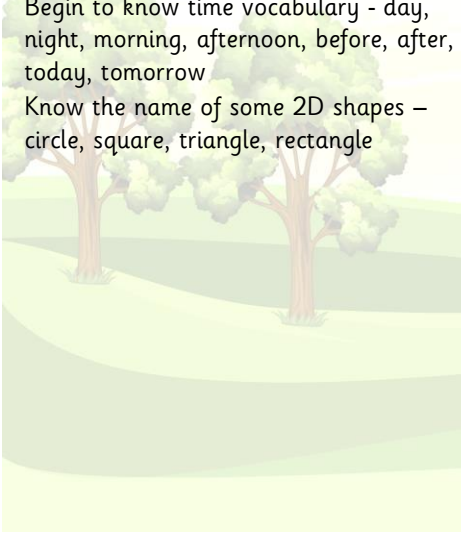
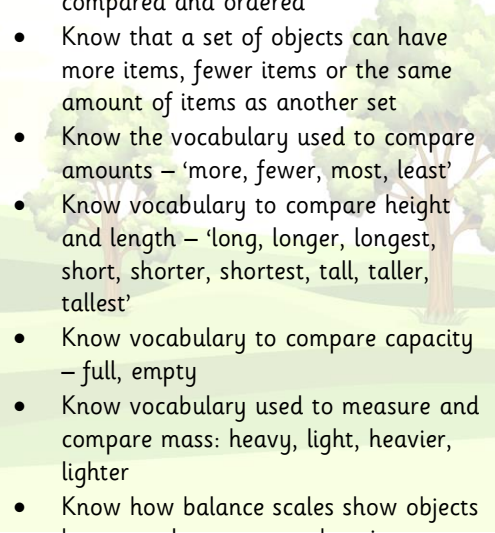
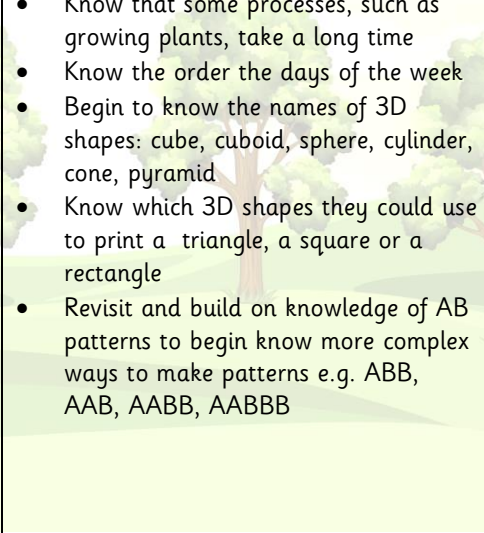
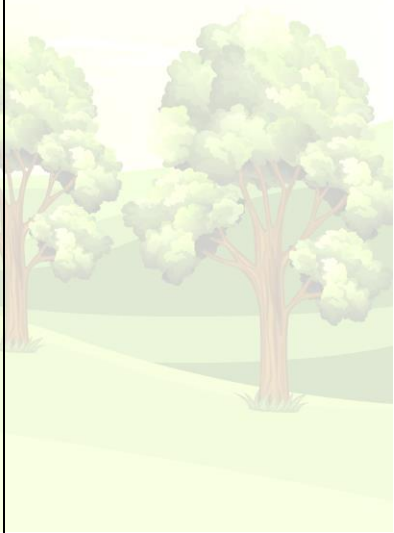
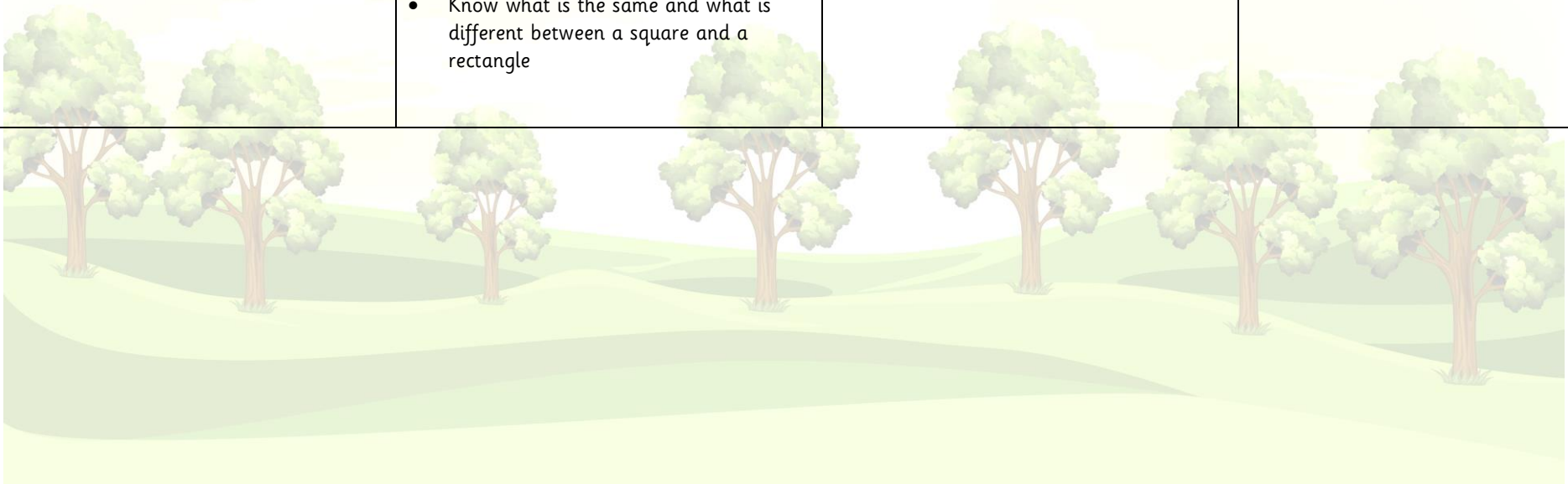


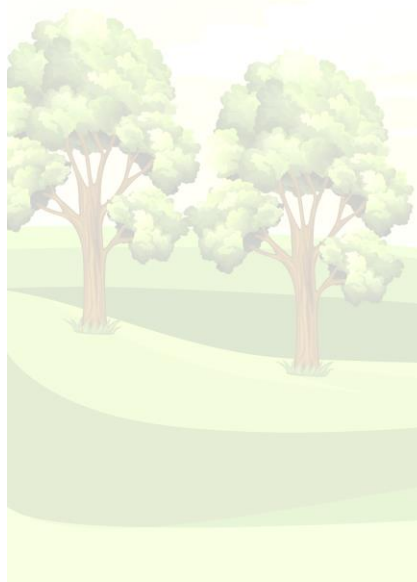
## MATHS TREES OF KNOWLEDGE AND SKILLS PROGRESSION EYFS – MEASURE, SHAPE AND SPACIAL THINKING

|                  | Nursery  | Reception<br>Autumn Term   | Reception<br>Spring Term  | Reception<br>Summer term  |
|------------------|--|--|---|---|
| <b>Knowledge</b> | <ul style="list-style-type: none"> <li>• Begin to know that objects can be sorted, matched and compared</li> <li>• Begin to know vocabulary to compare size – big, small, long, short, tall</li> <li>• Begin to know vocabulary to compare amounts – more, less</li> <li>• Begin to know vocabulary to measure mass – heavy, light</li> <li>• Begin to know vocabulary to compare capacity – full, empty</li> <li>• Begin to know positional vocabulary – in, on, under, on top</li> <li>• Begin to know time vocabulary - day, night, morning, afternoon, before, after, today, tomorrow</li> <li>• Know the name of some 2D shapes – circle, square, triangle, rectangle</li> </ul>  | <ul style="list-style-type: none"> <li>• Know that objects can be sorted, matched and compared</li> <li>• Know what makes objects the same or different e.g. socks, wellies, animals, tower, shapes, number shapes (Numicon)</li> <li>• Know that objects can be sorted by colour, shape or size</li> <li>• Know which objects belong together within their classroom (through tidy up time)</li> <li>• Know that sets of objects can be compared and ordered</li> <li>• Know that a set of objects can have more items, fewer items or the same amount of items as another set</li> <li>• Know the vocabulary used to compare amounts – ‘more, fewer, most, least’</li> <li>• Know vocabulary to compare height and length – ‘long, longer, longest, short, shorter, shortest, tall, taller, tallest’</li> <li>• Know vocabulary to compare capacity – full, empty</li> <li>• Know vocabulary used to measure and compare mass: heavy, light, heavier, lighter</li> <li>• Know how balance scales show objects have equal mass or are heavier or lighter than others</li> </ul>  | <ul style="list-style-type: none"> <li>• Re-visit knowledge of vocabulary to compare capacity – full, empty</li> <li>• Extend knowledge of vocabulary to compare capacity – half full, nearly full, nearly empty</li> <li>• Re-visit knowledge of vocabulary used to measure and compare mass: heavy, light, heavier, lighter</li> <li>• Extend knowledge of vocabulary to compare mass; heaviest, lightest</li> <li>• Know that regular events happen on the same day each week</li> <li>• Know that some processes, such as growing plants, take a long time</li> <li>• Know the order the days of the week</li> <li>• Begin to know the names of 3D shapes: cube, cuboid, sphere, cylinder, cone, pyramid</li> <li>• Know which 3D shapes they could use to print a triangle, a square or a rectangle</li> <li>• Revisit and build on knowledge of AB patterns to begin know more complex ways to make patterns e.g. ABB, AAB, AABB, AABBB</li> </ul>  | <ul style="list-style-type: none"> <li>• Know that shapes can be combined and separated to make new shapes</li> <li>• Know that some quantities will share equally into two groups and some will not</li> <li>• Know that places and models can be replicated</li> <li>• Know that we can make maps and plans to represent places</li> </ul>  |

- Know vocabulary relating to positional vocabulary, such as in, on, under, above, below, next to, etc.
- Know some words to name and describe shapes (circle, triangle, rectangle, square, cube, cuboid, sides, corners, straight, flat, round)
- Know that shapes can be combined to make a new one
- Know the circles have one curved side and triangles have 3 straight sides
- Know that squares and rectangles have 4 straight sides and 4 corners
- Know that triangle, squares and rectangles can be represented in different orientations (this does not change the shape name)
- Know what is the same and what is different between a square and a rectangle



|  |  |  |  |   |
|--|--|--|--|---|
| <p style="text-align: center;"><b>Skills</b></p> | <ul style="list-style-type: none"> <li>• Find and match objects which are the same</li> <li>• Put objects into matching pairs</li> <li>• Put pictures into matching pairs</li> <li>• Sort a group of objects by colour (given criteria and modelled first)</li> <li>• Sort a group of objects by size (given criteria and modelled first)</li> <li>• Sort a group of objects by shape (given criteria and modelled first)</li> <li>• Build a tower to match one given (same construction material and same number of pieces)</li> <li>• Through tidy up time, identify which objects go together</li> <li>• Sort objects through their play e.g. plates, cups, bowls, cutlery (by colour)</li> <li>• Explore height, length, weight and capacity through playful activities</li> <li>• Pour from container to container to explore volume and capacity</li> <li>• Begin to use vocabulary to compare heights, weights, lengths, capacities</li> <li>• Begin to understand and use positional vocabulary e.g. in, on, under, on top</li> <li>• Begin to understand and use vocabulary linked to time e.g. day, night, morning, afternoon, before, after, today, tomorrow</li> </ul> | <ul style="list-style-type: none"> <li>• Find and match objects which are the same</li> <li>• Match pairs of objects and identify the odd one out (or the one missing a partner)</li> <li>• Match, sort and compare picture cards</li> <li>• Match number shapes (Numicon) and identify the odd one out (or the one missing a partner)</li> <li>• Match objects/shapes to their corresponding outline shapes draw on paper</li> <li>• Match a shape of different sizes to their corresponding outline draw on paper</li> <li>• Build towers that are the same (same construction materials and same number of pieces/same height/length)</li> <li>• Say what is the same about a group of objects and how they differ from another group e.g. different colour, shape, size</li> <li>• Begin to understand that a group of objects can be sorted in different ways</li> <li>• Say how they have sorted objects e.g. into colours, shapes, sizes</li> <li>• Sort objects through their play e.g. plates, cups, bowls, cutlery (by colour), different types of food</li> <li>• Sort blocks in different ways and begin to use and begin to use and understand vocabulary such as: stack, roll, shape, large, small, etc.</li> <li>• Explore ways to sort natural objects, considering different criteria</li> <li>• Identify which set has more or most items and which set has fewer or fewest</li> </ul> | <ul style="list-style-type: none"> <li>• Make direct comparisons by holding objects to estimate which feels heaviest and then use scales to check</li> <li>• Use the language of heavy, heavier than, heaviest, light, lighter than, lightest to compare objects (starting with items which have an obvious difference in weight)</li> <li>• Explore capacity using different materials such as sand, water, rice and beads</li> <li>• Use language of: tall, thin, narrow, wide and shallow to describe different containers</li> <li>• Make direct comparisons by pouring from one container into another</li> <li>• Use small pots or ladles to make indirect comparisons by counting how many pots it takes to fill a container</li> <li>• Identify which of 2 containers holds more</li> <li>• Order 3 (then 5) containers by their Capacity</li> <li>• Use the language of: equal to, heavier than, lighter than, heaviest, lightest</li> <li>• Identify which of 2 items is heavier/lighter</li> <li>• Identify the heaviest/lightest object from a group of 3</li> <li>• Use language to describe length and height e.g. The tree is tall, The pencil is short</li> <li>• Use mathematical vocabulary relating to length (longer, longest, shorter, shortest), height (taller, tallest, shorter, shortest) and breadth (wider, narrower) to make direct comparisons between objects, through their play</li> </ul> | <ul style="list-style-type: none"> <li>• Select and rotate shapes to fill a given space</li> <li>• Match arrangements of shapes, using positional language to describe where the shapes are in relation to each other</li> <li>• Fit shapes together and take shapes apart – notice the new shapes they have made</li> <li>• Investigate how many different ways a given shape can be build using smaller shapes</li> <li>• Explore the different shapes they can make by combining a set of given shapes in different ways</li> <li>• Recognise and make equal groups</li> <li>• Notice that sometimes there are some items left over when they share or group - suggest ways to resolve these issues</li> <li>• Notice odd and even structure on number shapes (Numicon) and by building pair-wise patterns on 10s frames</li> <li>• Look at places and models from different positions and talk about what they notice</li> <li>• Replicate simple models, constructions, real places and places in stories</li> <li>• Use positional language to describe where objects are in relation to other objects</li> <li>• Visualise simple models by playing barrier games and follow verbal instructions as they build</li> <li>• Engage in extended problem-solving (linked to stories or activities in real life situations through play)</li> </ul> |
|--|--|--|--|---|



- Identify groups with equal amounts of items
- Use 5s frames to line up items – one-to-one correspondence
- Compare quantities, using more and fewer
- Make the distinction between size and quantity e.g. compare smaller quantities of large items with larger quantities of small items – then say which set has more or fewer
- Compare the height and length of objects
- Make towers or manipulatives to make something longer, shorter or taller than a given object
- Create homes/containers for different objects/animal/small world, identifying what size and shape will fit
- Explore capacity with different sized containers
- Compare capacity by filling different containers with scoops/spoons/cups of sand/water
- Explore mass by using balance scales
- Copy, continue and create their own simple patterns
- Explore AB patterns in a range of contexts including shapes, colours, sizes, actions and sounds
- Build patterns horizontally and vertically
- Say the pattern they can see or hear
- Identify and explain errors in a pattern
- Understand and use positional vocabulary to describe the location of objects e.g. in, on, under, above, next to, etc.

- Make indirect comparisons of size using blocks or cubes to measure items
- Explore the measurement of items in the classroom and outdoors, using a selection of measuring items such as trundle wheel, rulers, tape measures, height charts, etc.
- Order and sequence important times in their day using language: now, before, later, soon, after, then and next to describe when events happen
- Use the vocabulary 'yesterday', 'today' and 'tomorrow' to describe when events happen
- Describe significant events that have happened in their life
- Talk about events they are looking forward to
- Explore task or how many times they can do something in one minute
- Begin to use language of further, nearer and closer
- Record distances using their own methods
- Explore and manipulate 3D shapes through block play and modelling
- Explore similarities and differences as they build and construct
- Sort 3D shapes according to what they notice
- Explore patterns which use items more than once in each repeat e.g. ABB, AAB, AABB, AABBB
- Say patterns aloud
- Create patterns around the edge of shapes as well as in straight lines
- Identify similarities and difference between patterns

- Develop critical thinking skills to solve real problems
- Review and discuss the strategies they have used to solve problems
- Explore and investigate relationships between numbers and shapes (e.g. using Cuisenaire rods, pattern block (Numicon) and unit construction blocks)
- Copy, continue and create a widening range of repeating patterns and symmetrical constructions
- Explore patterns in stories and patterns from a range of different cultures
- Use maps and plans to see where things are in relation to other things
- Create their own maps to represent they models they build, familiar places and places in stories



- Place objects (or themselves) in a location based on an instruction using positional vocabulary (as above)
- Begin to recognise circle, triangles, squares and rectangles on everyday items in the classroom and outside
- Build their own circle, triangles, squares and rectangles
- Make pictures using circle, triangles, squares and rectangles
- Talk about night and day
- Order key events in their daily routines
- Understand 'first', 'then', 'after that', 'now', 'next' and 'later'
- Use language to describe when events happen e.g. day, night, morning, afternoon, before, after, today, tomorrow
- Begin to measure time in simple ways e.g. counting sleeps, fastest to complete an activity
- Sing songs to sequence the days of the week

- Identify errors in a pattern

