



## Newtown C of E Primary School

### Mathematics Rationale

#### INTENT

Mathematics is essential for everyday life and understanding our world. It enables the development of pupils' natural ability to think logically and solve puzzles and real life problems. When thinking mathematically, children are supported in becoming focused, independent, respectful and resilient learners. Pupils learn to think creatively and make links between mathematical concepts through exploring patterns in the number system, shape, measures and statistics. They make and discuss propositions, explaining their reasoning and justifying their answers. They develop the skills, knowledge and efficient methods of calculation necessary to support their economic future and problem solving in life.

We aim to ensure that all pupils:

- 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
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- 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.

#### IMPLEMENTATION

By following a spiral curriculum, our pupils are able to revisit a topic, theme or subject several times throughout their school career. The complexity of the topic or theme increases with each revisit but new learning has a relationship with old learning and is put in context. We believe the benefits of teaching in this way are that the information is reinforced and solidified each time the pupil revisits the subject matter as it allows a logical progression from simplistic ideas to complicated ideas. Furthermore, pupils are encouraged to apply the early knowledge to later objectives.

At Newtown C of E Primary School, problem solving is at the heart of all mathematical learning and teaching. Every learning journey begins with a rich problem that is unpicked by the pupils. They identify what skills they will need to develop to be able to solve the problem and this is discussed alongside their teachers. These skills are then developed throughout a series of following lessons using a concrete-pictorial-abstract approach (CPA). To ensure children become fluent mathematicians, fluency is taught daily. Alongside this, fluency is recalling multiplication facts and related division facts are practised daily. Learning to date is secured and retained through daily retrieval explicitly linked to the spiral curriculum taught. Towards the end of the learning journey, the pupils have the opportunity to solve the problem and others that require a similar skill. Due to the differing learning needs of the pupils, tasks are varied to meet each individual need. By constructing the learning journey in this way, the pupils are given the opportunity to see how mathematical skills can be applied to real life problems therefore giving it a context.

To complement this vision, we use the 'HIAS Schemes of Learning for Mathematics'. This resource includes long term and medium term plans as well as more specific unit plans which detail specific vocabulary, key facts, potential misconceptions and suggested concrete resources and visual representations that could be used.

## IMPACT



We believe our children will:

- acquire an enjoyment and love of maths.
- develop positive attitudes to Numeracy and Maths.
- demonstrate and use their mathematics confidently within their daily lives.
- understand that mathematics is a powerful tool for communication.
- have an ability to solve problems, to reason, to think logically and to work systematically and accurately.
- make mathematical links with other areas of the curriculum and become aware of the uses of maths in the wider world.
- develop personal qualities such as perseverance, independent thinking, cooperation and self-confidence