocabulary of addition and subtraction in practical contexts, using objects;
 - by modelling with apparatus;
 - by modelling with fingers;
- Ask me to use vocabulary like:
 - more, and, add, make, altogether ...
 - take away, leave, how many left? ...



- Let me answer questions like:
 - How many more buttons to make 5?

How many more is 4 than 2?

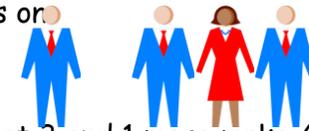
What is the difference between 4 and 2?



- Play a game where we roll a dice (4,5,6) and collect the right number of objects. Roll a second dice (1,2,3) take that number of objects

away. Model the language used, 'how many did we start with?', 'how many did we take away?', 'how many remain?'

- Play a game where we roll a dice (variety of number of dice), add spots to find the total to move around a board game (snakes and ladders etc).
- Find all dominoes that add up to a given total. (Draw attention to doubles).
- Ask me to work out how many people are on a bus if there were 3 people and then 1 more gets on



- Let me say, for example, that 3 and 1 more make 4 and that 4 is 1 more than 3
- Let me work out how many children are left if there were 10 and then 1 goes out
- Let me say, for example, that 9 and 1 more make 10 and that 9 is 1 less than 10.
- Let me work out how many objects there are altogether by counting all the objects.

4 cakes and 3 cakes

(Altogether there are 1, 2, 3, 4, 5, 6, 7)

Say 4 add 3 is 7.



- Ask me to work out how many pennies I would have to give a shopkeeper if I bought an apple and an orange



- Let me work out how many are left when some are taken away, by counting how many are left.

We ate 2 of our 5 sweets.

(Count: 1,2,3,4,5. Take away 1,2 ... 1, 2, 3)



- Ask me to say that 5 take away 2 is 3.
- Encourage me to choose 2 groups of objects to make a given total e.g. make a flower basket of 8 flowers using daffodils and tulips - discuss how they have made their basket with 5 daffodils and 3 tulips. Support me in

	<p>recording my outcomes by drawing or making marks.</p> <ul style="list-style-type: none"> • Give me a variety of scenarios to begin to relate subtraction to 'taking away' e.g. Levi has built a tower with 9 bricks, ask how many bricks would there be if he took 2 away. (Count 1, 2, 3, 4, 5, 6, 7, 8, 9, then take away 2.....there are 1, 2, 3, 4, 5, 6, 7 left - say together 9 take away 2 is 7). • Offer me a wide variety of opportunities to 'take away' in play situations, both indoors and out e.g. there are 6 bikes and 2 children are playing on them, so how many bikes are free? • Develop these skills into counting back - use a set of 6 puppets who are at a party - 3 of them go home, how many are left at the party? (Count back from 6: 5, 4, 3 - say together 6 take away 3 is 3). • During play find ways of modelling counting up to the larger number e.g. count out 8 cars onto a road mat, put some (2) into the garage, how many have gone to the garage. (Count up from the number, there are 6 cars on the mat now and there were 8, so 6: 7, 8 - and say 2 - then say together 6 add 2 makes 8; 8 take away 2 makes 6). • Use many opportunities during play to work out by counting how many more are needed to make a larger number. During snack time there are 6 apples and 8 children to eat the apples - how many more apples will we need? (Count up from 6: 7, 8 - and say 2 - we will need 2 more apples for all the children - say together: 6 add 2 makes 8). • Encourage me to solve problems like: <ul style="list-style-type: none"> Are there more blue bricks than red bricks? How can we find out? Can you cut the cake in half? How many pieces? Can we share these cakes fairly? How shall we do it? • Ask me to make decisions about how to solve a problem; • Encourage me to explain orally and, where appropriate, record the solution in my own way;
<p>ELG Shape, Space and Measure</p>	<p>Length / Height</p> <ul style="list-style-type: none"> • Ask me to make a line/tower of cubes, ask me can you make one longer/ taller / shorter / the same?

- Let me compare objects - find me something smaller/shorter/taller etc.
- Encourage me to compare lengths of ribbon, skipping ropes, scarves ...
- Ask me to measure things using cubes/footsteps/hands/ blocks/ plasticine/ropes etc emphasising starting point.

Weight - *use a range of objects (small heavy things and large light things)*

- Let me use hands as a balance to compare weight.
- Ask me to use a balance to compare weight.
- Give me an object - can I find a heavier/lighter object?
- Let me order a given set of objects by weight, extend to parcels that look the same but have different weights.

Capacity - *use a range of containers (thin and tall, shallow and fat ...)*

Ask me to:

- Investigate a range of containers and things to fill them with; sand, water, oats, sawdust ...
- Which container holds more than ..., which holds the least ...?
- How many spoonful's/spadesful etc. do different containers (some that stretch, e.g. 'socks') hold.
- How many regular things e.g. cubes/buttons, can you fit in the box?
- What is the most/least number of things you can **fit** into container?
- Ask silly questions - would an elephant fit in this box?
- Talk about patterns I see in necklaces, on carpets
- Describe patterns I see in necklaces, on carpets ... 
- Use various things to recreate a repeating pattern: paints, cotton reels, bricks, shapes ... 
- Copy repeating patterns of sound or movements in music or dance: Tap, tap, pause, tap ... on a tambourine; Hop, hop, jump
- Continue repeating patterns of sound or movements in music or

dance: Tap, tap, pause, tap ... on a tambourine; Hop, hop, jump

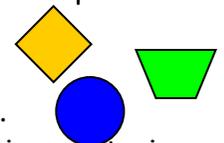
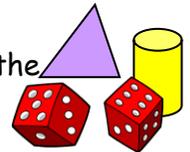
- Symmetrical patterns - let me make squashy butterflies by making splodges of paint on $\frac{1}{2}$ paper and then fold over. Use mirrors to observe and explore symmetry and copy symmetrical patterns.
- Explore making symmetrical shapes from folded paper e.g. snowflakes and Christmas trees.



- Ask me to observe and make patterns for a purpose e.g. pasta or bead necklace, crowns, wallpaper and wrapping paper.

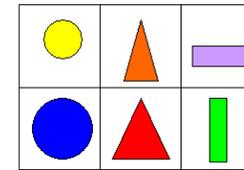


- Understand words like flat, curved, round, straight, corner, face, side ... when used in practical contexts;
- Identify some solid shapes that can be seen around the classroom;
- Describe the shape of the faces on objects;
- Talk about some of the properties of solid and 2D shapes:
This shape is hollow; this shape rolls; this shape has flat faces ...
This shape has 3 corners; this shape is curved all the way around.
- Compare solid and 2D shapes;
- Make and describe models using shapes that vary in shape and size ...
and say what shapes have been used to make it;
- Draw round a shape template or sketch 2D shapes.
- Ask me to sort a range of objects according to a given criteria or to make up their own way of sorting.



- Set up Kim's game - children describe the object that has been taken using appropriate language.
- Set up shape hunts

- find the circle, cube in the sand tray...
- find the hidden shapes, in the environment, either by name or from criteria.
- Go on shape walk - find shapes in the local environment, take photos, make rubbings...
- Play Bingo - prepared cards - cover the larger circle, the thinner triangle ...



- Sort a set of objects for characters from a story - things that belong to Jack or the giant, the three bears ...
- Ask me to draw, make or find a larger or smaller circle, cube...
- Ask me to draw a picture or make a model using 2-D or 3-D shapes of various sizes. Describe the shapes used.
- Use and understand words in practical contexts to describe a position like:
over, under, above, below, opposite, between, middle, corner, top, bottom, front, back, side ...
- Let me describe where objects are in pictures:
The fish is above the weed in the bowl;
The frog is on the rock next to the flower;
- Ask me to describe where things are stored on shelves or in a cupboard: The pens are next to the books on the top shelf;
- Discuss stories such as Rosie's Walk, Bear Hunt ...



Exceeding Number

- Let me guess how many sweets there are in a jar and check quantities by counting
- Let me solve practical problems that involve combining groups of 2, 5 or 10, or sharing into equal groups, for example counting pairs

	<p>of socks in 2's</p> <ul style="list-style-type: none"> • Let me count forwards and backwards in 1's, 2's, 5's and 10's • Listen to me counting reliably to 100 • Ask me for a number that is 1 more or 1 less than a number to 100 • Ask me to add and subtract 1 digit numbers and 2 digit numbers to 20, including zero and record it • Ask me what the signs + - = are • Ask me to solve missing number problems $8 + \triangle = 10$
<p>Exceeding Shape, Space and Measure</p>	<ul style="list-style-type: none"> • Give me coins to explore and recognise- 1p, 2p, 5p, 10p • Ask me to recognise, name 2D shapes such as circle, triangle, square and rectangle and describe what they look like • Ask me to recognise and name 3D shapes such as cuboid, pyramid and sphere • Ask me to recognise some 3D shapes: cone, cube, sphere and describe what they look like • Sing songs with me about the days of the week and the months of the year • Discuss time with me and use my knowledge of time to know when key periods of the day happen, for example, lunchtime, home time Ask me to name the days of the week, discussing what day it was yesterday and what day it will be tomorrow • Ask me to tell the time to o'clock