



# St Anne's Catholic Voluntary Academy

## Mathematics Policy

### Mathematics – The St. Anne's Way

#### Intent

At St. Anne's Catholic Voluntary Academy, we believe that Mathematics is a tool for everyday life. It is a whole network of concepts and relationships which provide a way of viewing and making sense of the world. It is used to analyse and communicate information and ideas and to tackle a range of practical tasks and real life problems. It also provides the materials and means for creating new imaginative worlds to explore.

Our aim is to make sure that all pupils leave our school 'secondary ready' in Mathematics. By this we mean that all pupils (irrespective of their starting point) are equipped with a 'toolkit' of mental, supported and written methods that they understand and can use correctly. When faced with a calculation, in a problem or unfamiliar context, pupils will be able to decide which method is most appropriate and apply this accurately. They will have strategies and the inclination to check its accuracy and interpret the solution in the context of the problem.

#### Implement

Since 2017-18, the school has begun to embed a Teaching for Mastery approach to Mathematics. With this, we believe that **all** pupils can achieve the expected standards in Mathematics for their year group. In order to achieve this, we are developing our use of a range of elements of classroom practice and school organisation that combine to give pupils the best chances of mastering mathematics.



## Teaching and Learning, Content and Sequence

### **Teaching sessions are based on the correct year group programmes of study from the National Curriculum**

- When planning a series of lessons, teachers will be aware of the prior learning that needs to be secure (from previous year groups) in order for new content to be understood.

### **Sessions are driven by sharp learning objectives which are progressively linked**

- When teaching a particular programme of study, teachers use their subject knowledge and understanding to break down the learning into a series of steps that build on one another (learning objectives/ learning challenges).
- Teachers plan these series of steps as an **S plan** so they are aware of the end goal and see where sessions fit best together.

### **Continual and effective use of assessment information is used to adapt teaching to meet pupils' needs**

- At the beginning and end of each major block of work (place value, calculation, fractions), teachers give pupils a self-designed assessment. The end assessment is usually completed at least 6 weeks after the block has been completed to ensure children have retained the acquired knowledge.
- Formal, summative tests are taken by pupils 5 times a year to validate teacher's assessment.
- The most useful assessments are those done by teachers day-to-day by observing pupils' responses to tasks and questions.
- The most crucial aspect of any assessment is that teachers use the information to adapt their teaching so that it builds on pupils existing knowledge, addresses their weaknesses and focuses on the next steps that they need to make progress.
- Assessment information is recorded on the agreed school planning format

### **Individual (and series) of lessons are carefully designed so that pupils are given the best opportunities to show their understanding**

- Teachers should spend the majority of their time either teaching or designing lessons.
- Teachers should either design their own tasks or make use of carefully selected published materials to best meet pupils' needs.
- From Year 1 onwards, teachers move pupils swiftly from concrete and practical activities onto recording their mathematics and working independently.



- Within tasks, teachers need to consciously build in variation so that pupils can apply their learning to different contexts (conceptual variation) and make links (procedural variation). Thus pupils are given the opportunity for intelligent practice of the course of a series of sessions.
- Pupils are given sufficient time, over the course of a series of lessons, to master new content – the amount of time will vary and is dependent on the professional judgement of the teacher.

### **Effective use is made of resources which are well-chosen and used flexibly to best support pupils learning**

- Teachers need to carefully consider the use of any resources (including adults) within a session in order to maximise their impact on pupils.
- Wherever possible (and especially at the start of new content) teachers should use well-chosen concrete manipulatives and pictorial representations to support all pupils understanding.

### **Where appropriate, teachers effectively model, demonstrate or explain the standard and / or process required**

- Lessons should provide pupils with clear instructions as to how to carry out mathematical procedures
- Teachers need to carefully plan the amount and content of any teacher talk (which will vary within and between sessions) to maximise pupil's learning time.

### **All staff model positive attitudes towards maths and a belief that all pupils can succeed**

- Adults believe that all pupils in their class are capable mathematicians.
- Adults help to motivate pupils to believe they can do maths if they are prepared to work hard (growth mindset) and are prepared to challenge pupils / parents when this is undermined.
- Adults encourage, and as pupils get older, expect pupils to take responsibility for, and play an active role in, their own learning.

### **Pupils are comfortable in making mistakes and see them as a vital part of the learning process**

- Adults need to encourage pupils to 'have a go' and recognise that making mistakes is a chance to learn.
- Working out should be valued as much as 'the answer'.
- Understanding is seen as the most crucial part of learning mathematics.



### **Teachers plan for and spend lesson time explicitly teaching different problem solving strategies**

- Teachers explicitly teach, model and share examples of good problem solving strategies.
- Developing these skills requires initial scaffolding and fluency with key facts (see advice).
- Pupils are given sufficient time over a series of lessons to apply new strategies in different contexts.
- Teachers should consider presenting problem solving tasks where the methods are not immediately obvious, providing the opportunity for pupils to use and compare different approaches.
- Teachers should teach pupils how to use their existing knowledge and use visual representations to help solve problems.

### **All adults model the correct use of mathematical language and insist pupils do the same**

- The correct use of mathematical language is vital to ensure clarity of meaning and consistency across the school.
- Teachers should regularly provide stem sentences to support pupils in their correct use of mathematical language in their written and verbal responses

### **Pupils are taught to develop their fluency in basic number facts**

- Teachers should ensure that pupils develop fluent recall of number facts. By developing pupils' fluency, they are more likely to be successful using basic facts when carrying out more complex procedures and solving problems.

### **Support interventions should happen quickly and be planned to have the maximum impact on pupil progress**

- Although the need for catch-up intervention will decrease over time, some high-quality, structured interventions may still be required for some pupils to keep up with the whole class.
- Any intervention should be based on sound assessment so that it is focused on achieving a particular end.
- Interventions should be prioritised for pupils when they are as young as possible to remove the need for them later in their schooling.
- Support that is identified as the result of assessment within a lesson should happen as soon as possible (i.e. within the lesson or shortly afterwards) so that these pupils can re-join the main lesson the following day.
- Teachers need to consider who, when and how these interventions should take place so that pupils involved avoid missing important curriculum content. NB These will not normally take place during the core lesson



## **Pupils who grasp concepts quickly are challenged with carefully designed activities to show mastery with greater depth**

- *Once teachers are convinced a pupil has mastered new content, they need to provide them with tasks / activities that are at a greater depth but within their year group's expectations.*
- *Such activities could be well-chosen published ones or self-designed.*
- *Mastery with greater depth can be characterised by pupils who are confidently and imaginatively able to deal with increases in demands on their reasoning (justifying and proving); deduction; complexity of problems to be solved (open and closed).*

### **Impact**

- Children demonstrate a quick recall of facts and procedures. This includes the recollection of the times table.
- Children show confidence in believing that they will achieve.
- Each child achieves objectives (expected standard) for year group.
- The flexibility and fluidity to move between different contexts and representations of maths.
- The chance to develop the ability to recognise relationships and make connections in maths lessons.
- Mathematical concepts or skills are mastered when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply the concept to new problems in unfamiliar situations.
- Children show a high level of pride in the presentation and understanding of the work
- Children leave St. Anne's 'secondary school ready'.