Trinity CE First School

Diocese of Salisbury Academy Trust
'Beyond expectations for all of God's children'

Intent, Implementation and Impact subject document.

'Growing in Faith, Hope and Love'

Mathematics


Intent


Implement


Knowledge


Impact

Intent – What do we want?

- For children to become fluent in the fundamental skills of maths, so that they are able to recall and apply declarative and procedural knowledge rapidly and accurately.

- Be able to use their procedural knowledge and declarative knowledge to solve problems in a range of contexts including everyday real-life scenarios. They will break problems down into simpler steps and preserving when finding solutions.

- To reason mathematically, by working systematically, recording and proving their answers using mathematical language

- Master a deep understanding of maths which enables them to apply their procedural and declarative knowledge.

- Children to approach maths with a 'can do' attitude, believing that all children can achieve in mathematics.

- Teach for a secure and deep understanding of mathematical concepts.
- We use mistakes and misconception as an essential part of learning and provide challenge through rich and sophisticated problems before acceleration through new content.
- Make maths links within other curriculum areas.

 **Implementation –** How will we ensure this happens?

Subject Pedagogy

- Each Maths session begins with a long-term / medium term retrieval from prior knowledge, revisiting and applying their knowledge in a range of contexts (fluency)

- Each Maths session considers the forgetting curve with an application opportunity of the previous session's learning. Making links and finding connections, making generalisations using mathematical language.

- Maths focuses on building up procedural knowledge both vertically and horizontally, considering prior learning and planning for application.

- Learning sequences are stacked to build on prior declarative knowledge of Mathematical concepts, building year on year

- A learning sequence will typically flow from; the use of manipulatives / equipment to develop a deep understanding of the mathematical concept, before moving onto pictorial representations. This will finally lead to children being able to use the abstract.

Children will develop accurate use of technical mathematical vocabulary - provocation of critical thought using worked examples – opportunities to explain and reason understanding - modelling of procedural knowledge – opportunity for independent application

Each lesson focuses on a manageable step of new learning based on the NC statements.

Typical Lesson design:

- 1) Retrieve
- 2) Hook It: Introduction
- 3) Teach It: Live modelling of the new learning with explicit use of potential misunderstandings
- 4) Practise It: All children practise together - Support & Challenge
- 5) Do It: Up to 5 examples – 5 'What it is' or '3+2 'What it is/What it's also' Challenge 1: Procedural Fluency
- 6) Secure It: 1 or 2 Misunderstandings (True/false, Spot the mistake) Challenge 2: Conceptual Understanding
- 7) Deepen It: Apply understanding to solve new problems Challenge 3: Mathematical Thinking
- 8) Review It: Lesson Recap: Key Concept Statement and Key Vocabulary

 Considered coverage, conceptual, substantive knowledge and procedural knowledge.

Whole school curriculum overview, Mathematics scheme and MTPs

 **Impact** – What data will be reviewed?

- **Pupil conferencing** – know more, remember more and explanation of substantive knowledge and concepts

- **Subject Leader Book Looks** - focus on high quality outcomes

- **Subject Leader Planning Looks** – Ensures both breadth, depth, NC expectation and sequential learning

- **Subject Leader Teaching Looks** – Identifies quality of application of pedagogical approach

- **Teacher Assessment** – identifying challenge and support termly judgements

- **DSAT comparative judgements and outcome comparison** – ensuring standards

 - What are the outcomes for developing the 'mathematician' child at Trinity?

A 'mathematician' at Trinity will become fluent in mathematical understanding and reasoning. They will have the ability to reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language. They will be able to solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions. In order to do this effectively, a Trinity 'mathematician will be able to have quick recall of facts and procedures, the flexibility and fluidity to move between different contexts and representations of mathematics and the ability to recognise relationships and make connections in mathematics.

 **Research** – Why?

Cambridge Assessment Conceptual Knowledge – Dr Liz Taylor

Sweller's Cognitive Load theory – Steve Garnett / Oliver Lovell

ResearchEd Explicit and Direct Instruction – Adam Boxster / Kirschner

Rosenshine's Principles in Action – Tom Sherrington

Visual Learning – Clarke / Hattie

Retrieval Practice 1 and 2 - Kate Jones

Ofsted Inspection Curriculum Inspection Guidance

Ofsted Deep Dive Guidance for Subject Leaders