**St Joseph’s Catholic Primary School**

**Exmouth**

**Mathematics Policy**

September 2021

**Signed …………………………………………… Chair of Governors**

**Signed …………………………………………… Headteacher**

**Date ……………………………**

 **Maths policy reviewed: September 2021 Next review: September 2022**

# Introduction

Mathematics is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

(National Curriculum 2014)

**The aims of the 2014 National Curriculum are for our pupils to:**

* Become fluent in the fundamentals of mathematics through varied and frequent practice with complexity increasing over time.
* Develop conceptual understanding and ability to recall and apply knowledge rapidly and accurately.
* Reason mathematically; follow a line of enquiry, conjecture relationships and generalisations.
* Develop an argument, justification and proof by using mathematical language.
* Problem solve by applying knowledge to a variety of routine and non-routine problems. Breaking down problems into simpler steps and persevering in answering.

The National Curriculum sets out year-by-year programmes of study for key stages 1 and 2. This ensures continuity and progression in the teaching of mathematics.

The EYFS Statutory Framework 2021 states for Mathematics:

*“Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built. In addition, it is important that the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures. It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, ‘have a go’, talk to adults and peers about what they notice and not be afraid to make mistakes.”*

**The INTENT of mathematics in our school**:

At St Joseph’s Catholic Primary School we see mathematics as an interconnected subject which should encourage creativity, discussion and exploration. We want the children to see maths as being relevant and purposeful to their lives. Their maths experiences should be one that develops the children’s ability to think mathematically and one which allows them to apply the tools to which they have been exposed in a variety of ways. We do this through:

* Fostering positive attitudes towards the subject and awareness of the relevance of mathematics in the real world
* Teaching competence and confidence in using and applying mathematical knowledge, concepts and skills
* Growing an ability to solve problems, to reason, to think logically and to work systematically and accurately
* Modelling an initiative and motivation to work both independently and in cooperation with others
* Raise confidence in their communication of maths where pupils ask and answer questions, openly share work and learn from mistakes
* Nurture an ability to use and apply mathematics across the curriculum and in real life
* Developing an understanding of mathematics through a process of enquiry and investigation.

# Breadth of study

Careful planning and preparation ensures that throughout the school children engage in:

* practical activities and games using a variety of resources
* problem solving to challenge thinking
* individual, paired, group and whole class learning and discussions
* purposeful practise where time is given to apply their learning
* open and closed tasks
* a range of methods of calculating e.g. mental, pencil & paper and using a calculator
* working with computers as a mathematical tool

Through our creative approach to teaching and learning we also seek to explore and utilise further opportunities to use and apply mathematics across all subject areas.

**Our IMPLEMENTATION of Mathematics in our School.**

The National Curriculum for Mathematics 2014, Development Matters and the new Early Years Framework provide the long term planning for mathematics taught in the school. We use a mastery approach within our Maths curriculum that enables all children to access the curriculum.

We ensure our children have opportunities to develop three forms of knowledge; Factual, “I know that..”, , Procedural, “I know how..” and Conceptual, “I know why…”. Our mastery in maths is concerned with the development of deep structural understanding, with carefully chosen examples supporting the opportunity to make connections, and builds on previous learning to ensure a progressive curriculum for life learning, this may often involve spending longer time on key concepts, in order to embed facts, procedures and a conceptual understanding. Children are encouraged to take risks with their Maths and apply what they have already learnt to varying contexts. Problem solving, pattern identification and reasoning about what the child knows to be true or not is a significant part of the mastery approach.

Through the effective implementation of this approach children who show a natural aptitude for Maths are challenged to further deepen their understanding

Closing the gap for some of our children is crucial and is at the forefront of our minds. We ensure our target children have a regular Pre-teach session with the class teacher or teaching assistant to ensure they are keeping up not catching up. This may develop fluency skills needed for the current learning as a revisit to support or it may be becoming more familiar with a representation.

Representations are a key area that we focus on with in our curriculum ensuring our children have a connection between the abstract and concrete; representations, jottings and methods are used progressively within our curriculum, they may still be used to scaffold in UKS2, they are crucial for example, numicon to expose the structure of ratio in UKS2. Children need to understand how to use these manipulatives to support them, with the knowledge that they do not ‘do’ the maths for us. Our children should independently draw upon these when tackling new concepts or problems.

Teachers use our Calculation Policy to be clear of the year group and Key Stage expectations and the progression of jottings, methods and representations.

**The IMPACT of Mathematics in our School.**

Mathematics contributes to many subjects and it is important children are given opportunities to apply and use Mathematics across the curriculum and in real contexts and in outdoor spaces when possible. We endeavour at all times to set tasks that have high expectations for all, are challenging, motivating and encourages pupils to talk about what they have been doing as well as responding to written questions to develop their understanding as outlined in the school’s marking policy.

Within our mastery curriculum our children have regular opportunities to use reasoning and problem solving. We encourage our children to write their thinking – maths is more than an answer.

# Planning

Our daily Maths lessons are based on a mastery programme called Power Maths that has been designed to spark curiosity and enthusiasm, and nurture confidence in Maths.   We also work hard to ensure that all pupils develop mathematical fluency in number as this is the key to unlocking confident, effective mathematicians for the future.

All classes have a daily mathematics lesson where possible. In key stage one lessons are 45-60 minutes and in key stage two at least 60 minutes.

Teachers of the EYFS ensure the children learn through a mixture of adult led activities and child initiated activities both inside and outside of the classroom. Mathematics is taught through an integrated approach.

# Special educational needs & disabilities (SEND)

Daily mathematics lessons are inclusive to pupils with special educational needs and disabilities. Where required, children’s individual support plans incorporate suitable objectives from the National Curriculum for Mathematics and teachers keep these in mind when planning work. These targets may be worked upon within the lesson as well as on a 1:1 basis outside the mathematics lesson. Maths focused intervention in school helps children with gaps in their learning and mathematical understanding. These are delivered by trained support staff and overseen by the SENCO and/or the class teacher.

Within the daily mathematics lesson teachers have a responsibility to not only provide differentiated activities to support children with SEND but also activities that provide sufficient challenge for children who are high achievers. It is the teachers’ responsibility to ensure that all children are challenged at a level appropriate to their ability.

# Equal Opportunities

Positive attitudes towards mathematics are encouraged, so that all children, regardless of race, gender, ability or special needs, including those for whom English is a second language, develop an enjoyment and confidence with mathematics.

The aim is to ensure that everyone makes progress and gains positively from lessons and to plan inclusive lessons. Lessons involving lots of visual, aural and kinaesthetic elements will benefit all children including those for whom English is an additional language (EAL).

Differentiated questions are used in lessons to help children and planned support from Teaching Assistants and other adults.

# Lessons

In all lessons, learning objectives and success criteria are clearly displayed and discussed.

The emphasis in lessons is to make teaching interactive and lively, to engage all children encouraging them to talk about mathematics. Lessons involve elements of:

* Instruction – giving information and structuring it well;
* Demonstrating – showing, describing and modelling mathematics using appropriate resources and visual displays;
* Explaining and illustrating – giving accurate and well paced explanations;
* Questioning and discussing;  Consolidating;
* Reflecting and evaluating responses – identifying mistakes and using them as positive teaching points;
* Summarising – reviewing mathematics that has been taught enabling children to focus on next steps

# Marking

Marking of children’s work is essential to ensure they make further progress. Work is marked against success criteria, in line with the school marking and feedback policy, and includes next steps. Children are encouraged to self-assess their work and given time to read teachers’ comments and respond accordingly. Responses to marking are made as close to the work as possible, ideally at the start of the next lesson. Some pieces of work in mathematics can be marked by children themselves, exercises involving routine practice with support and guidance from the teacher – particularly in years 5 & 6.

# Assessment

Assessment is an integral part of teaching and learning and is a continuous process.

Teachers use cold and hot tasks to elicitate children’s prior knowledge before each new sequence, these then inform planning directly, selecting appropriate objectives within a sequence to ensure it is purposeful for our children- it needs to be pacey, teachers use daily assessment to move on or consolidate, to provide variation to ensure children can unpick the concept in a different way, develop problem solving to go deeper.

Teachers make assessments of children daily through;

* regular marking of work
* analysing errors and picking up on misconceptions
* asking questions and listening to answers
* facilitating and listening to discussions
* making observations

These ongoing assessments inform future planning and teaching. Lessons are adapted readily and short term planning evaluated in light of these assessments. The aim is for children to ‘keep up’ rather than ‘catch up.’

Pupil Progress meetings are timetabled each half term for all classes. Progress of pupils is discussed and appropriate intervention considered and put in place where appropriate.

# Long term

Y2 and Y6 complete the national tests (SATs) in May. Y4 will complete the Times Tables Assessment in June.

# Resources

Each class has a stock of core resources that are age appropriate. Additional mathematical equipment and resources are stored centrally in the corridor in the Maths area.

# Times tables Rock Stars

Times Tables Rock Stars (TTRS) is a fully interactive online mathematics learning tool for children which is used by teachers to support the development of fluency in times tables learning both in class and at home. Children are set homework on TTRS in line with the homework policy and are encouraged by school to access it regularly at home to support the fluency of their timetables.

# Role of the Maths Subject Leader

* To lead in the development of maths throughout the school.
* To monitor the planning, teaching and learning of mathematics throughout the school.
* To help raise standards in maths.
* To provide teachers with support in the teaching of mathematics.
* To provide staff with CPD opportunities in relation to maths within the confines of the budget and the School Improvement Plan
* To monitor and maintain high quality resources.
* To keep up to date with new developments in the area of mathematics

**Mathematics Non Negotiables**

1. All classrooms must have a Maths Working wall which is used to support learning in class.
2. Maths resources are readily available for children to access independently. All children, regardless of ability can access an array of conceptual maths resources and apparatus.
3. Worksheets should only be used when absolutely necessary to support learning, and kept to a minimum.
4. Maths language should be encouraged not only during lessons, but through display. It must be encouraged through games and oral starters. The vocabulary also needs to be planned in, recapping vocab from previous year and unit with awareness of vocabulary needed for the next unit/year as appropriate.
5. Maths should be delivered in a variety of ways, not just in ability groups in the classroom.
6. The calculation policy and progression grids should be used to ensure consistent progression across year groups. They must also be readily available in class, on class web pages and for parents and referred to on planning.
7. Every new unit must begin with a review of the Starter. This should be used to identify gaps and misconceptions to focus on during the sequence.
8. Every unit must end with an assessment task. This task should be able to demonstrate progress made throughout the sequence and since the elicitation task. These tasks, in conjunction with more formal assessments must be used to inform planning. Where possible assessment tests should not be delivered straight after the unit to ensure a more accurate result.
9. Daily practise of basic fact recall should be built into each day, whether it be times tables or number bonds. Home learning should also further reinforce this.
10. Maths should be taught with a mastery approach – all children regardless of ability, should be exposed to develop their mastery skills. Children who are falling behind or lower attaining must be taught by the teacher more regularly than by the TA.
11. Prior learning needs to be recapped at the start of every lesson to ensure retention and recall. This should be prior learning from previous unit/year not just prior lesson.
12. Clear learning objective must be shared with the children each session.
13. All work to be neatly presented in pencil with short date, lines drawn with a ruler etc.
14. Self/peer assessment should be encouraged whenever possible.
15. Marking/feedback must follow the school policy.
16. Minimum of CAST KPIS should be achieved for child to be judged as ARE.

##  Chantelle Robertson – Maths Subject Leader