



Raynville Guide to

Maths



The Maths curriculum at Raynville academy has been designed in accordance with the Early Years Foundation Stage and the Primary National Curriculum.

Intention:

At Raynville we want our children to enjoy Maths and become confident mathematicians. We want every child to become fluent in the fundamentals of mathematics, to be able to reason and to solve problems. We use the White Rose Maths scheme from Y1 to Y6. Teachers supplement the scheme materials with real life Maths opportunities, extra practice and the support and challenge to help everyone succeed. The Knowledge, Skills and Concepts which are necessary to build a rich and balanced Maths experience are structured through these three key elements:

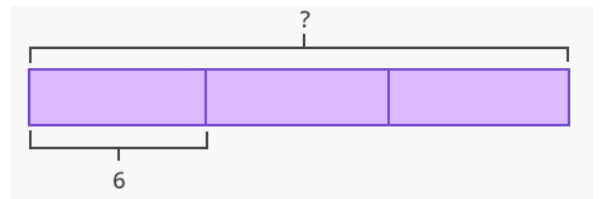
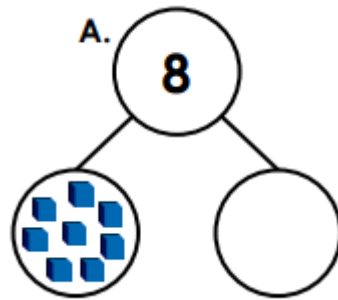
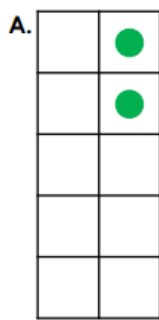
Element 1: Visualising

We use the Concrete/Pictorial/Abstract (CPA) approach to help pupils understand mathematics and to make connections between different representations.

Concrete means using physical equipment, such as counters, Base Ten, Numicon etc to make numbers, represent and solve calculations.



Pictorial means using drawings or diagrams to make numbers, represent and solve calculations.

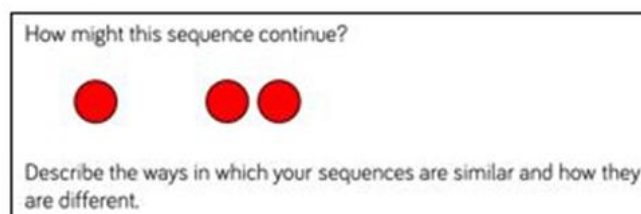


Abstract means representing numbers and calculations in digits and symbols

$$983 \times 6 = \quad \dots \quad \times 7 = 49$$

Element 2: Describing

We place great emphasis on mathematical language and questioning so pupils can discuss the mathematics they are doing, and so support them to take ideas further.



Dora says,

The taller you are, the longer your shoes are.

Measure the height of people in your class and measure the length of their shoes.

Is Dora correct?

Element 3: Experimenting

As well as being fluent mathematicians, we want pupils to love and learn more about mathematics, and be confident to use it in different contexts.

If I know the length and width of a rectangle, how can I calculate the perimeter? Can you tell me 2 different ways? Which way do you find the most efficient?

If I know the perimeter of a shape and the length of one of the sides, how can I calculate the length of the missing side?

Can a rectangle where the length and width are integers, ever have an odd perimeter? Why?

Which of these shapes are split into quarters and which are not?



How many more ways can you find to split a 4 by 4 dotted square into quarters?

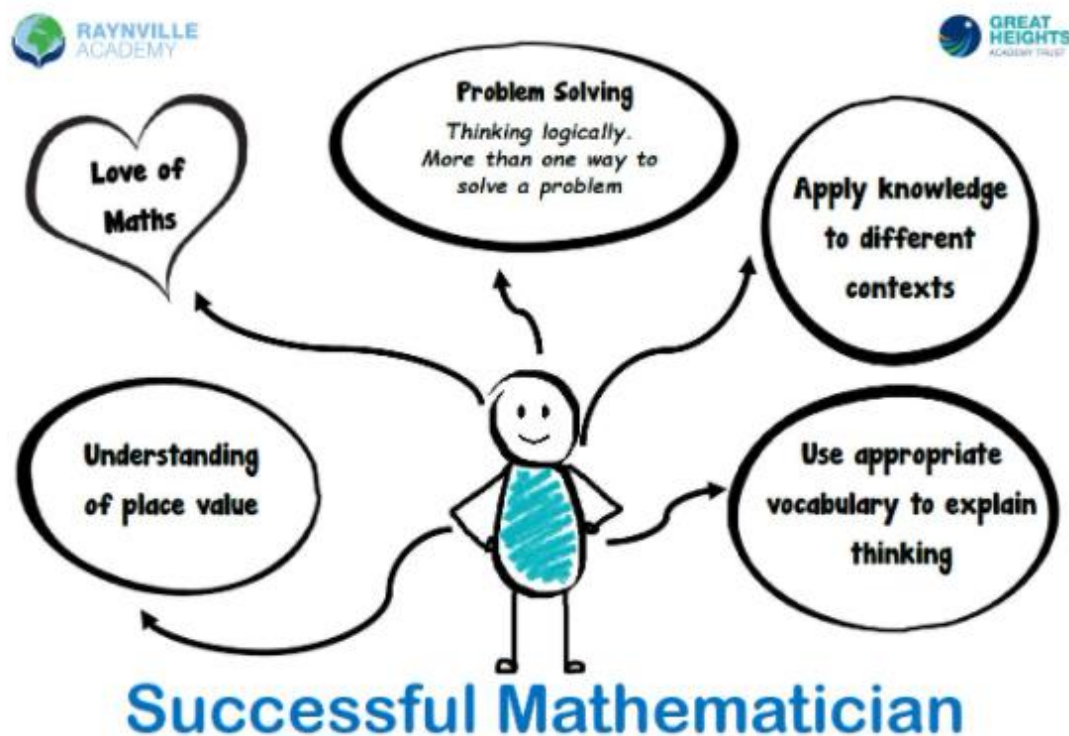
Ordering the learning:

To learn mathematics effectively, some things have to be learned before others, e.g. place value needs to be understood before working with addition and subtraction, addition needs to be learnt before looking at multiplication (as a model of repeated addition). Number skills are developed and carefully ordered, throughout our primary curriculum. For some other topics, the order isn't as crucial, e.g. Shapes and Statistics need to come after number, but don't depend on each other. Pupils have as wide a variety of mathematical experiences as possible in each term and year.

Example of a Year 1 Maths overview:

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value (within 10)				Number: Addition and Subtraction (within 10)					Geometry: Shape	Number: Place Value (within 20)	
Spring	Consolidation	Number: Addition and Subtraction (within 20)			Number: Place Value (within 50)			Measurement: Length and Height	Measurement: Weight and Volume		Consolidation	
Summer	Consolidation	Number: Multiplication and Division			Number: Fractions		Geometry: Position and Direction	Number: Place Value (within 100)		Measurement: Money	Measurement: Time	

The three main aims of the national curriculum are for all children to be fluent, to reason and to problem solve. All children need to access the three types of maths problems, both in their White Rose scheme book and in their additional Maths activities. Different children may require more support at times, but we would still expect them to be exposed to reasoning and problem-solving questions, rather than just a list of “sums”. These types of Maths help stretch thinking and deepen understanding, allowing children to practise the elements of visualising, describing and experimenting. The Calculation Policy sets out the strategies appropriate for each stage of Maths teaching and learning.



We use mistakes and misconceptions as an essential part of learning, encouraging children to use verbal reasoning and metacognition strategies to improve their understanding, breaking mathematical concepts into manageable steps, securing a deep understanding. Children who grasp concepts rapidly will be challenged through rich, open ended and purposeful problems. Those children who need further practice in their learning will be given same day intervention to consolidate their understanding. SEND learners are supported

where identified through assessment of need and positive intervention to promote independence.

Feedback and marking:

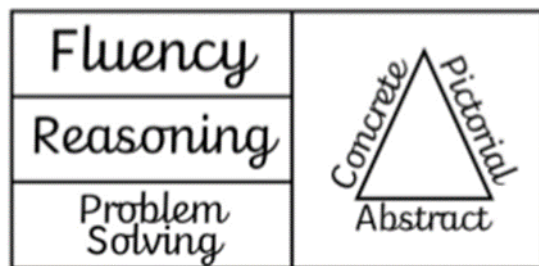
Adults in school use a range of learning support strategies to scaffold learning, giving children opportunities for exploration of linked prior knowledge, practice of skills for fluency, and experience choices and challenges to extend their independent learning and understanding.

The Learning Objective should be identified for each task, making children aware of what they are trying to achieve in that session.

Children are supported to have a strong grasp of number, through the use of Numicon and a wide range of counting and number recognition apparatus from Nursery onwards. Maths language and concepts are explored through play, songs and rhymes, with over-learning and regular repetition of the basics eg 1-10, more/less, longer/shorter, number bonds, times tables etc.

This language driven approach extends into KS1 and KS2. Adults ensure all learners have solid foundations in their knowledge, skills and conceptual understanding, by scaffolding their ways of communicating their thinking. Talking, explaining, making for themselves using apparatus and then drawing their thinking sets a clear expectation of concrete “working out” before children move on to abstract calculations. Concrete use of equipment such as Numicon, Base Ten, counters, coins etc is used by all learners, from the struggling to the gifted. Pictorial approaches such as drawing representations on a white board, part/whole models, bar models etc plays a key role in expressing their growing understanding. Abstract calculations formally record the mathematical process, once the child is secure in their understanding.

Adults may use the scheme for the majority of their teaching, but may also choose additional strategies for certain topics or for certain learners.



This stamp, above, is used by the adult on each piece of Maths. Its purpose is to evidence what type of

Maths was being practiced during the task, and what scaffolding the child accessed. Staff highlight the approach or approaches used for that lesson, indicate if the child was independent **I** or supported **S**, with the full range regularly experienced by every learner over time.