



PROGRESSION OF MATHS IN EARLY YEARS

Rationale:

Our maths curriculum is designed to be accessible to all and will maximise the development of every child's ability and academic achievement so that they can use their mathematical skills and knowledge confidently in their lives, in a range of different contexts. At Jewell Academy, we place a strong emphasis on the children learning and practising the fundamentals of mathematics.

We aim to foster a love of mathematics, so that children go through life as confident, enthusiastic and resilient mathematicians. We want all children to enjoy maths and to experience success in the subject, by providing them with creative and engaging learning opportunities. This will enable them to make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. We encourage the use of concrete objects and manipulatives to support a thorough understanding and focus on deepening the children's understanding so they can relate it to previously learnt problems.

Pre-School

Focus vocabulary:

- Pattern, make, corrections
- Zero, one, two, three, four, five, more than, fewer than,
- Bigger, smaller
- Split up, separate, group
- Share
- Day, week, month, year, weekend, birthday, holiday, morning, afternoon, evening, night, midnight, bedtime, dinnertime, playtime, today, yesterday, tomorrow
- Up, down, forwards, backwards, sideways
- Sort, same, different
- Sides, corners, straight, flat, round
- Triangle, circle, square, rectangle

Reasoning:

- Recognise and extend ABAB patterns, e.g. stick, leaf, stick, leaf
- Create new ABAB patterns
- Notice and correct an error in a repeating ABAB pattern
- Talk about and identify the patterns around them, for example: stripes on clothes, designs on rugs and wallpaper
- Begin to compare objects according to properties, such as shape or size
- Sort familiar objects into two groups, making choices, eg teddy bears and dolls, apples and bananas
- Say why they chose to put an object in the group they did

Problem Solving:

- Solve real world mathematical problems with numbers up to 5 and beyond
- Make links to real-life, through role play and through helping adults
- Use a range of practical resources and equipment
- Understand a question or instruction that has two parts – eg 'get your coat and wait at the door'

Fluency:

- Say number names in order to 3 starting at 1
- Say number names in order to 5 starting at 1
- Say number names in order to 10 starting at 1
- Count a line of objects, tagging each object with a number word, to 3
- Count an irregular arrangement of 3 objects by tagging each object with a number word
- Count a line of objects, tagging each object with a number word, to 5
- Count an irregular arrangement of 5 objects by tagging each object with a number word
- Count out 3 objects from a larger group
- Automatically recognise a group of 2 objects
- Automatically recognise a group of 3 objects
- Say the correct number word when I see number symbols 1-3 in various contexts
- Match the number symbol with a group of up to 3 objects
- Say the correct number word when I see number symbols 4-5 in various contexts
- Understand that a group of 3 objects is still a group of 3 objects even when rearranged

Space, Shape and Measure:

- Make comparisons between objects relating to size and length
- Make comparisons between objects relating to capacity
- Make comparisons between objects relating to weight
- Include counting money and change in role-play games
- Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'
- Describes events in relation to today, tomorrow, yesterday etc (see Vocabulary)
- Understand that words like Monday, Tuesday etc refer to days in the week
- Talk about and explore circles, rectangles and triangles using language like 'sides', 'corners'; 'straight', 'flat', 'round'
- Combine shapes to make new ones – eg a bigger triangle etc.
- Talk about and explore solid shapes such as cuboids and balls (*round is an acceptable description at this age*)
- Select shapes appropriately: eg flat surfaces for building, a triangular prism for a roof etc.
- Combine shapes to make new ones eg - an arch, a bigger cuboid etc.
- Begin to categorise objects according to properties, such as shape or size

Position and Direction:

- Understand position through words alone, e.g. "The bag is under the table," – with no pointing
- Describe a familiar route
- Start to use words like 'in front of' and 'behind'

Early Years

ELG: Number and Numerical Patterns (see appendix 1 below\)

Focus Vocabulary:

- Create, continue, copy, repeat, repeating pattern, carry on, answer
- More, less, fewer, number, count, check, same, different, amount
- Number bonds, more, less, altogether, count on, count back, part, whole
- Double, half, halve, share, share equally, group in twos, threes etc., equal groups of, total
- Days of the week, before, after, next, last, now, soon, early, late, quick, quicker, quickest, quickly, fast, faster, fastest, slow, slower, slowest, slowly, old, older, oldest, new, newer, newest, once, twice, first, second, third, etc., money, coin, penny, pence, pound, measure, heavier, heaviest, lighter, lightest, taller, tallest, shorter, shortest, longer, longest, faster, fastest, more, most, less, least.
- Before, after, beside, next to, opposite, apart, between, middle, make, build, draw
- Set, list, information, order, count

Reasoning:

- Recognise and describe simple repeating patterns involving numbers or shapes eg AABBAABB, ABCABC
- Continue simple repeating patterns involving numbers or shapes
- Create simple repeating patterns involving numbers or shapes
- Say what they are trying to find out
- Sort familiar objects into three or more obvious groups eg different colours
- Sort familiar objects into two or more groups based on comparisons eg long/short/dark/light
- Describe ways they have sorted objects using comparative language eg longer/shorter

Problem Solving:

- Solve real world mathematical problems with numbers up to 10 and beyond 10.
- Think out loud how to work things out.
- Answer questions by choosing and using suitable equipment
- Recognise the pattern of the counting system counting verbally
- Identifies a missing number from a given sequence up to 10

Fluency:

- Say number names in order to 20 starting at zero
- Say number names in order beyond 20
- Count a line of objects, tagging each object with a number word, to 10
- Count an irregular arrangement of 10 objects by tagging each object with a number word
- Represent objects to 10 using my own marks
- Count an objects or actions to 20 by tagging each object/action with a number word
- Count an objects or actions beyond 20 by tagging each object/action with a number word
- Count out 5 objects from a larger group
- Count out 10 objects from a larger group
- Automatically recognise a group of 4 objects
- Automatically recognise a group of 5 objects
- Match the number symbol with a group of up to 5 objects.
- Say the correct number word when I see number symbols 6-10 in various contexts
- Match the number symbol with a group of up to 10 objects
- Use a tens frame to organise my counting I know that the numbers in the one's column increase in the same way (1-9) for each ten
- Understand that a group of 5 objects is still a group of 5 objects even when rearranged
- Understand that a group of 10 objects is still a group of 10 objects even when rearranged

Space, Shape and Measure:

- Compare length, using comparative language, such as 'more than, less than'
- Use comparative language to group objects
- Compare capacity, using comparative language, such as 'more than, less than'
- Compare weight, using comparative language, such as 'heavier than'
- Begin to use everyday language related to money in role play
- Use everyday language related to time
- Order and sequence two or three familiar events
- Measure short periods of time in simple ways
- See how a shape can have other shapes within it e.g. two triangles can make a square
- Copy increasingly complex 2D pictures and patterns using shape

Position and Direction:

- Use positional language such as top, bottom, middle, between, inside
- Describe their relative position such as 'behind' or 'next to' or 'in front'
- Count how many objects share a particular simple property
- Present results using practical resources, pictures, drawings or numerals

Appendix 1: Early Learning Goals (taken from Early Years Foundation Stage Profile Handbook 2022)

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1024319/Early_years_foundation_stage_profile_handbook_2022.pdf

Mathematics Number ELG

Children at the expected level of development will:

- Have a deep understanding of number to 10, including the composition of each number;
- Subitise (recognise quantities without counting) up to 5;
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

Numerical Patterns ELG

Children at the expected level of development will:

- Verbally count beyond 20, recognising the pattern of the counting system;
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity; - Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally

Appendix 2: Guidance from NCETM progression document:

- Children need to know number names, initially to five, then ten, and extending to larger numbers, including crossing boundaries 19/20 and 29/30.
- Counting back is a useful skill, but young children will find this harder because of the demand it places on the working memory.
- Children need lots of opportunities to count things in irregular arrangements. For example, how many play people are in the sandpit? How many cars have we got in the garage? These opportunities can also include counting things that cannot be seen, touched or moved.
- Children need the opportunity to count out or 'give' a number of things from a larger group, not just to count the number that are there. This is to support them in focusing on the 'stopping number' which gives the cardinal value.
- Subitising is recognising how many things are in a group without having to count them one by one. Children need opportunities to see regular arrangements of small quantities, e.g. a dice face, structured manipulatives, etc., and be encouraged to say the quantity represented. Children also need opportunities to recognise small amounts (up to five) when they are not in the 'regular' arrangement, e.g. small handfuls of objects.
- Children need to have the opportunity to match a number symbol with a number of things. Look for opportunities to have a range of number symbols available, e.g. wooden numerals, calculators, handwritten (include different examples of a number).
- Children need the opportunity to recognise amounts that have been rearranged and to generalise that, if nothing has been added or taken away, then the amount is the same.