



Reception Curriculum for Depth 2014-15

Welcome to the Mathematics Mastery *Curriculum for Depth* for Reception.

Problem solving is at the heart of the mastery approach, so we make sure we dedicate sufficient time to each new concept or skill for every pupil to gain the **fluency** and **reasoning** they need to solve new problems in unfamiliar contexts. Our *Curriculum for Depth* is a cumulative curriculum. This means that each school year begins with a focus on the concepts and skills (such as number sense) that have the most connections, and the most opportunities for consolidation, throughout the year. Once a new concept has been introduced, it is applied and connected to many other areas of mathematics. For more information about the underlying principles of the mastery approach, please visit www.mathematicsmastery.org

We make sure that the requirements of the 2014 Early Years Foundation Stage for England are fully met. The Reception *Curriculum for Depth* includes all of the Early Years Foundation Stage Goals objectives for that year, including references to enable pupils to exceed the expectations for the Mathematics Early Learning Goals. References to the statutory requirements of the Early Learning Goals are in bold [e.g. They will “**estimate a number of objects and check quantities by counting**” (EYFS: p51)]. This Reception Programme of Study includes every single expectation for the 2014 Early Years Foundations Stage Mathematics development Early Learning Goals. There are 5 planned weeks for each half term. Any additional time for mathematics should be planned around the specific needs of the pupils, including clarifying any misconceptions, opportunities for consolidation, and further application and problem solving.

Autumn 1

Weeks	Autumn 1 units	Mathematics lesson foci
1 week	Unit 1 Pattern	<p>We begin the year with a clear focus on reasoning and problem solving. This unit offers an opportunity to ensure that every child has been introduced the key concepts about pattern, shape and size in order for them to apply their learning in planned purposeful play and demonstrate a secure understanding of these key concepts throughout the first half or the Autumn term.</p> <p>Unit 1 gives pupils the opportunity to “recognise, create and describe patterns” (EYFS p25) through the real life experiences related to homes and families. These concepts will be reinforced throughout the year as part of Maths Meetings and ‘Do-now’ tasks and pupils will develop a depth of understanding when applying patterning as in future units. During this unit, pupils will begin to “use everyday language to talk about size, weight” when solving problems (EYFS p25). The key tasks for this unit have been carefully planned to support pupils with becoming independent learners and creative thinkers.</p>
1 week	Unit 2 Same and different – matching pairs	<p>This one week unit is focused on pupils beginning to learn how to “estimate a number of objects and check by counting.” (EYFS: p51). Pupils will develop their understanding of the concepts of the same and different when matching different representations of 1 and 2.</p> <p>This unit sets the foundations for pupils to enable them to achieve the Early Learning Goals in number. Although many pupils will normally have an understanding of ‘one’ and ‘two’ this unit reinforces this at the same time as introducing the numbers 1 and 2 with the written words. Pupils will begin to recognise when the number in 2 different groups are the same or different.</p> <p>The tasks have been designed to promote language and mathematical thinking through competitive problem solving and strategic thinking rather than rote learning without understanding.</p>
3 weeks	Unit 3 Numbers within 5	<p>This three week unit is focused on pupils learning to count reliably within 5. Pupils will explore different representations of numbers within 5 and will have the opportunity to manipulate numbers on a five frame. As part of this unit, pupils place numbers within 5 in order and “say which number is one more or one less than a given number” (EYFS p25). During this unit, pupils will develop a depth of understanding about numbers within 5 and continue developing their ability to “estimate a number of objects and check by counting.” (EYFS p51).</p> <p>As part of this unit pupils will develop their ability to count using one to one correspondence and recognise the conservation of number. During this unit, pupils will apply problem solving skills that they developed as part of unit 2 in different tasks and have the opportunity to develop their mathematical thinking through well planned questions and structured language, thoroughly preparing them for future units.</p>

Autumn 2

Week	Autumn 2 units	Mathematics lesson foci
1 week	Unit 4 Measure	<p>This week builds on unit 1 and introduces pupils to capacity and volume. Pupils will have the opportunity to “<i>use everyday language to talk about size, weight, capacity</i>” (EYFS p25). During this unit pupils will begin to “<i>estimate, measure, weigh and compare and order objects</i>” (EYFS p51) which will continue to be reinforced as part of planned purposeful play and Maths Meetings.</p> <p>Pupils will have had various opportunities to talk about size, weight and capacity and language has been modelled by practitioners during the start of the academic year. The emphasis here is to develop the depth of understanding from Unit 1 as well as from the planned play during the first half of the Autumn term.</p>
3 weeks	Unit 5 Numbers within 8	<p>This three week unit builds on unit 3 and introduces pupils to counting reliably within 8. During this unit, pupils are formally introduced to zero. During this unit pupils will explore arrangements of numbers within 8 and will have the opportunity to manipulate these.</p> <p>This unit allows pupils to consolidate learning from the first half of the Autumn term and pupils will begin to subitize and check by counting. During this unit, pupils will place numbers within 8 in order and say “<i>which number is one more or one less than a given number</i>” (EYFS: p25).</p>
1 week	Unit 6 Numbers within 10	<p>This one week unit reinforces numbers within 8 and introduces pupils to numbers within 10. This unit enables all pupils to have the secure sense of numbers within 10 before learning higher numbers in the Spring term. As part of this unit, pupils place numbers within 10 in order and “<i>say which number is one more or one less than a given number</i>” (EYFS: p25) and “<i>estimate a number of objects and check by counting.</i>” (EYFS: p51).</p> <p>During this unit, pupils will learn ordinal numbers 1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th and 10th and key vocabulary associated with ordinal numbers.</p> <p>Pupils will also begin to explore how numbers can be represented on a ten frame.</p>

Spring 1

Week	Spring 1 units	Mathematics lesson foci
1 week	<p>Unit 7</p> <p>Shape and calendar</p>	<p>Calendar Maths will have been a key feature of Maths Meetings from the beginning of the year. Pupils will begin to deepen their understanding about time when exploring and talking about the calendar. They will apply their learning about ordinal numbers from unit 6.</p> <p>By now, pupils will have been introduced to the names of shape as part of Maths Meetings. This unit gives pupils the opportunity to “explore characteristics of everyday objects and shapes and use mathematical language to describe them.” (EYFS p25).</p> <p>Maths Meetings and play should be planned to give pupils a range of opportunities to apply their learning in different contexts throughout this half term and the rest of the academic year.</p>
2 weeks	<p>Unit 8</p> <p>Numbers within 15</p>	<p>This fortnight is focused on pupils' learning to count reliably within 15 building on their knowledge about numbers within 10. During this unit, pupils will begin to explore placing numbers in equal and unequal groups which develops a depth of understanding of numbers within 15.</p> <p>As part of this unit, pupils place numbers within 15 in order and “say which number is one more or one less than a given number” (EYFS: p25) pupils will continue to deepen their understand about how to “estimate a number of objects and check by counting.” (EYFS: p51).</p>
2 week	<p>Unit 9</p> <p>Numbers within 20</p>	<p>This unit continues to build on pupils' learning about numbers within 15 and introduces pupils to numbers within 20. This is expected to continue to be deepened through reinforcement and consolidation throughout the year in following units, Maths Meetings, transitions, 'do-now' tasks and purposeful play. In line with the notes and guidance, children will have opportunities to “count reliably with numbers from one to 20” (EYFS: p25). Pupils will explore different representations of numbers within 20 and will have the opportunity to manipulate numbers.</p> <p>As part of this unit, pupils place numbers within 20 in order and “say which number is one more or one less than a given number.” Pupils will also explore estimating numbers within 20 and check by counting.</p> <p>By the end of this unit, all pupils will understand the conservation of number, which is paramount before learning unit 11.</p>

Spring 2

Week	Spring 2 units	Mathematics lesson foci
1 week	<p>Unit 10</p> <p>Position and time</p>	<p>Language of position and direction will have been incorporated in to Maths Meetings during the first half of the year and should continue to be planned in to play and Maths Meetings. This unit will provide pupils with the opportunity to “use everyday language” (EYFS p25) when talking about position, direction, distance and time.</p> <p>Calendar Maths will have been a key feature of Maths Meetings from the beginning of the year. Pupils will begin to deepen their understanding about time when exploring and talking about the calendar.</p> <p>Opportunities for talk about position and time should be planned in to play, Maths Meetings and ‘Do-now’ tasks for the rest of the academic year.</p>
3 week	<p>Unit 11</p> <p>Addition and subtraction (1)</p>	<p>In line with the notes and guidance, children will use manipulatives to “add and subtract two single-digit numbers and count on or back to find the answer.” (EYFS: p25) during this unit. Their experience in other units will have prepared them for this.</p> <p>When investigating components of numbers as well as addition and subtraction within 20, pupils will consolidate their understanding about numbers within 10 and explore different representations of numbers within 10. As part of this unit, pupils will “estimate a number of objects and check by counting up to 20.” (EYFS: p51) and begin to develop an understanding about number bonds and the whole-part-part model.</p>
1 week	<p>Unit 12</p> <p>Numbers within 50</p>	<p>By now, pupils will have had the opportunity to practise counting on and back within 50 as part of Maths Meetings and transitions. In the Mastery Curriculum, pupils are expected to explore counting within 50 whilst applying knowledge of numbers within 10. Pupils practise counting on and back during this unit to consolidate their understanding of counting on and back for solving addition and subtraction. As part of this unit, pupils will also take part in activities that require them to place numbers within 50 in order and “say which number is one more or one less than a given number.” (EYFS: p51).</p>

Summer 1

Week	Summer 1 units	Mathematics lesson foci
1 week	Unit 13 Shape	<p>By the summer term, pupils will have explored shape and pattern as part of planned play, Maths Meetings and Do-now tasks. This unit provides pupils with the opportunity to apply their learning about shape and pattern and “talk about properties” (EYFS p51) in greater depth.</p> <p>Pupils will recognise and create patterns by shape or colour, giving them the opportunity to apply their learning in different tasks.</p> <p>Accurate use of language is modelled during this unit and pupils will develop their verbal reasoning when talking about their patterns.</p>
3 week	Unit 14 Grouping and sharing	<p>In line with the notes and guidance, children “solve problems, including doubling, halving and sharing.”(EYFS: p25).</p> <p>During this unit, pupils will have the opportunity to “solve practical problems that involve combining groups of 2, 5 or 10, or sharing into equal groups.” (EYFS p51).</p> <p>In the Mastery Curriculum, pupils also solve practical problems that involve combining different groups within 10. Pupils should already be secure with counting within 20 at this point, so this week is an opportunity to explore numbers within 20 in greater depth. They represent grouping and sharing using a range of manipulatives and pictorial representations and opportunities for writing numbers is included.</p>
1 week	Unit 15 Numbers within 100	<p>By now, pupils will have had the opportunity to practise counting on and back within 100 as part of Maths Meetings and transitions. In the Mastery Curriculum, pupils also count within 100 whilst applying knowledge of numbers within 10. Pupils practise counting on and back during this unit to consolidate their understanding of counting on and back for solving addition and subtraction. As part of this unit, pupils place numbers within 100 in order and “say which number is one more or one less than a given number.” (EYFS: p51).</p> <p>Pupils will also begin to “estimate a number of objects and check by counting” when working with numbers within 100 and apply their knowledge about solving “practical problems that involve combining groups of 2, 5 or 10, or sharing into equal groups.” (EYFS p51).</p>

Summer 2

Week	Summer 2 units	Mathematics lesson foci
1 week	Unit 16 Measure	<p>This unit is an important consolidation opportunity for pupils to apply learning from Maths Meetings and to explore time in greater depth. During this unit, pupils will talk about measure and begin to measure using non-standard units.</p> <p>Pupils' knowledge of numbers within 100 is essential for this unit so that pupils can compare measures and use their secure number sense when solving practical problems.</p>
1 week	Unit 17 Money	<p>During this one week unit, pupils will apply knowledge of numbers within 100 and use language to talk about money. Pupils will <i>"compare quantities and objects to solve problems"</i> (EYFS p25) within the context of money.</p> <p>Pupils will have the opportunity to apply their knowledge of numbers within 100 and concepts of more and fewer when solving problems as well as develop a depth of understanding about grouping and sharing when applying learning in an unfamiliar context.</p>
3 weeks	Unit 18 Addition and subtraction	<p>Numbers within 20, addition and subtraction and doubling and halving have been developed as a key feature of Maths Meetings throughout the year. This three week unit provides opportunities for pupils to apply learning when they <i>"add and subtract two single-digit numbers and count on or back to solve problems."</i> (EYFS p25). Pupils will solve a range of problems set in different contexts to enable them to <i>"compare quantities and objects and to solve problems"</i> (EYFS p25).</p>

Appendix: Connecting Mathematics Mastery with the prime areas of learning of the EYFS and their ELGs

Prime areas of learning	Early Learning Goals	Mathematics Mastery Key Principles
<p>Communication and language development involves giving children opportunities to speak and listen in a range of situations and to develop their confidence and skills in expressing themselves.</p>	<p>ELG 01 Listening and attention: Children listen attentively in a range of situations. They listen to stories, accurately anticipating key events, and respond to what they hear with relevant comments, questions or actions. They give their attention to what others say and respond appropriately, while engaged in another activity.</p> <p>ELG 02 Understanding: Children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences and in response to stories or events.</p> <p>ELG 03 Speaking: Children express themselves effectively, showing awareness of listeners' needs. They use past, present and future forms accurately when talking about events that have happened or are to happen in the future. They develop their own narratives and explanations by connecting ideas or events.</p>	<p>The six part lesson and daily Maths Meetings require pupils to listen attentively in a range of situations.</p> <p>Pupils must listen to their peers as part of the talk task and respond to what they hear. Talk tasks have a clear focus so that pupils are able to respond appropriately while engaged in an activity.</p> <p>A focus on developing mathematical thinking continues throughout the year. Teachers will ask good questions and encourage pupils to explore patterns. Pupils will develop a depth of understanding and respond to how and why questions.</p> <p>Throughout the year, pupils will develop their language and communication. Teacher model the use of full sentences and will develop pupils' ability to give explanations and connect ideas.</p>
<p>Physical development involves providing opportunities for young children to be active and interactive, and to develop their co-ordination, control, and movement. Children must also be helped to understand the importance of physical activity, and to make healthy choices in relation to food.</p>	<p>ELG 04 Moving and handling: Children show good control and co-ordination in large and small movements. They move confidently in a range of ways, safely negotiating space. They handle equipment and tools effectively, including pencils for writing.</p> <p>ELG 05 Health and self-care: Children know the importance for good health of physical exercise and a healthy diet, and talk about ways to keep healthy and safe. They manage their own basic hygiene and personal needs successfully, including dressing and going to the toilet independently.</p>	<p>Pupils must have access to manipulatives in every lesson and teachers will actively encourage all pupils to use concrete manipulatives to demonstrate their understanding.</p> <p>Teachers and pupils will model how to handle equipment and tools including scissors, pencils and counters.</p> <p>In settings that expect pupils to be able to record work in writing, pupils should be taught accurate number formation and to hold a pencil correctly.</p> <p>Cooking tasks provide the opportunity for teachers to reinforce the importance of balanced diets and basic hygiene.</p> <p>Teachers are encouraged to create tasks based on the key learning that can be taught in larger spaces to promote</p>

		<p>physical exercise.</p>
<p>Personal, social and emotional development involves helping children to develop a positive sense of themselves and others; to form positive relationships and develop respect for others; to develop social skills and learn how to manage their feelings; to understand appropriate behaviour in groups; and to have confidence in their own abilities.</p>	<p>ELG 06 Self-confidence and self-awareness: Children are confident to try new activities, and to say why they like some activities more than others. They are confident to speak in a familiar group, will talk about their ideas, and will choose the resources they need for their chosen activities. They say when they do or do not need help.</p> <p>ELG 07 Managing feelings and behaviour: Children talk about how they and others show feelings, talk about their own and others' behaviour, and its consequences, and know that some behaviour is unacceptable. They work as part of a group or class, and understand and follow rules. They adjust their behaviour to different situations, and take changes of routine in their stride.</p> <p>ELG 08 Making relationships: Children play cooperatively, taking turns with others. They take account of one another's ideas about how to organise their activity. They show sensitivity to others' needs and feelings, and form positive relationships with adults and other children.</p>	<p>The Concrete-Pictorial-Abstract approach develops pupils' confidence and supports them when exploring new concepts. The use of manipulatives can be a tool for developing pupils' confidence when talking about their ideas.</p> <p>Pupils are encouraged to be independent learners with the confidence to seek support when required.</p> <p>The six-part lesson gives the opportunity to work as part of a class, in pairs and individually and to understand and follow rules.</p> <p>The talk task expects pupils to work cooperatively, take turns and consider how they can organise the activity.</p> <p>The Plenary at the end of the lesson should celebrate success and develop positive relationships with adults and peers.</p>

Appendix: Connecting Mathematics Mastery with the specific areas of learning of the EYFS and their ELGs

Specific areas of learning	Early Learning Goals	Mathematics Mastery Key Principles
<p>Literacy development involves encouraging children to read and write, both through listening to others reading, and being encouraged to begin to read and write themselves. Children must be given access to a wide range of reading materials – for example books, poems, and other materials to ignite their interest.</p>	<p>ELG 09 Reading: Children read and understand simple sentences. They use phonic knowledge to decode regular words and read them aloud accurately. They also read some common irregular words. They demonstrate an understanding when talking with others about what they have read.</p> <p>ELG 10 Writing: Children use their phonic knowledge to write words in ways which match their spoken sounds. They also write some irregular common words. They write sentences which can be read by themselves and others. Some words are spelt correctly and others are phonetically plausible.</p>	<p>The big pictures are all based on children’s songs and rhymes. Interactive white board flip charts have been created with the lyrics for each big picture.</p> <p>Task sheets are designed to reinforce key vocabulary and to promote reading and comprehension.</p> <p>Some tasks have been created to enable pupils to complete sentences and to promote writing.</p>
<p>Mathematics development involves providing children with opportunities to practise and improve their skills in counting numbers, calculating simple addition and subtraction problems, and to describe shapes, spaces, and measures.</p>	<p>ELG 11 Numbers: 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>ELG 12 Shape, space and measures: 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>	<p>The Mathematics Mastery Programme of Study is cumulative. Tasks are planned to build on pupils learning and develop a depth of understanding.</p> <p>Pupils focus on Numbers within 20 during the first half of the year to ensure all pupils are able to count reliable with numbers within 20 and are able to access tasks that focus on grouping, sharing, addition and subtraction during the second half of the year.</p> <p>Pupils develop their ability to tackle and solve problems through the strong emphasis on Language and communication, Mathematical thinking and conceptual understanding.</p> <p>Daily Maths meetings are planned by the teacher to cater for their pupils needs both introducing new concepts such as shape names and days of the week, and consolidating concepts learnt.</p> <p>Transitions and ‘Do-Now’ tasks are planned by the teacher based on the assessment of their pupils to ensure all pupils are able to meet the Early Learning Goals.</p>
<p>Understanding of the world involves guiding children to make sense of their physical world and their community through opportunities to</p>	<p>ELG 13 People and communities: Children talk about past and present events in their own lives and in the lives of family members. They know that other children do not always enjoy the same things, and are sensitive to this. They know about similarities and differences between themselves and others, and</p>	<p>The big pictures for Mathematics Mastery are based on children’s songs and rhymes. Each half term has songs and rhymes based on a different theme: Families, Animals, Farms,</p>

<p>explore, observe and find out about people, places, technology and the environment.</p>	<p>among families, communities and traditions.</p> <p>ELG 14 The world: Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur, and talk about changes.</p> <p>ELG 15 Technology: Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.</p>	<p>Plants, Transport.</p> <p>Each of these have been planned to provide opportunities for pupils to explore the world around them. For example, the first half of the Autumn term includes a range of songs that can relate to families and pupils can explore events in their own lives and discover similarities and differences between themselves and other.</p> <p>Mathematics Mastery supports teachers with planning good questions that promote thinking skills and develop pupils to solve problems, make observations and explain how and why some things happen.</p>
<p>Expressive arts and design involves supporting children to explore and play with a wide range of media and materials, as well as providing opportunities and encouragement for sharing their thoughts, ideas and feelings through a variety of activities in art, music, movement, dance, role play, and design and technology.</p>	<p>ELG 16 Exploring and using media and materials: Children sing songs, make music and dance, and experiment with ways of changing them. They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.</p> <p>ELG 17 Being imaginative: Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories.</p>	<p>The big pictures are based on children's songs and rhymes. Pupils can sing the songs and represent their ideas about the rhymes using music and actions.</p> <p>Mathematics Mastery expects all pupils to explore concepts through a variety of concrete, pictorial and abstract representations. Teachers will plan for pupils to use a variety of materials when practising concepts.</p> <p>The Mathematics Mastery continuous provision cards provide suggestions that will enable pupils to represent their ideas and understanding through design and technology, art, music, role play and children's songs and rhymes.</p> <p>Daily Maths Meetings and lesson transitions incorporate songs and actions.</p> <p>Tasks planned include cooking and making play dough, creating patterns with paint and creating seasonal collages.</p>