Maths on a page

At Bude Juniors Primary Academy, we believe that a 'mastery' approach to teaching mathematics sparks a curiosity and love of the subject. Our well-sequenced curriculum focuses on progressing the children's knowledge over time, allowing every learner to acquire a deep, long-term, secure and adaptable understanding of the subject. Daily fluency and problem-solving opportunities enhance mathematical thinking, coherence and reasoning skills that transfer throughout the curriculum and beyond.

INTENT – what we aim to do

- To promote a love of maths by developing the children's interest and enjoyment of the subject.
- To build on the children's mathematical and automaticity and fluency.
- To develop children's mathematical reasoning and problem-solving skills.
- To develop children's understanding, and use of, mathematical vocabulary.
- To give children the opportunity to develop awareness of the importance of Maths in everyday life.
- To provide children with a well-sequenced curriculum that builds on their knowledge over time.
- To enhance all children's confidence in their own mathematical abilities.

IMPLEMENTATION – how will we deliver our intent?

White Rose Maths teaches mathematics using a CPA approach to develop mathematical thinking, using concrete resources, pictorial representations and abstract problems. The scheme of learning delivers full coverage of the national curriculum through a mastery approach where children consolidate their knowledge and understanding each topic, providing them with strong foundations on which to build. Adaptive teaching allows all children to develop a deep and connected understanding of mathematics that they can apply in a range of contexts. As well as a dedicated Maths lesson, daily fluency sessions enable the children to develop their mathematical automaticity and address misconceptions. This leads to an increase in confidence and an ability to make connections.

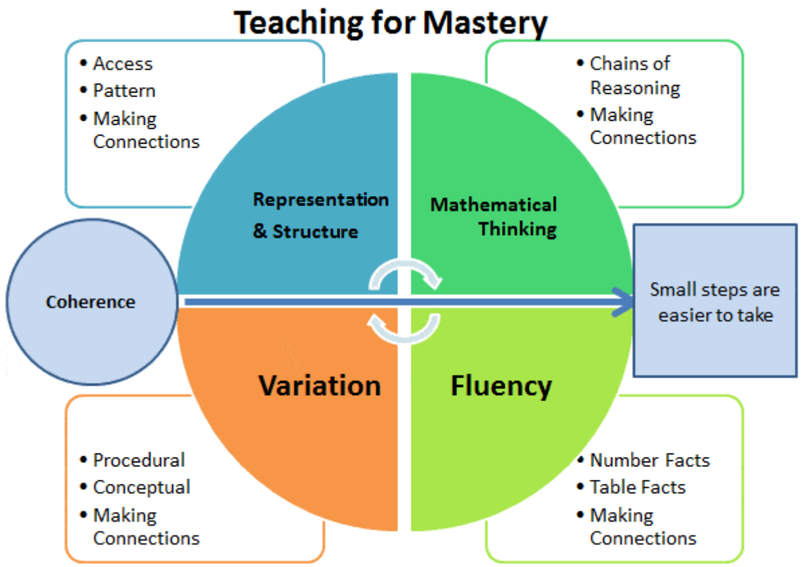
Planning / sequencing: Our Maths curriculum focuses on developing the children's core knowledge, building on their known facts and mastering a range of key mental strategies and formal written methods. Bude Juniors uses White Rose to sequence its Maths curriculum, it chunks key concepts into small steps, reducing cognitive overload and enabling multiple opportunities to build on prior learning and discover mathematical connections as a unit progresses. White Rose is planned as a 'spiral curriculum' exposing children to the same concepts again and again in different contexts, and in different years, to help them deepen their knowledge and truly develop their understanding.

Teaching for Mastery:

Maths mastery means pupils of all ages acquire a deep, long-term, secure and adaptable understanding of mathematics. The phrase 'teaching for mastery' describes the elements of classroom practice and school organisation that combine to give pupils the best chances of mastering maths. Achieving mastery means acquiring a solid enough understanding of the maths that has been taught to enable pupils to move on to more advanced material.

Teaching for Mastery is underpinned by the 'Five Big Ideas' for teaching. These are:

- Fluency – efficient, accurate recall of key number facts and procedures, requiring the flexibility to move between different contexts and representations.
- Variation – draw closer attention to a key feature of a mathematical concept of structure by varying some elements, while keeping others the same.
- Representation and Structure – selecting representations to expose a mathematical structure, allowing pupils to 'see' the maths.
- Mathematical Thinking – looking for patterns and relationships, making connections.
- Coherence – teaching is designed to enable a coherent learning progression throughout the curriculum, allowing all pupils to develop a deep and connected understanding.



Fluency: At Bude Juniors, we understand that developing fluency within Maths reduces cognitive load and allows children to focus on new concepts. With this in mind, every morning children take part in a morning fluency session reviewing previous learning. To ensure times tables are taught and retained, we have times table starters every day, regularly using TTRS to practice suitably challenging times tables. Children not ready to progress onto times table facts will practice their number bonds using Numbots.

Problem Solving and Reasoning: Reasoning and problem-solving form an essential part of every Maths lesson. It is the reasoning and problem-solving skills that children need for later life, and it is these skills that allow them to apply the mathematical knowledge they have learned. Mathematical reasoning is the bridge between fluency and problem solving, it allows pupils to use their mathematical fluency to accurately carry out problem-solving. Problem solving in Maths is finding a way to apply the knowledge and skills you have to answer unfamiliar types of problems. These can be in the form of word problems, but can also include continuing a pattern, finding and correcting a mistake, finding a non-example, or finding similar examples, among others.

Times Tables: Times tables are a crucial part of mathematics that build confidence and fluency. As content becomes harder, mastering these multiplication and division facts is imperative as it reduces children's cognitive load and acts as a building block to learning new concepts. At Bude Juniors, every Maths lesson includes a counting session, the activities include a range of games, songs, quizzes and tips / tricks. Each year group follows a sequenced program for learning the times table facts.

Inclusion and Intervention: Adaptive teaching strategies (EEF 5 – a – day principles – explicit instruction, cognitive and metacognitive strategies, scaffolding, flexible groupings and using technology) are used by teachers so all children can make progress from their individual starting points. It is important to note that scaffolding comes in many forms, our aim is to gradually reduce / remove them as a child's learning progresses. Interventions are guided by assessment. This may include pre / post teaching based upon marking and feedback as well as targeted, strategic interventions in key areas. Opportunities for greater depth learning are provided in every session, especially with our 'collaboration challenge' which gives children an opportunity to work collaboratively also developing their oracy skills.

Assessment: The classroom culture for learning embeds principles from metacognition and self-efficacy which encourage children to reflect and take responsibility for their progress. A range of formative and summative assessment strategies are used to identify misconceptions and inform future teaching and learning. Class staff use live marking within the lessons to provide high quality verbal feedback to children which focuses on progress in their learning and not task completion. Children use purple pens for self-editing and marking. Low stake quizzes are used at the start of each new unit as a form of formative assessment to inform future teaching.
White Rose end of unit assessments, fortnightly Testbase arithmetic assessments and end of term White Rose assessments are used by teachers to identify concepts which require further consolidation throughout the year.

Structure of a lesson:

- Morning maths – Flashback 4 – As the children come into school, they have an opportunity to review previous learning, practice arithmetic skills, flashback to previous units.
- Counting (number bonds, number facts, links across the curriculum) – A focus on a specific set of facts, practiced in a range of different ways.
- Flashback – These are designed to review the learning from the previous day, as well as the learning from the previous year group which supports the children making links within their learning.
- Vocabulary check – A chance to check the children's understanding of key vocabulary needed in the lesson.
- Teacher input (I do, we do) – Teaching the children a new skill, strategy or knowledge point. Pupil involvement will be achieved through questioning, the use of manipulatives or pictorial representations and whiteboards.
- Independent practice – The children choose their level of challenge. Teachers plan a 'sheet 1' activity to enable children to build confidence with fluency questions. 'Sheet 2' starts with fluency and moves into reasoning and problem-solving style questions; stem sentences are provided to support the children when reasoning. All children have access to extension activities 'Extension challenge' and our 'Collaborative challenge' which include a range of questions that children can apply their knowledge and understanding. A bespoke curriculum is planned and delivered for a small number of children where appropriate, this will be detailed further in the child's IPM.
- Takeaways – A review of the learning completed in this lesson and a final opportunity to consolidate learning and unpick any final misconceptions.

IMPACT - how will we know if we have achieved our intent?

Children have a love for Maths and can articulate their interests.

Children will display mathematical automaticity and fluency.

Children can reason and apply their knowledge to problem-solving based tasks.

Children can use mathematical language and vocabulary with confidence.

Children have an awareness of the importance of Maths in everyday life.

Children will follow a well- sequenced curriculum that builds on knowledge over time.

Children will be confident in their own mathematical abilities.