



Hob Moor Oaks Academy Scheme of Work for Maths/Cognition

Why do we teach mathematics at Hob Moor Oaks?

Mathematics introduces children to concepts, skills and thinking strategies that are essential in everyday life and support learning across the curriculum. It helps children make sense of the numbers, patterns and shapes they see in the world around them, offers ways of handling data in an increasingly digital world and makes a crucial contribution to their development as successful learners. Children delight in using mathematics to solve a problem, especially when it leads them to an unexpected discovery or new connections. As their confidence grows, they look for patterns, use logical reasoning, suggest solutions and try out different approaches to problems. Mathematics offers children a powerful way of communicating. They learn to explore and explain their ideas using symbols, diagrams and spoken and written language. Studying mathematics stimulates curiosity, fosters creativity and equips children with the skills they need in life beyond school.

At Hob Moor Oaks we have 3 phases of learning. Pre-formal, semi-formal and formal. In each phase of learning maths will look slightly different, however it is important in all phases that the pupils have the opportunity to explore and engage in both independent exploration and adult led activities.





Maths is assessed using the Cherry garden branches and where appropriate the national curriculum.

Pre-formal

Pupils at very early levels of development (typically assessed at P1 to P3) access a curriculum that enables them to develop a sense of security in the school environment, which is comprehensible and meaningful to them. The focus is upon enabling them to establish positive interactive relationships with others, to proactively explore the world around them, gaining environmental control skills. All pupils will be given maximum opportunities to achieve the highest level of independence possible.

Semi-formal

Pupils following our semi-formal curriculum learn best when learning is related to their own experience. Some may learn through play; others will learn more effectively through functional activities, and yet others will respond well to a topic-based approach. The curriculum content echoes the ground covered by the Early Years Foundation Stage, since this framework is not confined to those below the age 5, but rather, extends right across the school where pupils are functioning at P Levels 4 to end of year 1 expectations. However, the teaching approach reflects the age and learning style of the pupils concerned.





Hob Moor Oaks Academy Curriculum

Intent What outcomes do we want the pupils to achieve by the end of this curriculum stage?	Implementation What opportunities and provision will we provide in order to achieve this?
<p>Pre - formal curriculum (linked to branches 1-4) By the end of this curriculum stage, pupils will be able to...</p> <p>Cognition: Pupils will be able to actively explore their immediate environment through making purposeful actions with a range of objects/stimulus.</p> <p>Pupils will be able to engage in early problem solving and have a consistent understanding of cause and effect, in order to exert autonomy over their immediate environment.</p>	<p>Key Strategies and types of provision/ resources:</p> <ul style="list-style-type: none">• Treasure baskets: range of stimulus (taste, smell, touch, visual, auditory or vestibular) for pupils to explore• Intensive Interaction: holding and manipulating objects, exploring immediate environment, purposeful actions with a range of stimulus.• Resonance board – using instruments, pots/pans, construction and gauge responses – provide more experiences similar to ones with positive response. Cause and effect opportunities and parallel play.• Messy Play – children using hands and feet, other body parts. Use paints, gels, shaving foam, weetabix, coloured sand etc. Have motivators. Use of smells, colours, tastes to enhance experience and use of senses. Hide bells in messy play and other musical instruments.• Mobiles with different noises, sights, textures – children help to make own choosing favourite items.• Drama games – build on anticipation and sequencing by anticipating what will happen next. <p>Sensory room: Cause/Effect activities, burst/pause, introduce stimuli</p> <ul style="list-style-type: none">• Swimming pool: stimuli to engage with in the pool (light up toys, balls, floats etc.)• Playtime: number songs, active exploration of immediate environment, large simple construction• PD sessions: sensory zone with a range of stimuli, large simple construction• Outdoor play areas: construction blocks to stack, exploration of objects in sand/soil/messy play• Sensory garden - responding to different herbs etc. <p>Community/Specialist Provision:</p> <ul style="list-style-type: none">• Exploration of local environment – trips to the park, wide-open spaces, Play Park – tunnels etc.• Nature reserve – exploration of natural objects/stimulus.





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<p>Number: Pupils will have an awareness of object permanence.</p> <p>Pupils will show an interest in number rhymes and</p>	<p>Key strategies and types of provision/resources:</p> <ul style="list-style-type: none">• Treasure baskets: range of stimulus (taste, smell, touch, visual, auditory or vestibular) for pupils to explore – hiding objects under blankets, scarves, in boxes to show awareness of object permanence.• Intensive Interaction: holding and manipulating objects, exploring immediate environment, purposeful actions with a range of stimulus.
<p>songs, in order to develop their awareness of numbers in context.</p>	<ul style="list-style-type: none">• Resonance board – using instruments, pots/pans, and construction and gauge responses – provide more experiences similar to ones with positive response.• Messy Play – children using hands and feet, other body parts. Use paints, gels, shaving foam, weetabix, coloured sand etc. Have motivators. Use of smells, colours, tastes to enhance experience and use of senses. Hide bells in messy play and other musical instruments.• Mobiles with different noises, props, objects to explore during number rhymes/songs• Drama games• Bucket Time• Sensory room: Cause/Effect activities, burst/pause, introduce stimuli• Swimming pool: stimuli to engage with in the pool, props for number rhymes – ducks, frogs, sausages etc. • <p>Playtime: number songs, active exploration of immediate environment, object permanence – hiding objects under blankets, in sand tray etc.</p> <ul style="list-style-type: none">• PD sessions: sensory zone with a range of stimuli• Outdoor play areas: exploration of objects in sand/soil/messy play, props for number songs <p>Community/Specialist Provision:</p> <ul style="list-style-type: none">• Community library: Rhyme time sessions. <p>Language- number songs,</p>





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Shape, space and measure:

Pupils will be able to hold and manipulate a range of objects, in order to actively engage in a range of sensory play.

Pupils will start to engage in simple construction activities in order to develop their spatial awareness.

Key strategies and types of provision/resources:

- Treasure baskets: range of stimulus (taste, smell, touch, visual, auditory or vestibular) for pupils to explore
- Intensive Interaction: holding and manipulating objects, exploring immediate environment, purposeful actions with a range of stimulus.
- Resonance board – using instruments, pots/pans, construction and gauge responses – provide more experiences similar to ones with positive response.
- Messy Play – children using hands and feet, other body parts. Use paints, gels, shaving foam, weetabix, coloured sand etc. Using some mark making tools to manipulate and hold. Have motivators. Use of smells, colours, tastes to enhance experience and use of senses.
- Mobiles with different noises, sights, textures – children help to actively engage, hold and manipulate
- Drama games
- Sensory room: Cause/Effect activities, burst/pause, introduce stimuli
- Swimming pool: stimuli to engage with in the pool (light up toys, balls, floats etc.)
- Playtime: large simple construction
- PD sessions: sensory zone with a range of stimuli, large simple construction
- Outdoor play areas: construction blocks to stack, exploration of objects in sand/soil/messy play with variety of tools and objects, cups, bowls, spoons etc.

Community/Specialist Provision:

- Exploration of local environment – trips to the park, wide-open spaces, Play Park – tunnels etc.
- Nature reserve – exploration of natural objects/stimulus.





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Semi - formal curriculum (linked to branches 5-7)

By the end of this curriculum stage, pupils will be able to... (include functional reasons for applying these skills)

Number:

Pupils will have a consistent understanding of 1:1 correspondence, in order to solve simple everyday problems. e.g., "Do we need more cups?"

Pupils will be able to count objects or actions accurately to 5, to respond to a simple question or solve an everyday problem.

Pupils will have an understanding of numbers in sequence to 10.

Key Strategies and types of resources:

- Snack time: setting the table - 1:1 correspondence of cups/plates for each pupil, counting out snack items, asking for big/small pieces of snack.
- Heuristic play: range of containers, multiple natural materials to manipulate, focus on tidying up resources at the end of the session.
- TEACCH activities – to support independent sequencing. Start/finish etc.
- Playdough – 1:1 correspondence e.g. making cakes to go in cake tins
- Musical instruments – counting bangs on a drum etc.
- Soft play: construction, finding hidden items and grouping by size, count actions or objects. Rote counting to 10.
- Early counting strategies – physically putting items in containers, Using fingers to consolidate, use of number lines to support counting
- Outdoor play areas: Dancing – following simple sequences
- Playground: counting pushes on the swing/roundabout, jumps on the trampoline
- Transitions: counting steps/actions, follow simple sequences
- Role play room: 1:1 correspondence, simple problem solving
- Swimming pool: 1:1 correspondence of floats per child etc., counting splashes/jumps
- Laundry room: counting items into/out of the machine, hanging washing up to dry with pegs – how many for each item.
- Dinnertime - 1:1 correspondence
- Nature garden – counting twigs/leaves.
- Maths stories

Community/Specialist Provision:

- Supermarkets visit – counting out quantities of items e.g. we need six oranges, five apples. 1:1 correspondence – one ice-lolly for every child.

Shape, space and measure:

Pupils will be able to follow a simple sequence to support their understanding of everyday tasks and

Key Strategies and types of resources:

- Snack time: preparing the snack; sorting fruits into different bowls to serve, asking for big/small pieces of snack, following patterns to make





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activities.

Pupils use a wider range of construction activities to create their own designs and can follow a given design. They are able to construct within horizontal and vertical space at the same time.

Pupils will be able to sort a range of familiar objects according to shape, size or type to support tidying and problem-solving activities.

Pupils will be able to identify differences in size, grouping similar sizes and finding the biggest or smallest.

- Heuristic play: range of containers, multiple natural materials to manipulate, focus on tidying up resources at the end of the session, making patterns using range of natural objects, sorting and arranging big/small objects.
- TEACCH activities – patterns, sorting by size, ordering, following designs
- Playdough – sorting by shape, size – making different shapes with playdough, making and creating patterns.
- Soft play: construction, finding hidden items and grouping by size, count actions or objects
- Outdoor play areas: larger construction items, bubbles – big/small, dancing – following simple sequences
- Playground: Large scale construction activities: crates, cardboard boxes, large blocks, tyres, large wooden discs, carpet rolls, plastic plant pots, cable reels,
- Transitions: follow simple sequences, identifying different sizes within transition.
- Role-play room: sorting cutlery, hanging the washing out by size, problem solving.
- Swimming pool: finding the biggest/smallest objects in the pool
- Laundry room: sorting laundry with more accuracy – all the shorts, all the t-shirts etc., or swimming costumes separated from towels
- Dinnertime- sorting cutlery and crockery.
- Helping with jobs around the school: recycling – sorting by type.
- Maths stories – adapting stories for individual children’s targets to consolidate understanding of different mathematical concepts.
- Tuff try activities: sorting activities, pattern making through range of different resources.
- Role-play activities – sorting and ordering within these activities.
- Templates for home corner cutlery and plates to sort etc.
- Lego therapy – copying designs to create patterns, identifying big/small pieces.

Community/Specialist Provision:

- walking to westbank park- shapes in the environment
- sensory garden – sorting natural items – big/small, shape, type





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Formal curriculum (linked to branches 8+) By the end of this curriculum stage, pupils will be able to... (include functional reasons for applying these skills)

Number:

Pupils will be able to count objects or actions accurately to 20, to respond to a simple question or

Key strategies and types of provision/resources:

- Role-play opportunities; shops, hairdressers, post office etc.
- Snack time; counting groups, estimating quantities, counting out from a larger group.
- Musical instruments – counting bangs on the drum etc.
- Counting out physical actions – claps, jumps etc.
- Numicon
- Playdough
- TEACCH activities





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solve an everyday problem.

Pupils will be able to count out objects from a larger group up to 6, in order to solve an everyday problem.

Pupils will be able to recognise small number of objects or estimate a larger number in order to make quick decisions or calculations.

Pupils understand how to add and subtract to engage in real world calculations such as shopping activities.

Pupils will be able to complete simple sharing, division and doubling in order to solve simple everyday problems and engage in social activities.

Pupils will have a consistent understanding of number order to 20, in order to support their ability to carry out simple calculations.

Pupils can sequence events using ordinal numbers to support their understanding.

- Shop role-play: expect more interactions and accuracy – include price tags, a till, shopping lists for children to follow etc. Lots of opportunities to handle purses, wallets, credit cards, and real money. Throw in additional problems during shop role-play – only give them three pennies to spend or ask for change and see how children react.
- Trampoline room; counting jumps
- Transitions; counting stairs, steps between rooms
- Parties; sharing out cakes, sweets and crisps between peers.
- Swimming pool: singing number songs – joining in, counting objects in the pool
- Cooking room: follow recipes, simple problem solving (sharing/doubling),
- School library: Read stories and rhymes related to time, such as: Solomon Grundy; Monday's child...; The Very Hungry Caterpillar; The Bad-Tempered Ladybird; The Very Busy Spider; On Friday Something Happened; etc.
- Outdoor play areas; Treasure hunts, but with directions to follow instead of visual clues. • Maths stories; – adapting stories for individual children's targets to consolidate understanding of different mathematical concepts.

Community/Specialist Provision:

- Lidl; encourage pupils to add simple shopping items together, recognise value of coins, talk about money.
- sensory garden; shape hunt, carry out simple calculations of natural objects, measuring natural objects, positional language to describe environment, simple problem solving





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Shape, space and measure:

Pupils are able to name 2D and 3D shapes and recognise them in the environment.

Pupils will be able to tell the time to the nearest hour and use simple language related to the time in order to develop their independence in understanding their daily routines.

Pupils will be able to measure by size, weight and volume, comparing these measures in order to solve simple everyday problems.

Key strategies and types of provision/resources:

- Snack time; comparing measurements of juice – size of pieces of fruit etc.
- Musical instruments – naming 2D/3D shapes.
- Counting out physical actions – claps, jumps etc.
- Numicon
- Playdough – making shapes and models, measuring by size/weight, positional language, and money prints.
- Beebot – positional language
- TEACCH activities
- Shop role-play: expect more interactions and accuracy – include price tags, a till, shopping lists for children to follow etc. Lots of opportunities to handle purses, wallets and real money. Throw in additional problems during shop role-play – only give them three pennies to spend or ask for change and see how children react.





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Pupils will be able to describe and understand a range of positional language, including relative position, in order to describe their environment or follow instructions.

Pupils will be able to talk about money and recognise the value of coins (to 10p) in order to more independently take part in shopping activities.

Pupils will be able to creatively construct and reconstruct using patterns and familiar 3D shapes to create a self-chosen object of their own design.

- Role-play room: Baby clinic (weighing babies) / the shop or market (weighing fruit and veg) / the post office (weighing parcels) etc.
- Trampoline room; positional language – use props,
- Transitions; shape hunt, using simple time language, give directions (up/down/stop/go) and get chn to give directions for adults to follow to get to the right place.
- Playground: Large scale construction activities: crates, cardboard boxes, large blocks, tyres, large wooden discs, carpet rolls, plastic plant pots, cable reels,
- Swimming pool: naming 2D/3D shapes around the pool, using positional language (as well as, in relation to their position). Quantities with containers
- Cooking room: follow recipes, measuring ingredients (weight/volume), positional language to follow instructions, timing how long until their food is ready.
- School library: Read stories and rhymes related to time, such as: Solomon Grundy; Monday's child...; The Very Hungry Caterpillar; The Bad-Tempered Ladybird; The Very Busy Spider; On Friday Something Happened; etc.
- Outdoor play areas: Treasure hunts, but with directions to follow instead of visual clues. • Maths stories; – adapting stories for individual children's targets to consolidate understanding of different mathematical concepts.

Community/Specialist Provision:

- Supermarket visit - Lidl; encourage pupils to add simple shopping items together, recognise value of coins, talk about money.
- Sensory garden; shape hunt, carry out simple calculations of natural objects, measuring natural objects, positional language to describe environment, simple problem solving
- NSPCC number Day – focus on outdoor maths, exploring space, shape measure – large circuits to follow, patterns with natural objects, large role-play (making and selling items), treasure hunts – following positional language and following instructions.
- Visiting the post office – measuring, weighing parcels to send, following instructions with positional language (put the parcel 'on top/next to' the scale.

