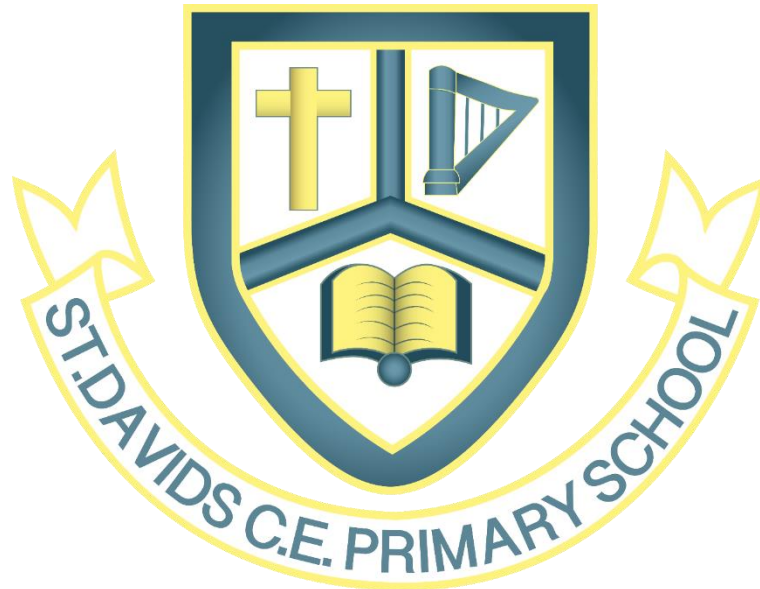


Maths Policy 2020



Together in God's love: aim high, stay strong, be determined!

*"Stand firm in the faith: be courageous; be strong. Do everything in love."
(1 Corinthians 16: 13-14)*



St. David Haigh & Aspull CE Primary School Maths Policy

Intent

Mathematics is important in everyday life and at St.David's our aim is to develop our children's ability to think logically and work systematically. All children have an opportunity to develop the three statutory aims of mathematics – fluency, reasoning and problem solving and should be challenged and encouraged to excel in maths. (See Appendix 2) All children have an opportunity to travel along the fluency path, which enables them to step off and reason and problem solve at a level that is appropriate for them. Children are provided with the opportunity to reason and explore problem solving to help make connections in their learning, develop confidence and achieve the three statutory aims of the National Curriculum. Children working below age related expectations, will still have the opportunity to reason and problem solve at a level that is appropriate for them.

Implementation

Mathematics at St.David's

- The school follows the 2014 Mathematics Programmes of Study for KS1 and KS2. Early Years follows the Early Adopter Schools -Framework for the Early Years Foundation Stage 2020.
- A 'Recovery Curriculum' is in place for 2020/21 to ensure gaps in previous year's learning are covered using the 'Transition and Coverage Overview' document.
- Maths skills are taught and revisited daily in Quick Maths and Maths lessons.
- Mathematical language is consistently used across the whole school.
- Whiterose Maths is the maths scheme around which teaching is based.
- Teachers plan and teach maths lessons linked to the 'Concrete, Pictorial and Symbolic' approach to learning, to guide children through their understanding of mathematical processes.



- Reasoning is developed and explored with children using the 'Captain Conjecture' character across the whole school. Teachers will model and explain a skill or strategy in a focussed lesson and provide a daily challenge to help develop children's conceptual understanding and fluency.
- The five types of problem solving are explicitly taught and explored during the teaching of a year groups content. See Appendix 1.
- Regular meetings between teachers and the Headteacher, identify children below ARE and those at risk of not achieving their end of year expectations. The QFTCAP identifies gaps in their learning and actions to address these gaps including intervention strategies.
- Homework is set online or paper based to develop and review children's learning.
- Where possible, links are made with other subjects across the curriculum.
- All classes have a 'Number of the Week', 'Shape of the Week' and 'Times table of the Week' to help develop fluency.

- ‘Timetables Rockstars’ is an online resource for children to practise their timetables at home and school. Children are rewarded with timetables wristbands to encourage them to learn.
- Children are provided with the opportunities to explore and use a range of resources to help them with reasoning and problem solving activities ‘Choose to Use’.
- Children are aware of their learning journey and the support they have, linked to a concrete, pictorial and symbolic approach by noting which resource they have used by recording a code. See Appendix 2

Impact

St David’s children:

- are engaged and challenged in Maths lessons.
- are confident and can talk about their Maths learning.
- use a variety of resources to support their learning.
- are tracked and monitored to ensure they all make good progress.
- are provided with intervention and support strategies to achieve their potential.

Monitoring

The Senior Leadership Team and Subject Leaders monitor books and talk to children about their work. Feedback and support is then provided to staff. Actions identified are followed up in subsequent ‘book looks’.

Written by: Subject Lead – K. Ingham & agreed by SLT and all Teachers

Date policy ratified by governors: January 2021

To be reviewed: every two years

Next review: December 2022

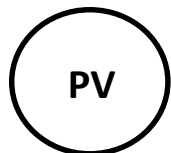
Definitions of Fluency, Reasoning and Problem Solving

<p>Fluency - become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils have conceptual understanding and are able to recall and apply their knowledge rapidly and accurately to problems.</p> <p>Conceptual fluency e.g. exploring five strands of place value, what an equivalent fraction is and identifying features of different representations of data. Procedural fluency e.g. $+$ $-$ \times \div calculation methods linked to whole numbers, fractions and decimals and exploring step by step methods.</p> <p>Recall of known facts, developing number sense, children know why they are doing what they are doing and know when it is appropriate and efficient to choose different methods and applying skill to multiple contexts e.g. \times by 10 to convert units of measurements.</p> <p><i>Accurate recall of facts and methods need to be kept 'bubbling' to ensure children do not forget e.g. basic skills sessions, Fluent in Five materials and number of the week.</i></p>	<p>Reasoning - reason mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.</p> <p>Conjectures relationships and generalisations e.g. if I add an odd and an odd number it will always result in an even number or all quadrilaterals have 4 right angles – true or false?</p> <p>Developing an argument, justification or proof using mathematical language e.g. prove it, justify, convince me, how can you work it and how did you work it out?</p> <p>Reasoning twists – alike and different, odd one out, true or false, spot the mistake and sometimes, always or never true (NCETM reasoning progression charts).</p> <p><i>Model and encourage children to consider what sort of answer or working out is required linked to different reasoning questions e.g. verbally explaining, using words or numerals and symbols, pictorial representations such as place value charts or tables and use of concrete equipment.</i></p>	<p>Problem solving - can 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.</p> <p>Secures and builds upon conceptual understanding (fluency) and mathematical thinking and language (reasoning) to help solve sophisticated problems in unfamiliar contexts.</p> <p>Explore five types of problem solving in different strands of mathematics –</p> <ol style="list-style-type: none"> 1. Two and three step word problems including bar model 2. Finding all possibilities 3. Finding rules and describing patterns 4. Diagram problems and visual puzzles 5. Logic problems
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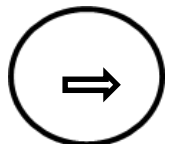
Appendix 2

Mathematics Marking Codes

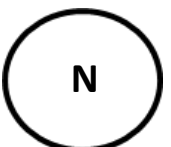
To be written on right hand-side of page by child or adult to indicate what child has used to help with work.



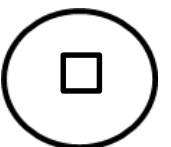
Place Value Grid



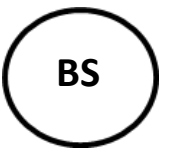
Arrow Cards



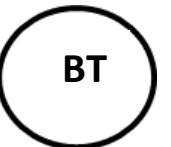
Numicon



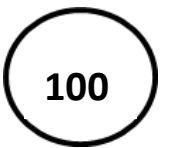
Cubes



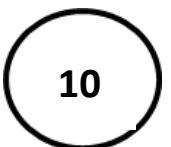
Bead String



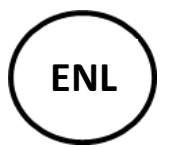
Base 10



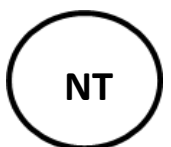
100 Square



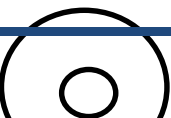
10 Frame



Empty Number Line



Number Track



Counters
