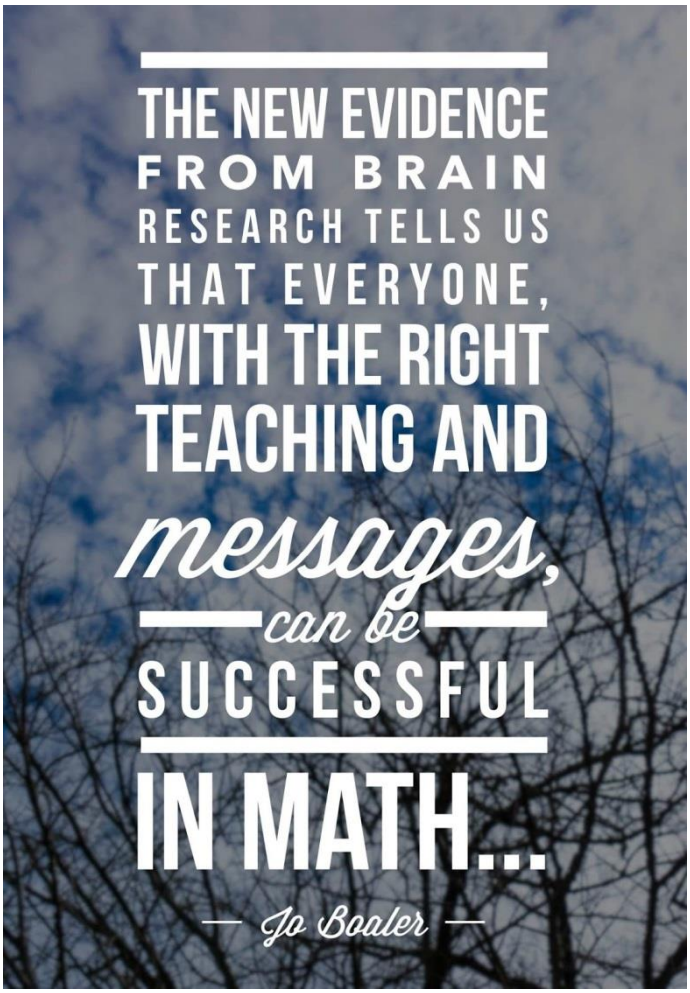
Coleshill Heath School
Maths Handbook



2021 - 2022

Contents

Section One
National Curriculum Expectations

The New National Curriculum for mathematics aims to ensure that ***all pupils:***

- become ***fluent*** in the basics of mathematics (times tables, number facts etc.) through varied and frequent practice with **increasingly complex problems over time;**
- develop ***conceptual understanding*** and the ability to recall and apply knowledge **rapidly and accurately;**
- ***reason*** mathematically by following a line of enquiry, estimating relationships and generalisations, and developing an argument, justification or proof by confidently using a wide range of **mathematical language**;
- ***Solve problems*** by applying their mathematics to a variety of routine and non-routine problems with increasing difficulty, including breaking down problems into a series of simpler steps and **persevering in seeking solutions**.

Making Connections

Pupils should make rich connections across mathematical ideas to ***develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems***. They should also apply their mathematical knowledge to science and other subjects.

Readiness to Progress

The expectation is that the majority of pupils will move through the programmes of study at ***broadly the same pace***. However, decisions about when to progress should always be based on the ***security of pupils' understanding and their readiness to progress to the next stage***. Pupils, who grasp concepts rapidly, should be challenged through being offered ***rich and sophisticated problems before any acceleration through new content***. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

CHS Maths Policy and Practice

Maths Vision

To develop a deep conceptual understanding of mathematics, for all students, through the use of concrete, pictorial and abstract resources.

Aims

- To foster positive attitudes, a fascination and excitement of discovery through the teaching and learning of mathematical concepts.
- To develop a ***'can do'*** attitude in our children, especially when problem solving and pattern sniffing.
- To broaden children's knowledge and understanding of how mathematics is used in the wider world by making rich and varied real life connections.
- To enable our pupils to confidently reason about their mathematics, using a suitable range of mathematical language, recognising its importance for communication and deep thinking.
- To use a wide range of models, visual manipulatives and practical resources to develop a deep conceptual understanding alongside procedural fluency.

Key elements of our teaching and learning

At Coleshill Heath we strive for all teachers to deliver high quality, effective maths lessons based on a secure foundation of maths subject knowledge and pedagogy. The Teaching and Learning of mathematics in Coleshill Heath should include all of the below in every lesson and/or over a series of lessons:

1. **Representation and Structure**

When introduced to a new concept, children should have the opportunity to build competency by taking this approach.

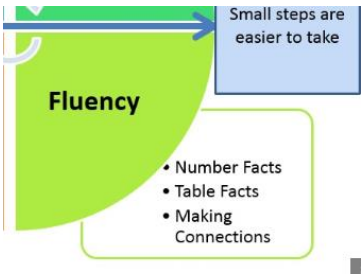
Concrete– This is the 'doing' stage, using concrete resources to model problems, to help children understand what they are learning. Children need the opportunity to experience and handle physical objects themselves. **Pictorial**– This is the 'seeing' stage, using representations of the objects to model problems. This stage encourages children to make a mental connection between the physical object and abstract levels of understanding by drawing or looking at pictures, circles, diagrams or models which represent the objects in the problem. Building or drawing a model makes it easier for children to grasp concepts they traditionally find more difficult, such as fractions, as it helps them visualise the problem and make it more accessible. **Abstract** –This is the "symbolic" stage, where children are able to use abstract symbols to model problems. **It is essential that using the CPA approach is done alongside each other, rather than concrete, pictorial then abstract.**

2. **Language development**: The way that children speak and write about mathematics has been shown to have an impact on their success. We need to use a carefully sequenced, structured approach to introduce and reinforce mathematical vocabulary. Every lesson will include opportunities for children to explain or justify their mathematical reasoning.

3. **Fluency:** Children need to be given the opportunities to memorise single procedures, but also they need to know **why** they are doing what they are doing and **know when it is appropriate** to use different method.

4. **Reasoning and problem solving**: Mathematical problem solving is at the heart of our approach – it is both how children learn maths, and the reason why they learn maths. By accumulating knowledge of mathematics concepts, children can develop mastery and depth and test their problem solving in every lesson.

Fluency



Fluency is one of the five ideas of teaching for mastery.

Fluency involves:

- Quick recall of facts and procedures.
- The flexibility and fluidity to move between different contexts and representations of mathematics.
- The ability to recognise relationships and make connections in mathematics.

Three types of fluency

Factual fluency – This is the children's ability to recall their knowledge in different forms, such as: speed tests, class practice and games using fact cards to allow children to practise their basic number facts. With factual fluency in place, we ease the children's cognitive load when learning new concepts.

Procedural fluency – This is the ability to apply procedure accurately, efficiently and flexibly; to transfer procedures to different problems and contexts.

Efficiency – An efficient strategy is one that the child can carry out easily, keeping track of sub problems and making use of intermediate results to solve the problem

Accuracy - Children carefully recording knowledge of number facts and other important number relationships, and double-checking results.

Flexibility - Children using their knowledge of **more than one approach** to solve a particular kind of problem, such as two-digit multiplication. Children need to be flexible in order to choose an appropriate strategy for the numbers involved, and also be able to use one method to solve a problem and another method to check the results.

Conceptual fluency – Understanding place vale and the relationships between operations.

Reasoning

Reasoning is fundamental to knowing and doing mathematics. Reasoning enables children to make use of all their mathematical skills and so reasoning could be thought of as the 'glue' which helps mathematics makes sense.

Reasoning skills will develop throughout Coleshill Heath School. A child could be reasoning when they:

- **Describe** what they have done.
- **Explain** reasons for what they did. These may or may not be correct.
- **Convince** others.
- **Justify** a correct logical argument that has a complete chain of reasoning to it and uses words such as 'because', 'therefore', 'and so', 'that leads to' …
- **Prove** by stating a watertight argument that is mathematically sound, often based on generalisations and underlying structure.

Children will reason when:

1. First encountering a new challenge

When faced with a mathematical challenge, reasoning helps the children to make use of relevant prior knowledge such as how to tackle this 'type' of problem or a particular calculation method that could prove useful.

2. When a range of starting points is possible

If there is not one single, obvious starting point, reasoning is required before the children even begin the task. Children can draw on prior knowledge to decide where to begin. Once they have used reasoning to select a starting point and have placed at least one number to start to solve the problem, then reasoning might make use of the number/s already in position, drawing on their knowledge of patterns and relationships.

3. When there are different strategies to solve a problem

4. When there is missing information

Children will reason to recognise the information that is missing, to figure out what it is that they need to know and to draw on their existing knowledge and to work out that information.

5. When selecting a problem-solving skill

In order to solve a problem, we need to draw on one or more problem-solving skills, such as:

- Working systematically
- Trial and improvement
- Logical reasoning
- Spotting patterns
- Visualising
- Working backwards

6. When evaluating a solution in context
Having come to a solution our children need to reflect on whether the answer is 'sensible' in the context of the problem. Reasoning tells our children that these are meaningless answers. Further reasoning helps children take into account the contexts and therefore prompts them to interpret the solutions and tweak them.

7. When there is more than one solution
If the challenge is to find all possible solutions, then the reasoning might involve having a system which ensures none are left out.

Problem solving

A problem is something that the children do not immediately know how to solve. There is a gap between where they are and getting started on a path to a solution. This means that the children require thinking and playing with the problem time. They need to test out ideas, to go up 'dead ends' and adjust their thinking in the light of what they learn from this, discuss ideas with others and be comfortable to take risks. When the children are confident to behave in these ways they are then able to step into problems independently rather than immediately turning to us as teachers to ask what to do!

As teachers we can support our children to develop the skills they need to tackle problems by the classroom culture we create. It needs to be one where questioning and deep thinking are valued, mistakes are seen as useful, all children contribute and their suggestions are valued, being stuck is seen as positive and children learn from shared discussion with the teacher, support staff and peers.

The stages of the problem-solving process

The problem-solving process can usually be thought of as having four stages:

Stage 1: Getting started will mean offering children strategies to help them engage with the problem. These could be prompts such as:

- Tell me/a partner what you think the problem is about.
- What would help you understand the problem?
- You might like to draw a diagram, act it out or represent it with a model.
- What other problems have you seen that are 'a bit like' this one?
- What mathematical skills have you got that could be helpful here?

Stage 2: Working on the problem will usually involve using one or several problem-solving skills such as: Trial and improvement, working systematically (and remember there will be more than one way of doing this: not just the one that is obvious to you!), spotting patterns, working backwards, reasoning logically and visualising the problem.

Stage 3: Digging deeper usually happens when the problem has been explored and then it is possible to look for generalisations and proof.

Stage 4: Concluding is the part of the problem-solving process where we support the children to learn to explain their findings both verbally and in writing.

Section Two
Planning for progression in maths

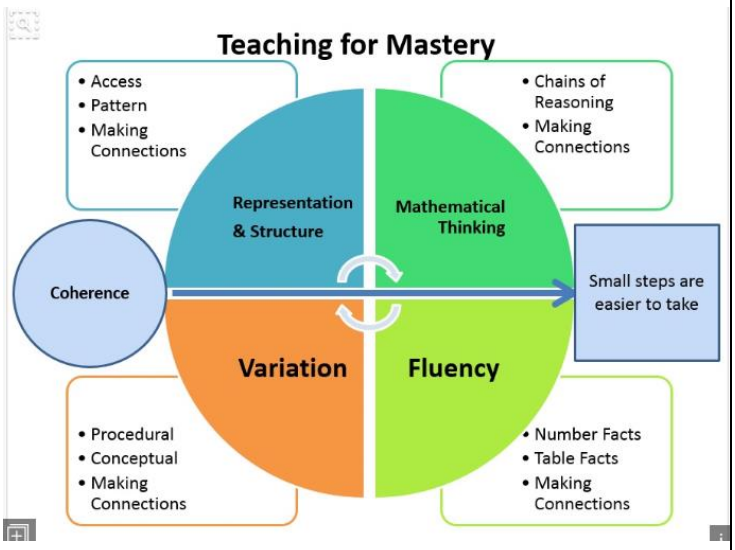
Long Term Overview

Planning from starting points

It is important to maintain high expectations and teachers should aim to teach the content from the age-related year group. However, teachers need to use a range of assessment information to ensure maths teaching builds from children's starting points and enables quality opportunity for them to deepen their level of understanding before moving on. For example: teachers will need to look at the objectives from previous year groups and in the cases where they know there is a clear gap, learning must be personalised for these groups of children.

Depth and Mastery

It is expected that all children will 'master' the curriculum related to their age. Those pupils with a good level of understanding and who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. It is therefore not appropriate for a child in Year 3 who can add three-digit numbers using the formal column method, to be moved onto the Year 4 expectation of adding four-digit numbers, until they have had the opportunity to apply their knowledge in different contexts, through problem solving activities and across other curriculum areas.



Knowing what is in your curriculum

The empty cells in the progression tables are also useful to teachers when planning for their class. They highlight where mathematical skills and concepts have been taught in previous year groups, yet do not have specific statements for later year groups. For example: 'Measurement' domain does not include statements beyond Year 3 for the addition and subtraction of money. Teachers in Years 4 to 6 are still likely to want to include this in their teaching.

EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
begin to use everyday language related to money *(Don't Matters)*	recognise and know the value of different denominations of coins and notes	recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value find different combinations of coins that equal the same amounts of money solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change	add and subtract amounts of money to give change, using both £ and p in practical contexts			

Empty cells also reveal to teachers when concepts are first introduced to the children. For example: Empty cells in the 'Measurement' domain reveal that perimeter is taught for the first time in Year 3. If Year 3 children experience difficulty with the conceptual understanding of perimeter, then there are no similar statements from the previous year to track back to.

Long Term Overviews

Year 1

Autumn Term 1								Autumn Term 2						
Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Week 7**	**Week 8**	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Week 7**
Number: Place Value (within 10)			Number: Addition and Subtraction (within 10)				Geometry: Shape	Number: Place Value (within 20)			Number: Addition and Subtraction (within 20)			

Spring Term 1						Spring Term 2					
Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**
Place Value (within 50) (Multiples of 2, 5 and 10)				Measurement: Length and Height		Measurement: Weight and Volume		Number: Multiplication and Division (reinforce multiples of 2, 4 and 10)			

Summer Term 1					Summer Term 2						
Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Week 7**
Number: Fractions		Geometry: Position and Direction		Number: Place Value (within 100)		Money			Time		

Year 2

Autumn Term 1								Autumn Term 2						
Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Week 7**	**Week 8**	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Week 7**
Number: Place Value			Number: Addition and Subtraction					Measurement: Money		Number: Multiplication and division				

Spring Term 1						Spring Term 2					
Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**
Statistics		Geometry: Properties of Shape			Number: Fractions			Length & Height	Measurement: Time		

Summer Term 1					Summer Term 2						
Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Week 7**
Mass, Capacity and Temperature	Geometry: Position and Direction	Revision		SATS Week	Consolidation: 4 operations (Multiplication, Division, Addition and Subtraction), Times table and division facts.						

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EVERY CHILD, EVERY DAY

Year 3

Autumn Term 1								Autumn Term 2						
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Number – Place Value			Number – Addition and Subtraction					Number- Multiplication and Division			Number- Multiplication and Division			Measurement- Money

Spring Term 1						Spring Term 2					
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Statistics		Measurement: Length and Perimeter				Number- Fractions					

Summer Term 1					Summer Term 2						
Week 1	Week 2	Week 3	Week 4	Week 5	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Measurement: Time			Geometry: Properties of Shapes		Measurement: Mass and Capacity						

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Year 4

Autumn Term 1								Autumn Term 2						
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Number: Place Value				Number: Addition and Subtraction			Length and Perimeter	Number: Multiplication and Division (Times Tables)			Number: Multiplication and Division			

Spring Term 1						Spring Term 2					
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Area	Fractions				Decimals				Money		Time

Summer Term 1					Summer Term 2						
Week 1	Week 2	Week 3	Week 4	Week 5	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Time	Statistics		Geometry: Properties of Shape		Geometry: Position and Direction			Consolidation			

Year 5

Autumn Term 1								Autumn Term 2						
Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Week 7**	**Week 8**	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Week 7**
Number: Place Value			Number: Addition and Subtraction		Statistics		Number: Multiplication and Division Facts				Perimeter and Area		Roman Numerals	Consolidation

Spring Term 1						Spring Term 2					
Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**
Number: Multiplication and Division			Number: Fractions						Percentages		Decimals

Summer Term 1					Summer Term 2						
Week 1	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Week 7**
Decimals			Geometry: Properties of Shapes			Position and Direction	Converting Units		Volume	Consolidation	

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EVERY CHILD, EVERY DAY

Year 6

Autumn Term 1								Autumn Term 2						
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Number: Place Value			Number: Addition, Subtraction, Multiplication and Division					Fractions				Geometry: Position and direction		Decimals

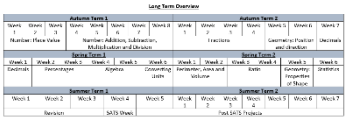
Spring Term 1						Spring Term 2					
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Decimals	Percentages		Algebra		Converting Units	Perimeter, Area and Volume		Ratio		Geometry: Properties of Shape	Statistics

Summer Term 1					Summer Term 2						
Week 1	Week 2	Week 3	Week 4	Week 5	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
Revision			SATS Week	Post SATS Projects							

The maths planning process at CHS

Step 1: Long Term Overview **LOOK**

Which objectives are you teaching?
What unit has come before? What unit comes next?
How will you build upon prior knowledge?
How long are you teaching this unit?

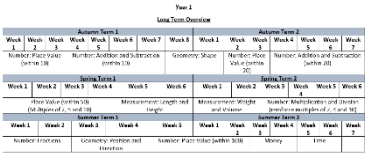


Step 2: Bright Pi Progression Overview **LOOK**

What skills and concepts are your children secure with from their previous years learning?
Are there any gaps in their previous years ARE? **These skills and concepts need to be addressed; this could be through your mental oral starters.**
What key skills and concepts are taught in your current year group?

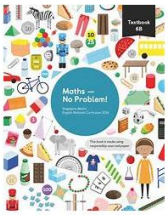
Step 3: Coleshill Heath School Long Term Overview

Looking at the teaching sequence, what small steps do you need to teach in order for your children to have a secure understanding of the maths?



Step 4: Coleshill Heath Calculation Policy, Maths No Problem Text Books and White Rose Resources

How will you teach the maths? What different methods will you teach the children? How will develop understanding through using CPA? How will you show depth of understanding? Could you adapt and deepen each question? Could you adapt a question to relate to a previously taught skill/concept?



Step 5: Plan on your interactive resources

1. Outline the learning journey. What small steps will you teach?
2. Think through the problem that the children are going to work through. **How are you going to teach the maths skills?** What different methods will you teach? What concrete resources will you use to show the maths? How will pictorial representations support the maths? How will this develop abstract thinking?
3. How will you support children who are struggling? How will you challenge children who are ready to show their depth of understanding?
4. Identify key vocabulary to be consistently embedded and reinforced over a series of lessons.
5. State the intended outcome for each learning episode.

Maths Expectations at CHS - Learning Journey

Mental Oral Starters

As we follow a blocked curriculum, it is important that we consolidate previously taught skills in our mental oral starter.

Autumn:	**Spring:**	**Summer:**
Revise skills from the previous year's curriculum. E.g: Children in Year 3, will recap Year 2 objectives.	Revise skills taught in Autumn term.	Revise skills taught in Autumn and Spring terms.

Mental oral starter (5-10 minutes)
Monday: Introduce 5 times table facts with related division and fraction facts (teaching). **Tuesday – Friday:** Consolidation of previously taught skills – Challenge available for all learners.

Main Teaching of Maths at CHS

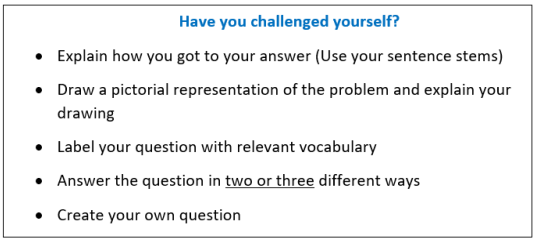
Through the Anchor Task and our teaching, we need to make sure that the children are **trialling methods**, to develop their mathematical thinking, so they understand the mathematical concepts. It is important that there are elements of **concrete, pictorial** and **abstract** examples throughout a lesson or a series of lessons. This doesn't need to be in the order of concrete, then pictorial and finally abstract.

Every child, regardless of their ability, needs to be exposed to **challenge** throughout their learning journey. Additionally, every child needs to be given the chance to **reason** and **explain** their mathematical thinking through the choice of activities.

Through **verbal feedback** and **hot marking**, children's misconceptions need to be addressed (group of children or whole class, if needed), children need to be challenged and their learning needs to be moved on accordingly.

Anchor Task (5 – 10 minutes)
At the beginning of the lesson the children will be exposed to an anchor task, which sets out the maths in a potential real-life problem. The children should have access to resources which support drawing out the mathematical concepts. The Anchor Task will be explored by the children working in mixed-ability pairing using **concrete** and **pictorial** representations. The children will have the opportunity to show their mathematical thinking in as many different ways as possible. Here the children will be able to verbally explain their mathematical thinking to their peer, learning from each other. **Adult support:** During the Anchor Task, adults within the classroom will visit each group and listen to their conversations, asking them further questions and encourage them to explain their thinking. At this time, if the children haven't used any elements of CPA, this is a time to encourage it.

Challenge cards: To ensure all children are challenged throughout the Anchor Task and no learning time is lost, challenge cards need to be available for all learners. Lots of modelling will need to take place prior to the children using the cards independently.



Main Teaching

What method(s) are you going to teach the children so that they can access the maths?

- Using the Coleshill Heath School Long Term plan, Written Calculation Policy, the Maths No Problem Text Books and/or the NCTEM Professional Development Documents to plan small teaching steps.

Which models and/or procedures are you going to teach the children to support their conceptual understanding?

- Using concrete and pictorial resources alongside each other, model to the children how these resources can help to draw out the mathematical structures. Children to try it with their own question.

When do I share the Learning Objective?

Throughout the lesson discuss with the children what they are learning. This does not need to be shared with the children at the beginning of the lesson.

Independent/Guided Practice:

Variation

Within guided practice and independent practice, conceptual and procedural variation need to be planned for.

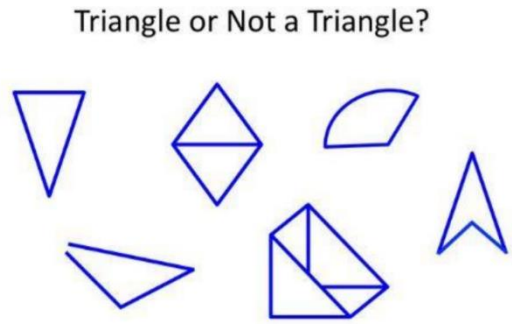
Conceptual Variation:

Conceptual means the opportunity to work on different representations of the same mathematical idea. Also working on the same mathematical idea but with a different problem.
In order to show the children conceptual variation, we could:

- Vary the representation to extract the essence of the concept
- Draw out the structure of a concept - **what it is and what it isn't**

Concept/non-concept

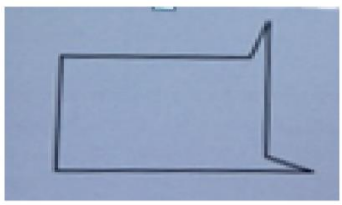
We need to expose the children to an example and non-examples of a mathematical concept, in order for them to understand what it is and what it isn't, therefore understanding the structure of a concept. Children also need to be exposed to slight differences in representations, in order to understand what it is and what it isn't.

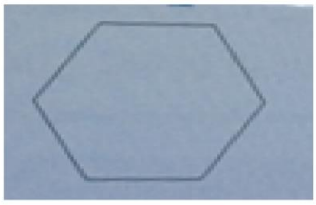


Example 1: What are the essential features of a triangle? 3 vertices, 3 sides, interior angles total to 180 degrees. What are the non-essential features? Length of sides, colour, size of angles and its orientation.

As the children have been taught what are the essential features of a triangle is, they are then able to identify what does and doesn't make a triangle.

Example 2: What shape is this? As the children have been exposed to different representations of a hexagon, they are able to identify what it is, as the children know what a hexagon is, and what it isn't.





Procedural Variation

Procedural variation is used to support pupils' deeper understanding of a mathematical procedure or process. This might be to compare the same procedure used to calculate two different sets of numbers. This could also be a set of questioning that build up with complexity, and one thing changes each time.
Key Questions: What stays the same? What changes?

2 x 3 =	6 x 7 =	= 9 x 8
2 x 30 =	6 x 70 =	= 9 x 80
= 2 x 300	6 x 700 =	= 9 x 800
20 x 3 =	60 x 7 =	= 90 x 8
= 200 x 3	600 x 7 =	= 900 x 8

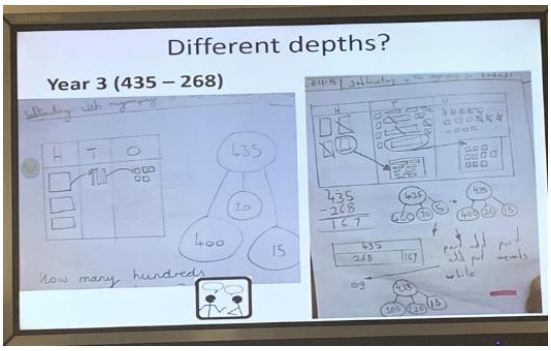
The child is carrying out the procedural operation of multiplication, but through connected calculations has the opportunity to think about key concepts involving multiplication and place value.

These types of questions give the children the opportunity to show their depth of understanding by **spotting** and **explaining patterns**, looking for **relationships** and **connecting ideas** by understanding what has stayed the same and what has changed.

Links between questions:	**Carefully thought out questions:**	**Order of questions/ positioning of number in number sentence:**
21 x 30	23 + 10 =	23 + 9 =
21 x 35	23 + 11 =	12 + 23 =
21 x 36	23 + 12 =	= 10 + 23
What would the children do to answer these questions? How would they approach these questions?	**What do you notice? How would you approach this question?**	23 + 7 = 11 + 23 = = 8 + 23

Guided / Independent Practice:
Before the children apply their learning independently, some children will benefit from working through some guided examples with the teacher. The questions that the children and teacher work through need to be a variation of what they will be exploring independently. We need to make sure we plan for any 'tricky' bits that the children may be exposed to. **How are the children going to show what they have learnt?** - In order for the children to apply their maths independently, the first question that the children work through needs to be a slight adaptation of the anchor task, so that the children can journal their mathematical thinking. Depending on the learning, a variety of both conceptual and procedural variation needs to be planned for in the types of questions that the children will be exploring.

Depth in Maths:



It is essential that the children are not moved onto different objectives when you feel they are 'secure'. The children need to show their depth of understanding within the current objective.

We need children to understand that the **answer is just the beginning**. Ask children to also:

- Show using a physical model
- Draw using a visual model
- Provide an oral explanation using precise mathematical vocabulary
- Provide written explanation using precise mathematical vocabulary
- Label the correct mathematical vocabulary to your pictorial representation. (Making connections)

At CHS, we will provide the children with a depth question(s), where they are able to explore deeper their mathematical thinking. This should be a question, where most children can have a go, but children have the opportunity to show their depth of understanding.

Looking through the NCTEM Professional development materials, there are 'dong nao jin' problems, which allow children to show a depth of understanding.

Examples:

Dòng nǎo jīn:

'Jim looks at the items for sale and chooses some to buy with his pocket money.

Which items did he buy if he spent:

- *£4.98*
- *£4.97*
- *£6.98?*

Could he spend £5.98?'

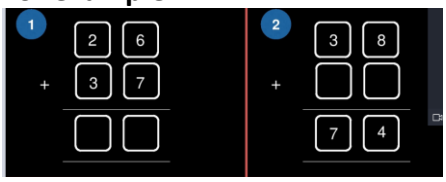
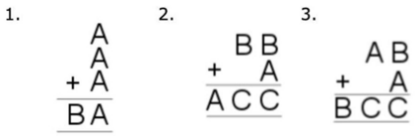
Dòng nǎo jīn:

'How many different ways can you find to complete the equation?'

$\square + \square = 130 + 150 - 6$

Also present dòng nǎo jīn problems, such as the following example, to promote and assess depth of understanding: *'Sally says she can think of four numbers, between one and five, that each have two digits which sum to eight. What numbers is Sally thinking of?'*

Ways to promote depth of understanding:

And another … By asking the children to five you another example they are really thinking about the maths, rather than the first answer that comes to their mind. They will start to think deeper. **For example:** A pair of numbers that differ by 1. A pair of numbers whose sum is 3. A pair of numbers whose product is 10. A shape with an area of 12.	**Same and Different?** This type of questions will give all learners the opportunity to participate. Different learners will challenge themselves in different ways. **For example:** 12 13 14 15 Why is 12 the odd one out? Why is 13 the odd one out? Why is 14 the odd one out? Why is 15 the odd one out?	**Making connections** Key to depth is the structure of the numbers and the children identifying patterns. **For example:** 3 + 2 = 5, so why is 300 + 200 = 500? 99 x 4 = 396, what is the most efficient way to work this out? 18 x 5 = 90 **Always insist on a 'because'.**
How, not what. Ask: How would you answer the question? Rather than: What is the answer? Use sentence stems to support the children's explanations. **For example:**  	**What's missing?** How many different solutions? **For example:**  	**Always, Sometimes, Never?** Here, it is best to ask the children to justify their answer with an example. The children will have to make links and use their knowledge of each concept. **For example:** Rectangles have exactly two lines of symmetry. If you double an even number, you get an even number. If you half an even number, you get an odd number.
Easy or Hard? Ask the children to write their own easy question and a hard question. **For example:** What are the most interesting pair of numbers totalling 100? What is the most interesting question about the 5x table?	**Answer, Question?** Following on from 'Easy or Hard', instead of giving the children the question, provide the children with the answer and get them to explore different questions. **For example:** The answer is 36. What is the question? How many multi-step problems can you create?	**Open ended** Provide children with a question where they can really explore their mathematical thinking. Especially when they answer their own question using a number of different methods. **For example:** How many two-step word problems, which included multiplication and division can you create? Solve, explain and represent each one.

Depth:
When you feel it is appropriate, provide the children with an open-ended question where they are able to show their depth of understanding. Through the use of challenge cards, the children can show their depth of understanding through out the lesson.

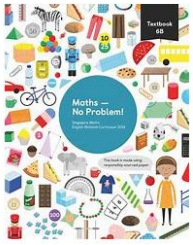
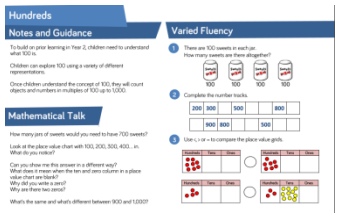
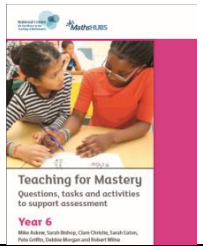
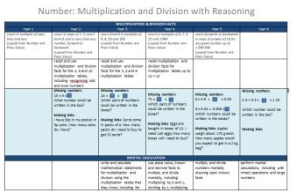
Plenary:
Depending on your lesson, the plenary could look differently. • Whole class discussion of exploring the depth question so that all learners are exposed to a level of challenge. • Recap of learning • Opportunity to talk over class/group misconceptions Opportunity for the children to teach someone else what they have learnt

Types of Teaching

The teaching and consolidation of maths skills could be developed differently over a series of lessons Depending on the what you are teaching you may choose to teach the children in different ways.

Teaching type 1 (Whole Class Teaching):
Whole class teaching, keeping all of the children together deepening their learning throughout the lesson. Deepen the children's understanding through questioning and through a well thought out learning journey.
Teaching type 2 (Working with groups of pupils):
During the main teaching stage of your lesson, it may be necessary to allow children who have grasped the concept rapidly to complete the work independently work at this point. Part 1: **Guided Activity (with adult support) with Group A:** Children to practice 3 questions with adult support. These questions should build upon the teaching in the 'Let's Learn' stage of your lesson. **Group B (Rapid-graspers)** could be completing their own challenge activity at this point. Part 2: **Guided Activity (with adult support) with Group B:** Rapid graspers to have a session with the teacher taking their learning deeper through questioning and the types of activities given to really extend learners understanding of the concepts being taught. **Group A:** Completing independent activities consolidating learning with adult support. Ensure children are given challenges through reasoning and problem solving to show what they are capable of independently.

Documents to support planning:

Maths No Problem text books 	Text Book A and B Work Book A and B Resources and ideas to support planning in Maths. These text books show how we can show variation when teaching different maths skills and concepts.
White Rose Hub Small Steps 	Small steps guidance. For each small step the Maths Hub have provided some brief guidance to help teachers understand the key discussion and teaching points.
NCTEM Spine Materials 	The NCTEM have produced materials to support our subject knowledge when teaching for mastery. Each spine, has a detailed teacher guide, including text and images. These materials are not lesson plans, but they can support planning.
Oxford Owl greater depth materials 	The questions, tasks, and activities that are offered in the materials are intended to be a useful vehicle for assessing whether pupils have mastered the mathematics taught.
Can you convince me questions 	A resource to encourage pupil's thinking, reasoning and mathematical discussion.
NCTEM progression and start questions 	Linking to the objectives from the National Curriculum, this document gives reasoning questions to enable children to think deeper. Again, these types of questions can be developed further.

Section Three
Fact fluency
Multiplication and Related Number Facts

Early Bird Maths

Early Bird Maths will take place from 8:50 am to 9:10 am across the school (Nursery – Year 6). In Nursery and Reception this is incorporated into their everyday routine and this is developed throughout the year.

From Year 1 – Year 6, this activity should consist of the children revisiting and practising **at least 5** previously taught arithmetic skills. Please ensure you plan for variation within the questions.

1. (23 + 37) - 15 =
2. 20% of 520 =
3. 12 – 10.47 =
4. = 1,105 ÷ 85
5. 500,000+_____+40 = 530,040
6. $1\frac{3}{4} + 1\frac{1}{3} =$
7. = 2,400 ÷ 6
8. 5.35 x 7 =
9. $\frac{1}{6} \times \frac{3}{4} =$
10. = 747 ÷ 1

Arithmetic/ Number Fact sessions (Year 1 to Year 6):

Teachers should use the termly arithmetic assessments to identify gaps and misconceptions in children's understanding. Skills and concepts that the children are not secure with, will be focused on in these sessions. These sessions could include lots of repetition, chorusing and playing games which will support their understanding. Throughout these sessions, use the children's understanding to move children on accordingly. Use gaps to inform starting points for the next week's learning.

Year 1:

- 3 x 15 minutes number fact sessions.
- 5 new number facts to be shared with parents through class dojo when teaching a new type of fact.

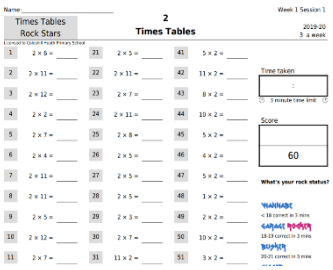
Year 2

- 1 x 20 minute explicitly taught arithmetic session.
- 2 x 15 minutes number fact sessions.
- 5 new number facts or multiplication and related division facts to be shared with parents through class dojo fortnightly.

Year 3 - Year 6:

- 1 x 20 minute explicitly taught arithmetic session.
- 5 new multiplication and related division and fraction facts to be shared with parents through class dojo weekly.

Teaching sequence:



Monday: Introduce and teach new number facts.

Friday: Paper TTRS to be completed, focusing on previously taught times tables and current times tables that you are teaching. Record the children's raw score on the system.

Online resources:

Numbots(Year 1 – Year 2)

In Years 1 and 2, our children have access to NumBots, which is an online resource which allows our children to practise their fluency with addition and subtraction facts.

There are two modes – Story Mode for Understanding and Challenge Mode for Recall.

Times Table Rock Stars (TTRS) (Year 2 – Year 6)

To support children practising their fluent recall of their multiplication and division facts, children are able to access TTRS within school and at home.

July/ September: Baseline assessment
Autumn 2: Baseline assessment
Spring 2: Baseline assessment
Summer 2: Baseline assessment

Monthly: TTRS battles against year group class within school and at home

COLESHILL HEATH SCHOOL
EVERY CHILD, EVERY DAY

Number Facts

Across Years 1 and 2, the children will be taught a range of strategies to ensure they are fluent in their recall of addition and subtraction facts. By our children becoming fluent in the following facts this will allow the children to tackle more complex maths more effectively.

+	0	1	2	3	4	5	6	7	8	9	10
0	0 + 0	0 + 1	0 + 2	0 + 3	0 + 4	0 + 5	0 + 6	0 + 7	0 + 8	0 + 9	0 + 10
1	1 + 0	1 + 1	1 + 2	1 + 3	1 + 4	1 + 5	1 + 6	1 + 7	1 + 8	1 + 9	1 + 10
2	2 + 0	2 + 1	2 + 2	2 + 3	2 + 4	2 + 5	2 + 6	2 + 7	2 + 8	2 + 9	2 + 10
3	3 + 0	3 + 1	3 + 2	3 + 3	3 + 4	3 + 5	3 + 6	3 + 7	3 + 8	3 + 9	3 + 10
4	4 + 0	4 + 1	4 + 2	4 + 3	4 + 4	4 + 5	4 + 6	4 + 7	4 + 8	4 + 9	4 + 10
5	5 + 0	5 + 1	5 + 2	5 + 3	5 + 4	5 + 5	5 + 6	5 + 7	5 + 8	5 + 9	5 + 10
6	6 + 0	6 + 1	6 + 2	6 + 3	6 + 4	6 + 5	6 + 6	6 + 7	6 + 8	6 + 9	6 + 10
7	7 + 0	7 + 1	7 + 2	7 + 3	7 + 4	7 + 5	7 + 6	7 + 7	7 + 8	7 + 9	7 + 10
8	8 + 0	8 + 1	8 + 2	8 + 3	8 + 4	8 + 5	8 + 6	8 + 7	8 + 8	8 + 9	8 + 10
9	9 + 0	9 + 1	9 + 2	9 + 3	9 + 4	9 + 5	9 + 6	9 + 7	9 + 8	9 + 9	9 + 10
10	10 + 0	10 + 1	10 + 2	10 + 3	10 + 4	10 + 5	10 + 6	10 + 7	10 + 8	10 + 9	10 + 10

Year 1

	Autumn 1		Consolidation
Week 1			
Week 2			
Week 3	Adding 1	0 + 1 1 + 0 1 + 1 1 + 2 2 + 1 1 +3 3 + 1 1 + 4 4 + 1	
Week 4	Adding 1	1 + 5 1 + 6 1 + 7 1 + 8 1 + 9 5 + 1 6 + 1 7 + 1 8 + 1 9 + 1	Adding 1
Week 5			Adding 1
Week 6	Doubles to 5	0 + 0 1 + 1 2 + 2 3 + 3 4 + 4 5 + 5	Week 5
Week 7			Doubles to 5
Week 8			Adding 1 and Doubles

Autumn 2			Consolidation
Week 1	Near doubles	1 + 2 2 + 3 3 + 4 4 + 5 2 + 1 3 + 2 4 + 3 5 + 4	Adding 1
Week 2			Doubles to 5 and near double to 5
Week 3	Adding 2	2 + 3 2 + 4 2 + 5 2 + 6 2 + 7 3 + 2 4 + 2 5 + 2 6 + 2 7 + 2	Near doubles to 5
Week 4	Adding 2	2 + 8 2 + 9 8 + 2 9 + 2	Adding 2
Week 5			Adding 2 and adding 1
Week 6			Doubles to 5 and near doubles to 5
Week 7			Adding 1, doubles to 5, near doubles to 5 and adding 2

Spring 1			Consolidation
Week 1	Number bonds to 10	0 + 10 1 + 9 2 + 8 3 + 7 4 + 6 10 + 0 9 + 1 8 + 2 7 + 3 6 + 4 5 + 5	
Week 2			Number bonds to 10 and adding 2
Week 3	Adding 0 to a number	0 + 1 0 + 2 0 + 3 0 + 4 0 + 5 1 + 0 2 + 0 3 + 0 4 + 0 5 + 0	Adding 1
Week 4	Adding 0 to a number	0 + 6 0 + 7 0 + 8 0 + 9 0 + 10 6 + 0 7 + 0 8 + 0 9 + 0 10 + 0 0 + 0	Adding 0 to a number (Week 3)
Week 5			Adding 0 to a number and doubles to 5
Week 6			Number bonds to 10 and near doubles

Spring 2			Consolidation
Week 1	Adding 10 to a number	0 + 10 1 + 10 2 + 10 3 + 10 10 + 0 10 + 1 10 + 2 10 + 3	Adding 1 and doubles to 5
Week 2	Adding 10 to a number	4 + 10 5 + 10 6 + 10 7 + 10 10 + 4 10 + 5 10 + 6 10 + 7	Adding 1 and near doubles
Week 3	Adding 10 to a number	8 + 10 9 + 10 10 + 10 10 + 8 10 + 9 10 + 10	Number bonds to 10 and adding 0 to a number
Week 4	The ones without a family	5 + 3 6 + 3 3 + 5 3 + 6	Adding 10 to a number
Week 5	Consolidation of all facts		
Week 6			

Summer 1 and Summer 2: Teaching of multiplication facts (see below).

Year 2

Autumn 1 – Consolidation of Year 1 facts			
Week 1	Adding 1	0 + 1 1 + 1 1 + 2 1 + 3 1 + 4 1 + 0 1 + 1 2 + 1 3 + 1 4 + 1	1 + 5 1 + 6 1 + 7 1 + 8 1 + 9 5 + 1 6 + 1 7 + 1 8 + 1 9 + 1
Week 2	Doubles to 5	0 + 0 1 + 1 2 + 2 3 + 3 4 + 4 5 + 5	
Week 3	Near doubles to 5	1 + 2 2 + 3 3 + 4 4 + 5 2 + 1 3 + 2 4 + 3 5 + 4	
Week 4	Adding 2	2 + 3 2 + 4 2 + 5 2 + 6 2 + 7 2 + 8 2 + 9 3 + 2 4 + 2 5 + 2 6 + 2 7 + 2 8 + 2 9 + 2	
Week 5	Number bonds to 10	0 + 10 1 + 9 2 + 8 3 + 7 4 + 6 5 + 5 10 + 0 9 + 1 8 + 2 7 + 3 6 + 4	
Week 6	Adding 0 to a number	0 + 1 0 + 2 0 + 3 0 + 4 0 + 5 1 + 0 2 + 0 3 + 0 4 + 0 5 + 0	0 + 6 0 + 7 0 + 8 0 + 9 0 + 10 6 + 0 7 + 0 8 + 0 9 + 0 10 + 0 0 + 0
Week 7	Adding 10 to a number	0 + 10 1 + 10 2 + 10 3 + 10 10 + 0 10 + 1 10 + 2 10 + 3 8 + 10 9 + 10 10 + 10 10 + 8 10 + 9 10 + 10	4 + 10 5 + 10 6 + 10 7 + 10 10 + 4 10 + 5 10 + 6 10 + 7
Week 8	The ones without a family	5 + 3 6 + 3 3 + 5 3 + 6	

Autumn 2 – Teaching of Year 2 facts			Consolidation
Week 1	Doubles of numbers to 10	6 + 6 7 + 7 8 + 8 9 + 9 10 + 10	Number bonds to 10
Week 2	Near doubles	5 + 6 6 + 7 7 + 8 8 + 9 9 + 10 6 + 5 7 + 6 8 + 7 9 + 8 10 + 9	Doubles
Week 3	Bridging	3 + 8 3 + 9 4 + 7 4 + 8 4 + 9 8 + 3 9 + 3 7 + 4 8 + 4 9 + 4	Adding 1 and 2
Week 4	Bridging	5 + 6 5 + 7 5 + 8 5 + 9 6 + 5 6 + 5 7 + 5 8 + 5 9 + 5 5 + 6	Near doubles
Week 5	Bridging	6 + 6 6 + 7 6 + 8 6 + 9 7 + 9 6 + 6 7 + 6 8 + 6 9 + 6 9 + 7	Adding 0 to a number
Week 6	Bridging	7 + 8 8 + 8 8 + 9 9 + 9	Number bonds to 10
Week 7			All of Year 2 facts

Spring 1 – Summer 2: Teaching of multiplication facts (see below).

Times Tables

Below are the times tables each child should know as a minimum by the end of each academic year. This is in line with national expectations.

Reception: When counting objects, children should be able to group in twos, fives and tens and record the total.

Year 1: Record sequences of twos, fives and tens (e.g. 2, 4 6, 8 etc.) and identify any missing multiples. Know off by heart the doubles and halves of numbers to 12. Draw and use arrays to solve multiplication problems.

Termly Breakdown of Times Tables and Division Facts

As you are teaching new times tables and division facts, you will need to consolidate and recall previously taught multiplication and division facts.

Year 1	
Autumn 1 – Spring 2	Year 1 Number facts
Summer 1	1 x tables (no division facts) 10 x table to 12 (no division facts) 2 x tables to 6 (no division facts)
Summer 2	2 x table from 6 to 12 (no division facts) 5 x tables to 12 (no division facts)
Teaching methodologies **Count pairs of objects, count straw bundled in tens, sing counting songs, hundred square, number lines and pictorial representations on display.**	
Year 2	
Autumn 1 and 2	Year 2 Number Facts
Spring 1	5 x tables to 12 including division facts Recap 2,5 and 10 x tables with the new inclusion of division facts
Spring 2	4 x tables to 12 including division facts 8 x tables to 12, making explicit links to 4 x tables and including division facts
Summer 1	3 x tables to 12, including division facts
Summer 2	6 x tables to 12, making explicit links to 3 x tables and including division facts
Teaching methodologies: **Count objects in groups, sing counting songs, hundred square, number lines, array with concrete resources and pictorial representations on display.**	

Year 3	
Autumn 1	3 and 6 x tables recap including division facts
Autumn 2	9 x tables to 12, making explicit links to 3 x tables and including division facts
Spring 1	7 x tables to 12 including division facts
Spring 2	11 x tables to 12 including division facts
Summer 1	12 x tables to 12, making explicit links to 6 times tables and including division facts
Summer 2	Recap of all times tables, plus the introduction of square numbers.
Teaching methodologies: **Count objects in groups, hundred squares, number lines, array with concrete resources and pictorial representations on display.**	

Year 4	
The national curriculum expectation is that by the end of Year 4, children are able to recall all 12 tables up to 12 x 12. As a school, we are aiming that the children learn all the tables and division facts by the end of Year 3. If your children are working below, please track back to previous year groups and follow that structure.	
Autumn 1	Recap 2, 5 and 10 x tables including division facts
Autumn 2	Recap 3, 6 and 12 x tables including division facts, making explicit links between the tables
Spring 1	Recap 4 and 8 x tables including division facts, making explicit links between the tables
Spring 2	Recap 7 x tables to 12 including division facts
Summer 1	Recap 9 x tables to 12, making explicit links to 3 x tables and including division facts
Summer 2	Recap of all times tables, plus square numbers.
Teaching methodologies: **Hundred square, number lines and pictorial representations on display.**	

Year 5
The national curriculum expectation is that by the end of Year 4, children are able to recall all 12 tables up to 12 x 12. As a school, we are aiming that the children learn all the tables and division facts by the end of Year 3. If your children are working below, please track back to previous year groups and follow that structure. Additionally: Knowledge of prime numbers to 19.

Year 6
If your children are working below, please track back to previous year groups and follow that structure. Additionally: Knowledge of prime numbers below 100. Identify common factors and multiples.

Section Four
Formal Written Methods

The Written Calculation Guide provides teachers with a detailed supportive document, showing a suggested progression towards formal written calculation methods. The documents provide a variety of methods that can be taught for each operation.

It is vital that we consolidate and build on children's developing mental calculation skills. We need to follow the written calculation guidance so we show progression with our formal written methods across the school and so that the children are secure with their understanding of a certain method, before moving onto a more complex written method.

Maths Resources

It is essential that practical apparatus are used throughout Key Stages 1 and 2. Teachers need to carefully select the resources to draw out the mathematical structures. The use of all equipment needs to be modelled carefully, using appropriate mathematical language, and then be easily accessible for all.

Children especially in Key Stage 2 need to continue to be given the opportunity to 'see' the underlying concepts in the area of maths they are working with, through the use of concrete equipment and resources.

Key Stage 1	Key stage 2
Base ten equipment – e.g. Dienes or straws in bundles or Numicon Number fans Individual items to count (bears, conkers, shells etc.) Linkable cubes, counters Number lines to 50, and to 100 Bead strings Number grids 1-100 Multiplication grids (year group specific) A selection of coins	Number lines to 1000 Blank number lines Negative number lines (year group specific) Place value baseboards (year group specific) Base ten equipment – e.g. Dienes, Place value counters or Numicon Number fans (double digits) Linkable cubes Counters Bead strings Multiplication tables grid (2, 3, 5, 6, 8, 10) Multiplication grid up to 12x12 Number grids 1-100 Gattegno charts (year group specific) Coins & notes

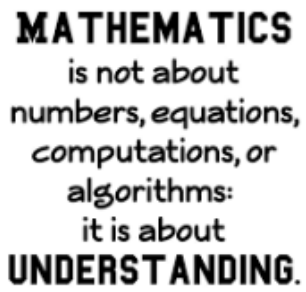
Section Five
Talk for maths

Maths Vocabulary

Talk is essential in supporting and developing children's thinking and learning. High quality discussion can raise standards in mathematics. In order to engage in extended dialogue, pupils need to have a rich diet of mathematical vocabulary to draw upon.

When children are explaining their answer, we always need to insist on 'because'.

Throughout every maths lesson, children need to be exposed and use **mathematical language**. At the beginning of a series of maths lessons, the children need to be reminded of and introduced to the maths vocabulary that is relevant to their learning journey. Children need to be able to **articulate** the meaning of the vocabulary and use it in their written and verbal responses. Additionally, children need to have the opportunity to **verbalise** their understanding of the maths skill, through **teacher modelling**. We need to involve the children in rich discussions, developing their understanding further of the mathematical skill.



Vocabulary that will support the children's learning needs to be displayed on the maths working wall, and used throughout every maths lesson.

Sentence Stems

To support our children in structuring explanations, simple sentence starters can be used. These should be modelled by the teacher initially, requesting additional responses from individuals or pairs and small groups after thinking time is provided.

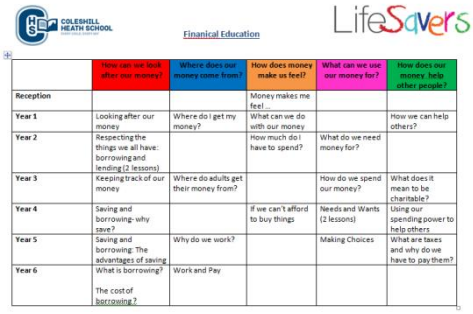
The first thing I did was…
I already knew…so…
I noticed that…
Once I found out… I could then …
It didn't work when I … so I …

The part I found most difficult was … because…
The part I found easiest was...because…
It could be…because…
It couldn't be…because…

Questions to encourage dialogue and reasoning	Questions to develop resilience
What do you already know? How will this help you to find out….? Can you explain what you have done so far? What did you notice when….? What is the same/ different about…….? Do you agree that……? Why is that piece of information important? What could we try next? What would happen if we….? How can we be sure that……? Why do you think that…..? Can you explain why…..?	What do you think the problem is asking? Have you encountered this type of problem before? What other information is needed in order to answer the question? What have you tried already? What do you want to know now? How else could you represent the problem? Are you being systematic? Can you reword the problem and explain it in a different way? What parts of the problem do you understand? Would a picture or a diagram help solve the problem?

Section Six
Financial Education- Life savers

LifeSavers is a financial education programme for primary schools, helping children manage money wisely now and in the future. The children will learn about money through the lens of: generosity, wisdom, thankfulness and justice.


Finanical Education

	How can we look after our money?	Where does our money come from?	How does money make us feel?	What can we use our money for?	How does our money help other people?
Reception			Money makes me feel...		
Year 1	Looking after our money	Where do I get my money?	What can we do with our money		How we can help others?
Year 2	Respecting the things we all have: borrowing and lending (2 lessons)		How much do I have to spend?	What do we need money for?	
Year 3	Keeping track of our money	Where do adults get their money from?		How do we spend our money?	What does it mean to be charitable?
Year 4	Saving and borrowing- why save?		If we can't afford to buy things	Needs and Wants (2 lessons)	Using our spending power to help others
Year 5	Saving and borrowing: The advantages of saving	Why do we work?		Making Choices	What are taxes and why do we have to pay them?
Year 6	What is borrowing? The cost of borrowing?	Work and Pay			

Five big questions about money:

- How can we look after our money?
- Where does our money come from?
- How does money make us feel?
- What can we use our money for?
- How does our money help other people?

The questions have been designed to enable pupils to explore all the things we can do with our money – spend, save, give, lend, invest and borrow. The activities will enable children to acquire a range of financial skills and knowledge, whilst also exploring how the values of generosity, wisdom, thankfulness and justice can shape their attitudes to, and decisions about, money. Each Big Question contains a series of activities that addresses its theme. Additionally, Natwest have a variety of interactive resources to support the teaching of financial education.

We will teach up to four lessons over each academic year, which will be taught in the Summer Term, and will build upon the children's understanding of money from the previous year. Natwest Money Sense workshops to be planned in during this week.

Section Seven
Assessment Practice in maths

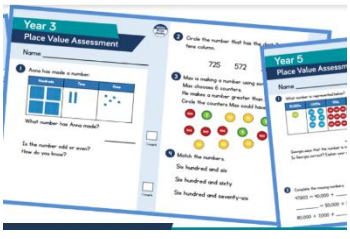
Standardised testing

Standardised tests will be used termly. These tests will provide you with a reliable range of information that will support and guide the management of effective learning in the classroom.

Insight

See Assessment Policy.

End of unit assessments



After you have taught a unit e.g: Fractions, you will give the children the Fraction 'End of unit assessment' after you have taught the next unit to see how much they have retained. These need to be stored in the children's test folder, not stuck in their exercise books.

Section Eight
Intervention in maths

Interventions at Coleshill Heath School should be planned to support children and target groups who are at risk of falling behind. However, it is important not to rule out intervention that might be necessary for other groups such as those who are identified as gifted and talented in maths, but are not making sufficient progress. It is important to tailor interventions to children's strengths and weaknesses, and focus on particular misconceptions and incorrect strategies that the children may have.

Teacher lead intervention

During assembly time, it is important that teachers have a focus group of children supporting those who need further support with a mathematical concept.

Support staff intervention

There are three types of intervention that support staff could lead:

1. Pre-teaching: Spending a short amount of time pre-teaching children who may struggle with new knowledge. During this session, teachers will recall previously taught content which will support them during the lesson and/or discuss concepts that will be taught within the lesson.
2. Post- teaching: Supporting an individual child or group of children, addressing any misconceptions that the child/children have had during their maths lesson. This type of intervention could be at the beginning of the day during SODA, during assembly time or designated time during the day.
3. Weekly intervention: Working with a specific focus group of children on a specific skill, for a specified period of time.

The following programmes could be used as an intervention to help support children's progress and understanding, as well as teacher direction:

- Tagtiv8
- Third Space Learning
- Times Table Rock Stars
- Success at Arithmetic (Year 3 and 4)
- Every Child Counts (Year 5 and 6)

Questions to consider:

What is the focus of the intervention?
How many weeks will the intervention last?
How often will the intervention take place?
How will you show progress?
What resources will you need?
How will you communicate with class teachers?

Evaluation

Teachers and support staff need to constantly evaluate their interventions. Thinking about the following questions:

How much progress have the children made?
Does the intervention need to be adapted? If so, how?
Do I need to re-visit this skill?

Section Nine
Home Learning in maths

Maths Homework

Teachers need to set homework on a **Friday**, which will be expected to be completed and returned to school by **Wednesday**. If homework is not completed at home, then it needs to be completed at school on a Thursday or Friday. A class list must be ticket off to state who has and who has not completed the homework.

Homework can be set as either a baseline assessment to understand the children's starting points or as a way to develop and practise taught skills.

Section Ten
Ten Minute Taster Notes

Date of session:
Led by:
Focus:
Notes:

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Led by:
Focus:
Notes:

COLESHILL HEATH SCHOOL
EVERY CHILD, EVERY DAY

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Section Twelve
Professional Learning Notes

Date of session:
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Focus:
Notes:

Date of session:
Led by:
Focus:
Notes:

Date of session:
Led by:
Focus:
Notes:

Personal reflections for Professional Learning and Development
What are my areas of strength? Subject knowledge and pedagogy
What are my areas to develop? Subject knowledge and pedagogy **How will I take action to move myself forward?**

Policy Name:	**Maths Policy and Handbook**
Staff Responsible:	Mrs H Hennessy
Governor Responsible:	
Date for Review:	July 2022-September 2022
Signed Headteacher:	Miss N Fowles
Signed Chair of Governors:	Mrs M Fitter
Date Ratified:	Curriculum & Scrutiny: 16th November 2021