

XP.
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Maths at Carcroft!

"Mathematics gives us the hope that every problem has a solution"



Intent:

Curriculum Intent

Mathematics is important in everyday life and with this in mind, the purpose of Mathematics at Carcroft is to develop an ability to solve problems, to reason, to think logically and to work systematically and accurately.

All children are challenged, supported and encouraged to excel in Maths. New mathematical concepts are introduced using a 'Concrete, Pictorial and Abstract' approach; enabling all children to experience hands-on learning when discovering new mathematical topics, and allows them to have clear models and images to aid their understanding.

Arithmetic and basic maths skills are practised daily to ensure key mathematical concepts are embedded and children can recall this information to see the links between topics during Magic Maths sessions.

At Carcroft we aim to embed mathematical understanding so that pupils have an understanding of how maths is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment.



Implementation:



We have based our teaching of mathematics skills on the White Rose scheme. The rationale behind this being that the White Rose scheme helps to meet the guidelines of the national curriculum in a fun and engaging way which also ensures an effective sequence of learning and builds progression from unit to unit as the child transitions throughout school. In addition, we believe that the high quality resources, in which White Rose provide, help to support children to grasp mathematical concepts whilst exploring a 'concrete-pictorial-abstract' approach.

Our Maths teaching week is outlined below:

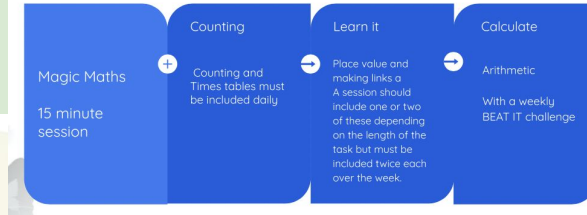
- 4 x 15 minute Magic Maths lessons
- 4 x 45 minute Maths lessons focussing on fluency, reasoning and problem solving skills.
- 3 x 30 minute Arithmetic lessons
- 3 x 10 minute Timestable lessons

Please see subsequent slides for more information.



Implementation:

Magic Maths

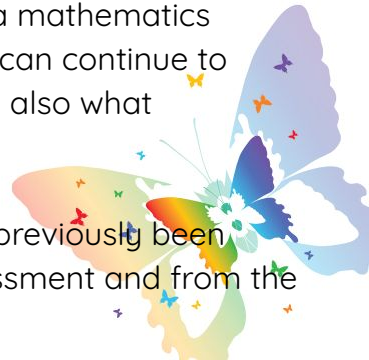


Magic Maths is the first 15 minutes of the maths lesson. It is split into 3 sections: Count it, Learn it, Calculate it. The rationale behind this strategy is so the children can continuously be consolidating their knowledge. It helps children to be able to recall facts which helps them make links to apply to other areas of mathematics. What to teach in these sessions is based on post learn and arithmetic gaps to ensure children are continuously progressing. Magic Maths activities are very varied: whiteboard work, sheets, games, group work and independent work.

Count it- This first five minutes is based on counting. In KS1 and SEN groups, children count every day. As children progress into KS2, the focus on this 5 minutes is more around timestables and recalling these.

Learn it- These next 5 minutes focus on place value and making links. Place Value forms the basis of a mathematics curriculum therefore we place it at the heart of what we do. This is continually drip fed so the children can continue to apply this. As the year progresses, this section becomes more about filling gaps the children have and also what knowledge they need for the lesson based on a previous assessment and programme of study.

Calculate it- This final section is all about arithmetic where the children practise something they have previously been taught so they are continually practising a certain skill. Teacher identify a gap based on teacher assessment and from the arithmetic test which is done every two weeks.



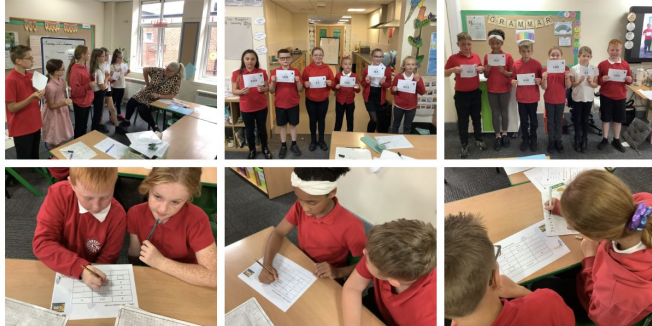
Implementation:

What makes Magic Maths magic? ✨ ✖

📅 13th September 2023 👤 Hannah McLoughlin

In our first magic maths session a child posed the question 'what makes Magic Maths magic?' The magic is that all the bits we keep forgetting in maths and arithmetic lessons and consolidated in Magic Maths and when we keep drip feeding it in... Abracadabra! We remember!

Based on gaps in our baseline assessment we focused on squared and cubed numbers and ordering decimal numbers. We will keep consolidating this so it stays in our long term memory!



Magic maths in MI

📅 26th September 2023 👤 Stacey McClare

The work hard howl was really shown today in our magic maths session 😊 Children really tried hard when they were challenged but all still ensured they had a positive attitude.



Magic Mathematicians

📅 27th April 2023 👤 Laura Godley

Crew Godley have been working hard in magic maths on one more and less, whilst also perfecting their number recognition and formation. We've worked so hard to ensure we are really listening to the quick fire questions. It was lovely to see the children collaborate and check each others understanding 🗨️



Magic maths

📅 13th June 2023 👤 Hannah McLoughlin

In maths we consolidated our knowledge of FDP equivalents and algebra. We really showed collaboration and that we have still got our knowledge from being taught this months ago! 🧐



Implementation:

Maths lessons

In maths lessons, we have a systematic approach where we work through a concrete-pictorial- abstract approach and then progress through answering a range of varied fluency, reasoning and problem solving questions.

Q1: Eva is reading a book before bedtime. On Monday, she reads 38 pages. On Tuesday, she reads 6 pages more than she did on Monday.
a) How many pages does she read on Tuesday?
b) How many pages does she read altogether on Monday and Tuesday?
c) There are 123 pages in the book altogether. How many pages does Eva have left to read?

Q2: Here are two number cards. **800** **?**
The sum of the two numbers is 2,900.
What is the difference between the two numbers?

Q3: Mo has £1,000 to spend. He buys a TV and a games console.
£340 **£199** **£479**

Does Mo have enough money left to buy the phone?
Show your workings.

Q4: Two families each have £1,800.
The table shows how much they need to spend.

	The Websters	The Changs
Housing	£465	£350
Food	£625	£380
Bills	£120	£135

Which family has more money left?
How much more money do they have?

Q5: There are 15,600 people at a concert.
There are 9,050 adults.
The rest are children.
How many more adults than children are there?

$10144 ✓$
 $1082 ✓$
 $10823 - 41 ✓$
 $82 - 41 ✓$
 $21300 ✓$
 $3349 + 249 ✓$
 $199 + 519 ✓$
 $549 + 451 ✓$
 $NR ✓$
 $4465 + 550 ✓$
 $420 + 380 + 120 + 135 ✓$
 $1105 + 1065 ✓$
The Websters ✓
 4
 $56550 + 9050 ✓$
 $9050 + 6550 ✓$
 $15600 + 3600 ✓$
 3600

Place value

12th September 2023 Emily Ibbotson

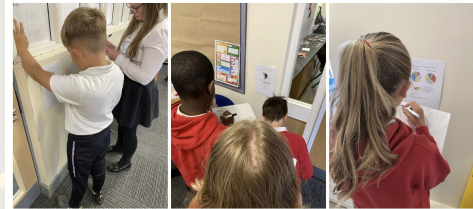
In Crew MI, we have been working really hard on our place value knowledge. We used the base ten and counters to create 3 digit numbers. We now understand the value of each of these digits.



Fly on the Wall in Crew Boswell

6th June 2023 Matthew Boswell

Ever wanted to be a fly on the wall? Here's what you'd be seeing in Crew Boswell at the moment: interpreting pie charts with percentages. Just imagine the hum and buzz of concentration, focus and helping each other to go with it!



Magic Measures

30th June 2023 Laura Codley

Crew Codley have been working hard to get smart in maths, looking at measures this week. We've measured everything from a paper clip to Mr T's smelly shoes. It's been great fun and our estimating skills have improved trying to guess how many cubes tall everything is!



Implementation:

During maths lessons we work through a range of fluency, reasoning and problem solving activities. We spend time unpicking the vocabulary in a worded problem and what the question is asking.



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Implementation:



Timetables

Learning times tables can be difficult and a challenge for staff and children. However, they are a fundamental part of the maths curriculum as they aid in so many other areas: fractions, multiplication and division methods also require instant recall of times table facts. Therefore, it is essential that there is a robust approach to the teaching of this vital skill as without them, children will struggle to move up school.

Times tables are particularly essential in KS2 and it is the expectation for them to be embedded by the end of year 4 with children being able to recall multiplication and corresponding division facts up to 12×12 .

Here at Carcroft, we follow a long term plan for learning times tables so that children can make links between them. We still employ a concrete, pictorial and abstract approach when teaching times tables so the children have a firm understanding. Throughout the school week, we have three 10 minute sessions dedicated to the teaching of timestables as well as daily chanting and counting in the first part of magic maths.

Boom, clap, snatch

22nd June 2023 Lauren Marsh

Crew Marsh loved practising their 10 timestables in maths.



TTRS Battles:



Each week, phases have a tournament across classes to compete against one another. The top scorers then receive a certificate in weekly community meeting.

Every month, classes compete against one another to get to the final to see if they can beat Mrs Ibbotson.

Let the battle commence!

5th September 2023 Stacey McClare

Today MI worked on their times tables ready to battle against Mrs Ibbotson in assembly next week! Come on MI 🙌



Implementation:

Arithmetic

At the start of the lesson, children complete a do now activity which consolidates previous methods and learning. The next part of the lessons focuses on modelling the method in a 'my turn, your turn' approach and then the children practise their methods.

Every two weeks, children complete an arithmetic test which is then analysed so gaps can be identified and subsequent lessons can be planned.

Arithmetic carousel

18th July 2023 Tracy Haddock

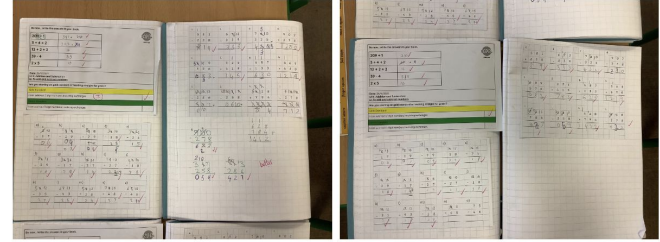
Crew MI did the arithmetic carousel where they worked in pairs going round the tables working out the answer and the comparing them.



Column addition and subtraction in MI

26th September 2023 Stacey McClare

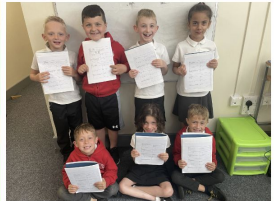
We have been working really hard on our addition and subtraction written methods. What great positive attitudes we had today 😊



Amazing Maths Progress! 🙌🌟

5th June 2023 Natasha Holdsworth

4/6	5/6
5/6	6/6
4/6	6/6
5/6	6/6
4/6	5/6
5/6	6/6
4/6	6/6

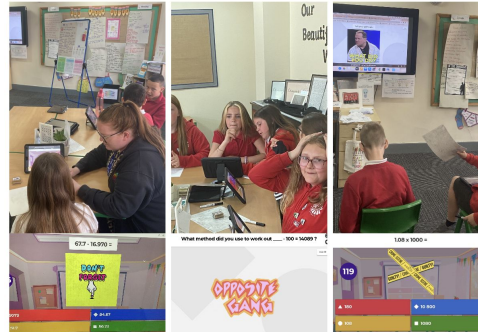


I would just like to share how amazingly proud I am of this small group of mathematicians! Not only do they work hard each week to improve their arithmetic scores but they join in with the times-table chants to get smart with their 2,5 and 10 times tables. The resilience they show, the determination and the pride on their faces is amazing! 🌟

Arithmetic fun + - ÷ ×

23rd May 2023 Hannah McLoughlin

During arithmetic, we applied our knowledge to an arithmetic kahoot quiz. It sure did get tense! Great effort by all!



Implementation:



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EYFS

In our early setting, we use the Whiterose long term plan as the basis for our curriculum. The rationale behind this is that it feeds into all areas of the early years framework and the early learning goals whilst also coverage shape, space and measure.

We teach maths 4 times a week for 15 minutes in autumn term but this will increase throughout the year. Throughout the day, we have many opportunities for children to apply their mathematics understanding through provision activities, daily songs and use of positional language at tidy up time.

In our nursery our long term plan is taken from master the curriculum as this builds into the Whiterose resources being used in reception. The rationale behind this is that it links to the early years framework for 3-4 year olds and again includes shape, space and measure.



Assessing Pupils as Mathematicians:



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Formative Assessment Before:

Maths assessment is continuous and happens throughout. Firstly, a pre learn is done so teachers can plan lessons which meet the needs of the children and lessons can be planned accordingly. Depending on gaps, pre-teaching is a technique that some teachers can use so the children feel more confident when starting the lessons. At times, an entry ticket is used so teachers can determine what activities the children are going to do that lesson: straight on to reasoning and problem solving, more fluency questions or a supported group.

The image displays three sample math worksheets from the XP Trust, designed for formative assessment. Each worksheet includes a 'Name' field and a '1 mark' or '2 marks' indicator.

Worksheet 1: Addition and subtraction (A)

1 Complete the part-whole models.

Alex has 262 stickers. He buys 6 more. How many stickers does he have now?

2 Tommy makes this number.

3 Complete the calculation. $522 = 8 + \underline{\quad}$

4 Work out.

$17 + 42 = \underline{\quad}$
 $55 - 19 = \underline{\quad}$
 $34 + 82 = \underline{\quad}$

5 He subtracts forty. What is Tommy's new number?

Worksheet 2: Place value (A)

1 Complete the part-whole models.

2 What number is the arrow pointing to?

3 What number is shown on the place value grid?

4 Each number has the digit 5 in a different place. Match each number to the correct value.

Thousands	Hundreds	Tens	Ones
			5
			5
			5
			5

Draw more counters to make the number 3,016

511 5 thousands
5,103 5 hundreds
6,950 5 tens
695 5 ones

Assessing Pupils as Mathematicians:



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During:

Throughout lessons, staff are assessing children and then either supporting or challenging pupils at that point of learning. Assessment for learning strategies are used. 'Live' marking is a necessity throughout lessons to ensure that misconceptions are being addressed and higher ability children are being challenged at the right time. Continuous questioning and use of protocols are used throughout the lessons to check for understanding. During lessons, staff would regroup children if necessary.



SILENT
CONVERSATION



POPCORN!



WHIPAROUND!



COLD CALL!



KWL



GALLERY WALK



THINK, PAIR, SHARE



CRITIQUE



BUILDING
BACKGROUND
KNOWLEDGE!



FIRST FIVE



FIST TO FIVE



ENTRY AND EXIT
TICKETS



LAST FIVE



Assessing Pupils as Mathematicians:



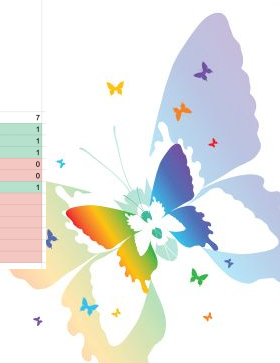
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After:

Staff will make mental/written notes based on the lesson, tweak sheets then regroup books in preparation for the next lesson. Lessons are adapted day to day based on assessment for learning.

At the end of a unit, children will complete a post learn based on what they have been taught. Through gap analysis, teachers will then plan to fill gaps either in Magic Maths or reteaching that objective.

1a	1b	2a	2b	3a	3b	4a	4b	5	6
1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1
2	2	1	1	1	1	1	1	1	1
2	2	1	1	1	1	1	1	1	1
2	2	1	1	1	1	1	1	1	1
2	2	1	1	1	1	1	1	1	1
2	2	1	1	1	1	1	1	1	1
2	2	1	1	1	1	1	1	1	1
2	2	1	1	1	1	1	1	1	1
0	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1



Assessing Pupils as Mathematicians:



Summative Assessment:

As a school, we use the NTS tests which link with the White Rose objectives to formally assess the children at the end of each term. These are then analysed so we constantly gap filling and ensuring the children are progressing.



Impact:



As a result of this model and effective subject leadership, we were able to support our last year 6 pupils to achieve 68% ARE and 9% GD at the end of year 6. This was a 29% increase on the previous year.

As maths lead, I am keen to support staff to continue to improve outcomes for all pupils through regular walkthroughs, booklooks and through supportive conversations during PPA.



Impact:



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As a result, children will...

- Know more, remember more and understand more of the mathematics curriculum
- Be able to rapidly recall facts including timestables
- Have an increased confidence
- Be able to make connections between previous learning and new learning
- Be able to consolidate key concepts and apply to new learning.
- Understand and be able to answer a range of fluency, reasoning and problem solving questions.

