



CASTLEWARD
SPENCER ACADEMY

Castleward Spencer Academy

Maths Policy EYFS

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Intent

At Castleward Spencer Academy, we understand that mathematics plays a vital part in the learning for all children in the Early Years and that receiving a good grounding in maths is an essential life skill. Introducing maths to children from an early age helps to develop their understanding of all elements of problem solving and reasoning in a broad range of contexts.

At Castleward Spencer Academy, we intend on delivering a curriculum which:

- Allows children to be a part of creative and engaging lessons that will give a range of opportunities to explore mathematics following a mastery curriculum approach.
- Gives each pupil a chance to believe in themselves as mathematicians and develop the power of resilience and perseverance when faced with mathematical challenges. This in turn, will develop capabilities, confidence when using, and applying mathematical knowledge, concepts and skills.
- Consistently emphasise and develop use of mathematical language.

"A high quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject." (*The National Curriculum, 2014*)

Aims

The EYFS Statutory framework 2021 sets standards for the learning, development and care of children from birth to five years old and supports an integrated approach to early learning. This is supported by the 'Development Matters' non-statutory guidance.

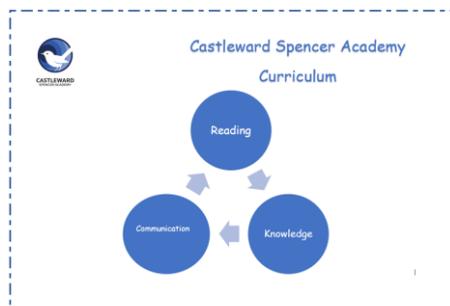
Our EYFS maths curriculum allows children to:

- develop number skills
- develop an understanding of shape and measure
- develop spatial reasoning skills
- improve young children's knowledge and understanding of early mathematical concepts
- develop positive attitudes and interests in mathematics

Our EYFS environment allows children to:

- 'have a go' and practise new skills and concepts
- make mistakes and develop their learning
- pursue and develop an interest in mathematics
- find patterns and relationships and spot connections
- talk to adults and peers about mathematical concept

Curriculum Drivers



Castleward Spencer Academy Curriculum



- **Reading-** We firmly believe that if children can read well and read widely, they will be best placed to achieve in all areas of the curriculum. By the time pupils leave Castleward, they will be able to read with accuracy and fluency, to analyse what they have read and developed an enjoyment of reading for pleasure.
- **Knowledge-** Knowledge is like glue that sticks information as well as learning together. When we have prior knowledge about a topic, we understand it better. Topics are personalised to meet the needs of the pupils who attend the school, ensuring that they have opportunities to apply prior knowledge to new learning experiences and developing reasoning and problem solving skills.
- **Communication-** Pupils learn to articulate their ideas, feelings and understanding of new vocabulary in order to engage with others through spoken language. They become effective speakers and listeners empowering them to better understand themselves, each other and the world around them. Being able to effectively communicate allows pupils to develop and deepen their subject knowledge and understanding through talk in the classroom, which has been planned, designed, modelled, scaffolded and structured to enable them to learn the skills needed to communicate effectively.

Our vision for Mathematics

- To promote a positive attitude towards mathematics in all pupils
- To ensure all pupils are engaged in and are enjoying exploring mathematics
- To enable all pupils to find links between mathematics and other areas of the curriculum, including science
- To ensure all pupils progress in mathematics and are challenged appropriately through an in depth understanding
- To use a wide range of concrete, pictorial and abstract representations to develop all pupils' relational understanding of mathematics
- To ensure all pupils are confident using mathematical vocabulary when reasoning about mathematics

Inspired by Research

Knowledge



Knowledge is like glue that sticks information as well as learning together. When we have prior knowledge about a topic, we understand it better. The more children know, the more they learn.

The knowledge taught at CWSA has been carefully considered, so that it is personal to the children who attend the school. Maths learning is sequenced so that there is a progressive, coherent flow, allowing ideas to build on secure foundations. This is referred back to at regular intervals during their time at Castleward Spencer through retrieval so that links with previous learning are applied when learning new content where appropriate. This can be achieved through:

- Explaining learning and knowledge to peers, teachers, other classes
- Showcasing knowledge in assemblies
- Encouraging pupils to ask and answer 'Why?' and 'How?' questions e.g. 'Tell me how this is the correct answer?' 'Show me', 'true or false'

When planning each unit, staff consider;

Facts- What are the keys facts that all children should know?

Skills- What are the things that all children should be able to do?

Experiences- What first-hand experiences do the children need to have to be able to access this knowledge?

Spaced Practice



At CWSA the curriculum has been skilfully designed to allow pupils to complete Spaced Practice, which is a technique that provides children to review material over a long period of time. This gives their minds time to form connections between the ideas and concepts being taught, so knowledge can be built upon and easily recalled later.

During a lesson, all the new learning is stored in the child's short-term memory (and quickly forgotten). When spaced learning is used, the material is able to make its way into his or her long-term memory instead. Creating a schedule for spaced repetition, helps the child better remember what he or she has learned. This will prepare them to build upon the information being learned, thus creating a solid foundation for future learning.

Low stakes quizzes are used in lessons games such as bingo in order to aid long-term retention of knowledge and aids the cycle of not forgetting. This is completed using the following process at the beginning of each lesson;

Last lesson...

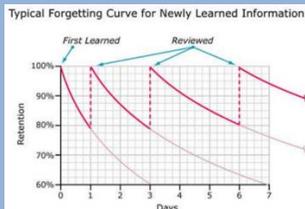
Last week...

Last topic...

Last year...

Retrieval practice

Research suggests that used effectively, retrieval practice improves pupils' memory and recall and also improves children's application skills and their ability to transfer their knowledge to new concepts and situations.



At CWSA the Maths curriculum has been skilfully designed to allow pupils to complete Spaced Practice. Teachers skilfully refer back to previous knowledge taught and revisit this at regular 'spaced' opportunities where knowledge and learning will be revisited in order to methodically interrupt the pupils' 'forgetting.'

Retrieval Practise Examples;

- Low stakes quizzes
- Pair Share: Review and Check, Multiple Choice Quizzes, Solve Familiar Problems,
- Providing opportunities in continuous provision
- Concrete examples - children develop the capacity to make links from a set of concrete examples to some general rules or ideas.

Vocabulary

The introduction of new vocabulary is of high importance at CWSA, as this is the children's opportunity to show what they are beginning to understand about the topic being taught. Vocabulary is sequentially taught using a wide range of Tier 2 (High frequency and multiple meaning vocabulary, often found in adult conversation and literature) and Tier 3 words (Low frequency, context specific

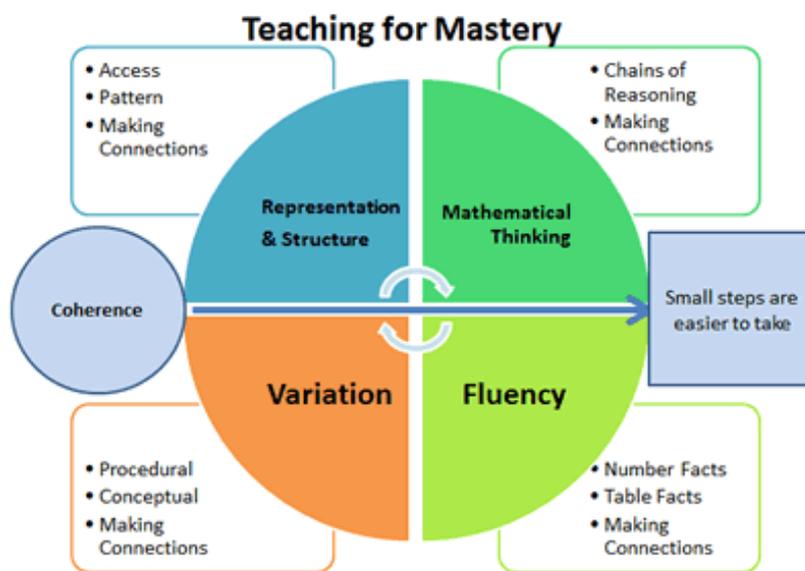
	vocabulary that is taught as part of a subject or domain), which are explicitly taught and connected to the sequence of learning not only in the subject being taught but also across the curriculum where appropriate.
Experiences	A primary focus of our curriculum is to raise aspirations, engender a sense of personal pride in achievement, and provide a purpose and relevance for learning. Using actual experiences to learn concepts and skills is much more effective than simply being told about them, as in the proverb: "Tell me, I'll forget; show me, I'll remember; involve me, I'll understand." With this in mind, staff plan a variety of experiences both inside and outside of the classroom to bring learning to life.
Scaffolding	<p>EEF- 'Scaffolding' is a metaphor for temporary support that is removed when it is no longer required. Initially, a teacher would provide enough support through a range of resources so that pupils can successfully complete tasks that they could not do independently.</p> <p>Initially, the teacher will provide enough support so that pupils can successfully complete tasks that they could not do independently. This requires effective assessment to gain a precise understanding of the pupil's current capabilities. Support could be visual, verbal, or written. The teacher will gradually remove the support (the scaffold) as the pupil becomes able to complete the task independently.</p> <p>Teachers at CWSA provide a range of scaffolds within a lesson where appropriate, so that all children reach the same ambitious goals. This is achieved using</p> <ul style="list-style-type: none"> • The use of I do it, We do it, You do it when modelling examples to the class. • Detailed support such as, key words, sentence starters, true or false examples, quality first teaching, questioning • Key vocabulary relevant to the unit of work • Post it notes with key prompts or questions to guide through the task.

Implementation

Teaching and Learning - A 'Mastery' Approach

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, reasoning and solving problems. They should also be applying their mathematical knowledge to science and other subjects.

The teaching and learning of mathematics at Castleward Spencer Academy should follow and include aspects of the following Mastery approach strategies in every lesson and/or over a series of lessons.



(NCTEM, 2017)

Coherence – Lessons are broken down into small connected steps that gradually unfold the concept, providing access for all children and leading to a generalisation of the concept and the ability to apply the concept to a range of contexts.

Representation & Structure – Representations used in lessons expose the mathematical structure being taught, the aim being that students can do the maths without recourse to the representation.

Mathematical Thinking – If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the student: thought about, reasoned with and discussed with others.

Fluency – Quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics.

Variation – Variation is twofold. It is firstly about how the teacher represents the concept being taught, often in more than one way, to draw attention to critical aspects, and to develop deep and holistic understanding. It is also about the sequencing of the episodes, activities and exercises using within a lesson and follow up practice, paying attention to what is kept the same and what changes, to connect the mathematics and draw attention to mathematical relationships and structure. (NCTEM, 2017)

Foundation Stage

Within the Foundation Stage, the EYFS Statutory Framework sets out the standards that all early years providers must meet to ensure that children learn and develop well and are kept healthy and safe. It promotes teaching and learning to ensure children's 'school readiness' and gives children the broad range of knowledge and skills that provide the right foundation for good future progress through school and life.

Teachers of the EYFS ensure that pupils learn through a mixture of adult led activities and child-initiated activities both inside and outside the classroom. Mathematics is taught through an integrated approach. Mathematics in the EYFS is initially developed through stories, songs, games and imaginative play. A positive approach to maths around the classroom helps the children to relate mathematics to their everyday lives.

The EYFS environment includes visual images, models and resources to stimulate interest both indoors and outdoors. Numicon and number blocks play a part in understanding the recognition of numbers and in developing an awareness of the relationship between numbers and amounts.

Teaching Sequence

Long term planning

Long term planning is based on guidance contained in the 'Development Matters' document and the requirements of the 'EYFS Statutory Framework'. The structure of the Long Terms Plans is such that two units run concurrently (a number unit and a SSM unit). Each week there should be three direct teaching slots.

In order to 'interrupt forgetting', key concepts are repeated throughout the year. This ensures that content is revisited as well as ensuring appropriate new content is introduced.

Number - Children count reliably with numbers from 1 - 20, place them in order and say which 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.

Shape, space and measures - Children use everyday language to talk about size, weight, capacity, position, distance, time and money to compare quantities and objects to solve problems. They recognise, create and describe patterns. They explore characteristics of everyday objects shapes and use mathematical language to describe them.

SPECIFIC AREA



Autumn 1

Autumn 2

Spring 1

Spring 2

Summer 1

Summer 2

Maths

Development Matters

Birth – 3 years

3-4 years

Reception

ELG

Take part in finger rhymes with numbers.

Compare amounts, saying 'lots', 'more' or 'same'.

Develop counting-like behaviour, such as making sounds, pointing or saying some numbers in sequence.

Count in everyday contexts, sometimes skipping numbers - '1-2-3-5.'

Complete inset puzzles.

Notice patterns and arrange things in patterns.

Say one number for each item in order: 1,2,3,4,5.

Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').

Show 'finger numbers' up to 5.

Experiment with their own symbols and marks as well as numerals.

Talk about and identifies the patterns around them. For example: stripes on clothes, designs on rugs and wallpaper. Use informal language like 'pointy', 'spotty', 'blobs' etc.

Take part in finger rhymes with numbers.

Compare amounts, saying 'lots', 'more' or 'same'.

Develop counting-like behaviour, such as making sounds, pointing or saying some numbers in sequence.

Count in everyday contexts, sometimes skipping numbers - '1-2-3-5.'

Notice patterns and arrange things in patterns.

React to changes of amount in a group of up to three items.

Compare sizes, weights etc. using gesture and language - 'bigger/ little/smaller', 'high/low', 'tall', 'heavy'.

Develop fast recognition of up to 3 objects, without having to count them individually ('subitising').

Recite numbers past 5.

Say one number for each item in order: 1,2,3,4,5.

Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').

Take part in finger rhymes with numbers.

Compare amounts, saying 'lots', 'more' or 'same'.

Develop counting-like behaviour, such as making sounds, pointing or saying some numbers in sequence.

Count in everyday contexts, sometimes skipping numbers - '1-2-3-5.'

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Say one number for each item in order: 1,2,3,4,5.

Know that the last number reached when counting a small set of objects tells you how many there are in total ('cardinal principle').

Show 'finger numbers' up to 5.

Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.

Experiment with their own symbols and marks as well as numerals.

Compare quantities using language: 'more than', 'fewer than'.

Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'.

Make comparisons between objects relating to size, length, weight and capacity.

Describe a familiar route.

Discuss routes and locations, using words like 'in front of' and 'behind'.

Extend and create ABAB patterns – stick, leaf, stick, leaf.

Notice and correct an error in a repeating pattern.

Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'

Count objects, actions and sounds.

	<p>Extend and create ABAB patterns – stick, leaf, stick, leaf.</p> <p>Begin to describe a sequence of events, real or fictional, using words such as 'first', 'then...'</p> <p>Count objects, actions and sounds.</p> <p>Subitise.</p> <p>Compare numbers.</p> <p>Continue, copy and create repeating patterns.</p> <p>Compare length, weight and capacity.</p>	<p>Show 'finger numbers' up to 5.</p> <p>Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.</p> <p>Experiment with their own symbols and marks as well as numerals.</p> <p>Compare quantities using language: 'more than', 'fewer than'.</p> <p>Talk about and explore 2D and 3D shapes (for example, circles, rectangles, triangles and cuboids) using informal and mathematical language: 'sides', 'corners'; 'straight', 'flat', 'round'.</p> <p>Make comparisons between objects relating to size, length, weight and capacity.</p> <p>Count objects, actions and sounds.</p> <p>Subitise.</p> <p>Compare numbers.</p> <p>Continue, copy and create repeating patterns.</p> <p>Compare length, weight and capacity.</p> <p>Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.</p> <p>Understand the 'one more than/one less than' relationship between consecutive numbers.</p>	<p>Subitise.</p> <p>Compare numbers.</p> <p>Continue, copy and create repeating patterns.</p> <p>Compare length, weight and capacity.</p> <p>Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.</p> <p>Understand the 'one more than/one less than' relationship between consecutive numbers.</p> <p>Automatically recall number bonds for numbers 0-5 and some to 10.</p> <p>Explore the composition of numbers to 10.</p> <p>Select, rotate and manipulate shapes to develop spatial reasoning skills.</p> <p>Continue, copy and create repeating patterns.</p> <p>Compose and decompose shapes so that children recognise a shape can have other shapes within it, just as numbers can.</p> <p>During Summer term in preparation for assessment against the ELG the following objectives will also be planned for.</p> <ul style="list-style-type: none"> - 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.
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therefore begin after a period of baseline assessments, in the Autumn term. Weekly planning will then be informed by these baseline assessments and observations.

According to guidance published by the EEF:

'Commonly, the most effective early numeracy approaches include individual and small group work, and balance guided interaction with both direct teaching and child-led activities, depending on the age and capabilities of the child.'

The teaching of early maths at CWSA reflects this guidance and is a balance of direct teaching, followed by guided small group work. Individual work and child-led activities will then take place during continuous provision time.

EYFS mastering number sessions will take place for 15 minutes during each afternoon. The sessions aim to secure firm foundations in the development of good number sense for all children from Reception through to Year 2. Over time, the aim of these sessions is that children will leave KS1 with fluency in calculation and be confident and flexible with numbers.

Maths in the provision

The provision is where pupils will demonstrate what they can do and what they have learnt from the direct teaching. As such, we expect the evidence gathered to be

- N** - natural
- I** - independent
- C** - consistent
- E** - embedded

The provision, therefore, should provide opportunities for the pupils to independently apply mathematical skills. However, provision should never be forced. For example, maths should not be done outside for the sake of doing "outdoor learning". Instead, meaningful opportunities should be found to apply maths both in the classroom and in the outside space. Provision should be made appealing for the pupils, to excite them about maths and motivate them to choose maths activities.

Adults in the environment should seek to scaffold mathematical conversation and prompt use of mathematical language using the continuous provision and maths planning.

Enhanced Provision

Following direct teaching, resources relating to the current maths objective should be available in CP. Children may then choose to independently apply, consolidate and extend their learning.

As well as the specific Maths CP and enhancements, it is necessary to think about natural opportunities for Maths learning to be applied in the following areas

- Sand/water
- Role Play
- Creative
- Small world
- Story corner

Vocabulary

Mathematical language is extremely important. In the medium-term plans, the vocabulary for each unit is indicated. During direct teaching, attention should be paid to what mathematical language should be introduced. This language should then be reinforced during learning conversations and through the environment. Given the evidence on how long it takes to make new vocabulary stick, words should be constantly re-visited.

Scaffold Support

We do not differentiate by task instead looking to support & challenge through every step of our lesson design. This ensures that pupils do not get held behind by not being exposed to Age Appropriate Learning*. In addition, it stops being held back by being labelled as "low ability". Instead we provide support for any pupil who needs it.

Support means:

- Pre-teaching content in advance of the unit.
- Always using pictorial and/or concrete resources to scaffold the learning.
- Using adult support (without removing independence).
- Same day or next day intervention to stop gaps appearing in the first place.

*Some of our pupils will have recognised and specific SEND. These pupils will not be able to access the same learning as others at times (although assumptions should not be made that this is always true). Where they need to access a different curriculum, their learning should be guided by their PLPs.

AFL

Feeding forward- we provide advice and guidance to children in order to move their learning on. This is the sole purpose for any response to their learning. At Castleward, we are going to shift from feeding back to children once the moment has passed, and feed forward as much as possible, during the lesson. Toolkits may be highlighted post lesson as an assessment tool, in order for the teacher to pick up misconceptions and move learning on in the following lesson.

Daily AFL will be taking place through questioning and observing of pupils when they are doing independent tasks. Evidence for each child could include:

Flashcards, sorting/matching activities, whole class discussion

Post it notes of what the pupil is saying or doing

Short observations

Pictures

Environment & Exercise Books

Working Wall

Working walls for Maths should include the following:

- Vocabulary for the unit
- Space for WAGOLLS (celebrations of good work) that should be changed as necessary.
- Annotated photographs which depict our learning journey

Live Maths

On a Maths washing line, you should display the live Maths created for that unit of work. Each piece of live Maths should have the learning intention on it.

Equipment Zones

To encourage pupil to use concrete resources when they need, an equipment zone should be in every class. This should contain:

EYFS
Numicon
Bead strings
Objects for counting

Exercise Books

Maths exercise books will not be used initially in EYFS. When it is deemed appropriate for a child to record their work in an exercise book, the following format will be followed; pupils will have a square-paged maths book each. Learning can be evidenced using photographs, questions or explanations of today's learning.

The presentation of mathematics books to be consistent, age appropriate and show that pupils take pride in the appearance of their work. - The date to be written as figures e.g. 05.07. - The Learning Objective to be at the top of the page on the left

hand side (handwritten or typed). When sticking in question sheets/resources, these to be trimmed to ensure they fit onto the page. Children to record their answers using pencils only. (except for Purple Pen comments).

Impact

At Castleward Spencer Academy, the expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. We aim for each child to be confident in mathematics objectives and for them to develop their ability to use their knowledge to develop depth and breadth in order to solve varied fluency problems as well as problem solving and reasoning questions.

However, decisions about when to progress should always be made based on the security of a pupils understanding and readiness to progress to the next stage. It is important that pupils who grasp concepts are challenged through rich problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material will consolidate their learning through additional practice, before moving on. This is supported through our assessment for learning.