Subject Philosophy: Numeracy and Mathematics

Our Numeracy and Mathematics curriculum supports and supplements the delivery of the national curriculum, by providing a bespoke enquiry led context for learning, which provides:

- Meaningful links in learning following a theme based approach
- Broad and balance coverage across a range of subjects
- Purposeful experiences that bring learning alive through visits and visitors
- Opportunities to respond to the needs and interests of our pupils
- A local, national or international dimension
- A response to the continually evolving educational perspective

We intend our Numeracy and Mathematics curriculum to develop the whole child by encouraging the attitudes for learning that are displayed through:

- A resilience and resourcefulness in learning, where all children are confident to make mistakes and try new approaches
- An active contribution in lessons, by posing questions, evaluating their findings and sharing resources, ideas and thoughts
- Respect and consideration towards others and the learning environment
- Working happily and productively on their own, or with wider pupil groups

We intend to teach Mathematics with passion and strong subject knowledge making relevant pupils mathematical fluency in all other subjects and a precondition of success.

- To provide a foundation for understanding the world, the ability to reason mathematically, and a sense of enjoyment and curiosity about the subject.
- To inspire all pupils to appreciate the beauty and power of mathematics.
- To ensure all pupils are fluent in the fundamentals of mathematics.
- To encourage children to initiate their own learning and research.
- To use and apply knowledge and skills is an important part of children's learning and there will be opportunities for pupils to embed these skills in practical investigations and problem solving exercises.
- To ensure children are able to pursue investigational lines of enquiry, to develop an argument and proof using mathematical language.
- To underpin by appropriate use of I.C.T.

Teaching strategies

- Daily mathematics lesson - Year 1 to Year 6 minimum of 45 minutes that include mental arithmetic.
- Basic skills, 'I can do Maths' Monday to Wednesday, 8.45 -9.15.
- Ongoing interventions – Deployment of key support staff.
- Year 4, 5 & 6 ability sets.
- Reduced class size for all year groups.
- Agreed mental strategies and calculation documentation in place and consistently applied.
- Shared planning time for teachers.
- Assertive mentoring – targets set for all pupils.
- Quality marking for next steps in learning.
- All classes display a Maths learning wall with age and topic appropriate material.
- All classes equipped with high quality resources to scaffold and support pupils learning.

Through our Mathematics curriculum we:

Teach the skills of:

- **Calculation** – Be able to add, subtract, multiply and divide with increasing efficiency.
- **Classification** - Sorting shapes and numbers using their properties.
- **Communication -** Including recording following the calculation policy and presenting findings.
- **Problem solving -** Using appropriate strategies of increasing sophistication.
- **Interpreting and presenting data -** Including surveying.
- **Reasoning** – Following a line of enquiry to justify findings.
- **Questioning** – To pose Mathematical questions.

Ensure that children will learn about:

Key stage 1	
Year 1	**Year 2**
Number -Place value 0- 100 and read and write numbers 1 -20	Number -Place value – 2 digit numbers, using ≤ ≥, read and write 0 -100
Number -Addition subtraction up to 20	Number -Addition subtraction up to 100
Number- Multiplication division – practical problems	Number- Multiplication division -2,5,10 x tables,
Number –Fractions ½ and ¼	Number –Fractions- ¼, ¾, 1/3 and simple equivalence
Measurement – comparing and measuring	Measurement –standard units, ordering, using symbols
Geometry- Properties of shape 2D & 3D shape	Geometry- Properties of shape 2D & 3D shape
Geometry- Position and direction	Geometry- Position and direction
	Statistics – interpreting and constructing simple data

Key stage Lower	
Year 3	**Year 4**
Number -Place value – up to 1000	Number -Place value – beyond 1000, Roman numerals up to 100 and negative numbers
Number -Addition subtraction – 3 digit numbers	Number -Addition subtraction – four digit numbers
Number- Multiplication division – 3,4,8 x tables	Number- Multiplication division – up to 12x 12x tables, x 2 digit and 3 digit number by 1 digit
Number -Fractions (- + fractions)	Number –Fractions including decimals – ½, ¼ ¾ as decimals
Measurement – adding and subtracting	Measurement – area, conversion,
Geometry- Properties of shape – introduction of turns	Geometry- Properties of shape introduction of turns and angles
	Geometry- Position and direction – coordinates and translation
Statistics – interpret and present data and answer one and two step problems	Statistics – interpret and present discrete and continuous data

Key stage Upper	
Year 5	**Year 6**
Number -Place value- up to 1,000,000 and Roman numerals up to 1000	Number -Place value – up to 10,000,000
Number -Addition subtraction – more than 4 digits	Number -Addition subtraction
Number- Multiplication division – factors, multiples and prime numbers, x 4 digits by 1 or 2 digits, ÷ 4 digits by 1 digit	Number- Multiplication division – multi step problems, x and ÷ 4 digit by 2 digit,
Number –Fractions including decimals and percentages	Number –Fractions including decimals and percentages. (x and divide)
Measurement – equivalence metric and imperial, scaling.	Measurement – formulae,
Geometry- Properties of shape – measure angles	Geometry- Properties of shape –circles and $A = \pi r^2$
Geometry- Position and direction – reflection	Geometry- Position and direction – 4 quadrants
Statistics – complete read and interpret information in tables, including timetables	Statistics – pie charts
	Ratio and proportion
	Algebra

Assessment and expectation

We are committed to the belief that the nature of open ended tasks allows pupils to be driven by their own curiosity, deepens their understanding and enables all children to fulfil their potential leading to greater performance.

At Essendine, our expectation is that all pupils will at least meet age related expectations as prescribed in the new national curriculum September 2014, but will be challenged to achieve greater than this.

Where pupils are falling behind, work will be undertaken to close the gap including differentiation in planning, use of key/target questioning, small group work and teacher intervention. These strategies encourage all pupils to have access to learning, gain in confidence and sharing ideas with each other.

Assessment of Mathematics

A range of assessment evidence will be collected to support teacher's judgement and will include:

- Pupils' discussion and consultation.
- Work scrutiny.
- Photographs.
- Role play.
- Termly assessment tasks.
- Summarise assessments SATs.

Monitoring

The Phase leader will liaise with the subject leader to ensure monitoring is being undertaken and recorded.

The Subject leader will:

- Monitor books, provide feedback and support
- Provide training sessions to ensure subject knowledge is accurate,
- Attend CPD courses,
- Monitor the budget and order resources where required.

Governors will liaise with the Subject Leader to support improvement planning processes and be aware of standards.

Parents

Essendine positively promotes and encourages parents to support the work of the school in developing a love of Mathematics. This can be done by inviting parents into Maths days and family learning opportunities. An outline of the maths to be studied in a term is also detailed in the Parent's Information meeting.

Enrichment

We aim to promote maths as part of everyday working life through visits from professionals who apply maths skills in their career.

Subject Leaders – 2014