Mathematics - Intent and Implementation

Intent	At Chacewater, our maths curriculum has been developed to ensure that every child has a sound understanding of the intricacies of mathematics. We aim for them to leave our school equipped with required maths skills to thrive in later life. By lacing calculation, reasoning and problem solving in to series of lessons, we ensure that secure links are made and that prior knowledge is being tested and challenged throughout. Our aspiration is for every child to see themselves as a mathematician - demonstrating a confident attitude towards tackling problems both in and out of the classroom and understanding the importance of maths in the wider world.		
Planning	**FS**	**Y1/Y2 (KS1)**	**Y3/Y4/Y5/Y6 (KS2)**
Intent	To ensure coverage of the EYFS curriculum, long term planning is created (Including Development Matters steps). It will be adapted throughout the year to reflect AfL.	Long term planning is created to ensure coverage of the national curriculum and broken down into weeks and terms. This planning can be adapted throughout the year by the class teacher who may spend longer on certain areas than others.	
Implementation	Long term planning is created using, NCTEM powerpoints to complement Numberblocks episodes WhiteRose, NRich, Chacewater School Calculation Policy and Development Matters. It applies to 4x weekly adult-taught sessions and will be reflected in continuous provision opportunities.	Maths objectives will be included within the medium term planning. For each block/topic of learning, a planning pyramid will be created. Within the planning pyramid, the objective will be broken down in to smaller steps in order to provide an explicit teaching sequence	

		Individual lessons are planned from this framework in the form of powerpoint/notebook slides which provide a clear progression of skills and calculations are chosen carefully in order to maximise lesson effectiveness. When planning our lessons, we follow the model of: **'Teach, Learn, Confuse, Understand'** This model will be presented sometimes within a single lesson but mostly it will be evident within a group of lessons which will be highlighted within the child's maths book.
Lesson design – Teach		
Intent	Lessons will be structured to ensure that progression is made from start to finish. Children will be taught new concepts in each unit however the starting point will always be a recap of the previous year to ensure strong foundations for the next stage.	
Implementation	<u>Foundation</u> Direct modelling from class teacher of new concepts following the school calculation policy, ensuring there is a clear progression. Direct whole class teaching will be for 20 mins daily, however a maths session will be up to 60 minutes with adult and child led activities readily available and planned in to the learning environment. Lessons will use a variety of different teaching styles	Direct modelling from class teacher of new concepts following the school calculation policy, ensuring there is a clear progression. Lessons will be x 5 per week for 60 minutes and will use a variety of different teaching styles to suit all learners, ensuring manipulatives are readily available to support and extend all children. The calculation policy will support teachers to know what specific methods to teach and to gain understanding on previous year (see appendix).

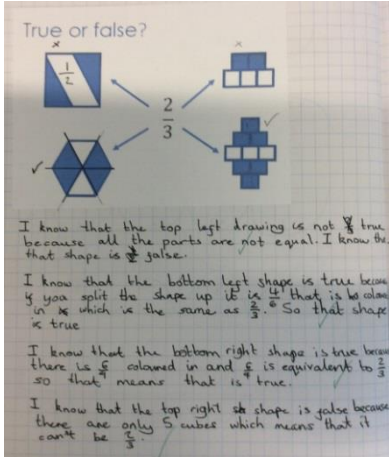|	to suit all learners, ensuring manipulatives are readily available to support and extend all children.	
Lesson design – Learn		
Intent	Children will have a variety of opportunities to practise the new skills they have been taught through an array of rich and stimulating activities provided by the class teacher which include fluency, reasoning and problem solving.	
Implementation	Practical hands on activities Careful, progressive and well planned sequences of calculations: Balance the calculations: $4 \div 10 = 8 \div \square \div 10$ $15 \div 3 \div 10 = \square \div 10$ $64 \div \square \div 10 = 32 \div 4 \div 10$	Pictorial representations: Missing number problems: 1. $\triangle + 5 = 6 + 4$ 6. $15 + 5 = \triangle + 14$ 2. $\triangle + 6 = 7 + 3$ 7. $14 + 6 = \triangle + 17$ 3. $\triangle + 7 = 8 + 2$ 8. $13 + 7 = \triangle + 18$ 4. $\triangle + 8 = 9 + 1$ 9. $12 + 8 = \triangle + 19$ 5. $\triangle + 1 = 10 + 0$ 10. $10 + 10 = \triangle + 20$
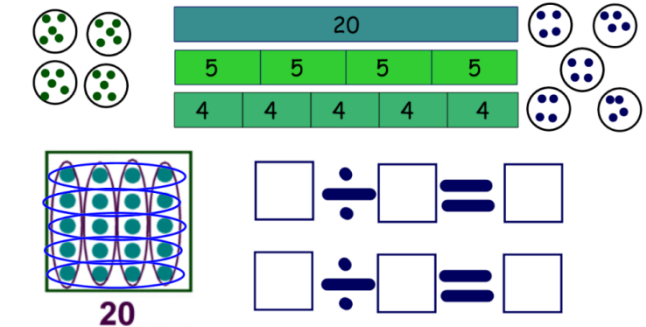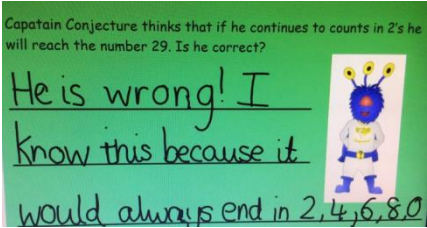
Lesson design – Confuse	
Intent	In order to ensure deep understanding, confuse elements will be incorporated in to the teaching sequence. The confuse may be within the lesson, an activity within the books or as a challenge or extension activity. The confuse activities allow the children to demonstrate their knowledge in a different way and thus provides depth of understanding. These can be written or through verbal discussions and applies to all year groups.
Implementation	**Conjecture:** Capatain Conjecture thinks that if he continues to counts in 2's he will reach the number 29. Is he correct? He is wrong! I know this because it would always end in 2,4,6,8,0 **Convince me:** Extension – Circle the larger number – how do you know it is larger? **78 or 87** It is larger because………………………………………… ……………………………………………………………… ……………………………………………………………. **See, think, wonder:** What do you see? What do you notice? 3 ⑥ 9 ⑫ 15 ⑱ 24 ㉚ 33 ㊲ 39 ㊷ 45 ㊽ 54 ㉠ See Think Wonder **Investigate and explain:** True or false?

Odd one out: **Always, Sometimes, Never**

RECAP - which is the odd one out? How do you know?

$7 + 3 = 10$ $6 + 4 = 10$

$9 + 1 = 10$

$8 + 4 = 12$

Odd one out

Reasoning

Always/Sometimes/Never:

To divide a number by 10,

you just remove the zero

Lesson design – Understand		
Intent	Children will demonstrate their understanding of the concept that they have been taught by being fluent and able to problem solve and reason deeply about the topic area. Sticky Maths sessions will also allow children to demonstrate what knowledge has stuck in previously taught lessons throughout the year.	
Implementation	**Foundation** Children will be able to use the skills taught within their play and continuous provision. FS staff will provide opportunities for these skills to be used within the setting and will encourage children to 'talk' about their maths. Sticky Maths: FS children will access sticky maths challenges provided by the classteacher –	They will be able to demonstrate their understanding in a variety of ways and through different media such as using manipulatives and through computer games such as 'Numbots and TT Rockstars.' Teachers will give children opportunities to reason and problem solve in a variety of different contexts using both pictorial and abstract representations of the same or similar idea. This will be evident in books and there will be a clear flow and progression of the learning. On a Friday during the sticky maths lessons, pupils will work on questions from previously taught topics eg) symmetry was taught in Spring 1, a sticky maths session in Summer 1 will include questions on

	their ability to access them will be recorded on tapestry.	symmetry. Pupils will each have their own sticky maths books or they may use their class jotters in KS2.

Class teachers will create sticky maths challenges (2-4) per session for the child to complete independently. They may also want a guided teacher or TA group as well if it is felt that a group needs support to access task.

These tasks will be separate and children can stick these in to their books and work through them in an order specified by the teacher. In the last 15 mins, teachers will go over the questions with the pupils on the board, allowing for instant feedback to all learners.

This method of sticky maths once per week, will assess whether the knowledge has 'stuck' and what needs repeating or recapping again as we progress throughout the term. |
Number fluency		
Intent	Our aim within mathematics is for all children to become mathematically fluent, being able to quickly recall number facts and show a secure understanding of number. A progressive document has been created to support children to build solid foundations for number fluency in order for them to have been exposed to all multiplication tables before year 4.	
Implementation	<u>Foundation</u> FS pupils will be exposed to a 'number of the week' at the beginning of the week. This will then be repeated throughout the week and incorporated in to maths lessons and within the continuous provision in the setting. At the end of the week, FS staff	All classes will introduce a number skill or area identified at the beginning of the week (please see separate appendix attached – subject to change due to gaps that emerge etc). This will then be taught as a maths starter or morning maths for 10 mins per day and will also be the homework each week. At the end of the week, a quiz will be given to the pupils (differentiated for HA/LA/SEND if necessary) to assess their understanding each week. Scores will be recorded by class teachers for evidence and to see if areas need to be repeated.

	will encourage pupils to complete a challenge, establishing whether they are demonstrating understanding of what the number means and looks like. This will be evidenced on Tapestry and on a class log to see which numbers need repeating and for assessment purposes.	
Presentation		
Intent	<u>Foundation</u> Children's learning will be presented on tapestry, capturing moments within their play as well as taught sessions. There will be clear evidence of when work has been supported and challenges to extend the more able pupils. They will record in books when necessary and this will show the fundamental skills being established.	Children's books will show their mathematical journey and tell a story of the learning, building on skills with well planned activities to stretch and challenge all learners.
Implementation	FS pupils will be taught how to write their numbers using rhymes (linked to whole school calculation policy) and will be actively encouraged to use larger squared maths books for their adult led sessions when and where appropriate.	<u>Y1/Y2</u> Each lesson will have the LF (learning focus) and short date written and underlined or printed and stuck in. If a child has achieved the LF it will have a double tick and initial, an awareness but not secure a	<u>Y3/Y4/Y5/Y6</u> Each lesson will have the LF (learning focus) and short date written and underlined or printed and stuck in. If a child has achieved the LF it will have a double tick and initial, an awareness but not secure a

	Books will have the LF (learning focus) and short date written and underlined or printed and stuck in. If a child has achieved the LF it will have a double tick and initial, an awareness but not secure a single tick, and initials only if not achieved.	single tick, and initials only if not achieved. Where numbers have been reversed or written incorrectly, this will be highlighted within marking and children will have to rewrite the number several times to practice. Where a mistake has been made, this will be shown when marked and pupils will complete these with a purple pen at the beginning of the next lesson. Each number will be written in one square including 2 digit number (one square each) It will be clear in the work whether the child has been supported in their learning or whether the task was accessed independently Presentation in books example:	single tick, and initials only if not achieved. Where numbers have been reversed or written incorrectly, this will be highlighted within marking and children will have to rewrite the number several times to practice. Where a mistake has been made, this will be shown when marked and pupils will complete these with a purple pen at the beginning of the next lesson. Each number will be written in one square including 2 digit number (one square each) It will be clear in the work whether the child has been supported in their learning or whether the task was accessed independently