What maths looks like at Gilmorton Chandler CofE Primary School

INTENT:

Our maths curriculum supports the aims and objectives of National Curriculum 2014.

We believe -

- Everyone can learn maths. We encourage a growth mindset.
- We use a mastery approach where children's understanding is deepened.
- A large emphasis is on reinforcing number to build competency and knowledge.
- Mathematical problem solving is greatly improved when the basic skills (addition, multiplication, etc.) are overlearned and become automatic, thus freeing working-memory capacity.
- A **c**oncrete, **pi**ctorial, **a**bstract approach (CPA) is used to ensure a solid understanding.
- Problem solving and reasoning takes place in every objective.
- Cross-curricular links are made when relevant, particularly to give a connected curriculum.
- CPDL, based on research, enables us as practitioners to adapt our teaching to best benefit our pupils.
- Teachers need to have a strong, connected understanding of the material being taught.

IMPLEMENTATION:

Foundation Stage:

Personalised objectives taken from Number and Shape, Space and Measure areas of learning using criteria from Development Matters.

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Baseline Assessments				Numbers and place value of number up to 10 in various contexts					Addition		Assessments
Spring	2D and 3D shapes			Patterns		Prepositional language	Number and place value of numbers up to 20 in various contexts				Subtraction	
Summer	Doubling, halving, sharing		Measures – Height, capacity, weight		Time /sequencing	Review and assess						

Ks1 - Year 1   Year 2

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value (within 10)				Number: Addition and Subtraction (within 10)				Geometry: Shape	Number: Place Value (within 20)		Consolidation
Spring	Number: Addition and Subtraction (within 20)				Number: Place Value (within 50) (Multiples of 2, 5 and 10 included)			Measurement: Length and Height	Measurement: Weight and Volume			Consolidation
Summer	Number: Multiplication and Division (Reinforce multiples of 2, 5 and 10 to be included)			Number: Fractions		Geometry: Position and Direction	Number: Place Value (within 100)		Measurement: Money	Measurement: Time		Consolidation

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value			Number: Addition and Subtraction					Measurement: Money		Number: Multiplication and Division	
Spring	Number: Multiplication and Division		Statistics		Geometry: Properties of Shape			Number: Fractions			Measurement: Length and Height	Consolidation
Summer	Geometry: Position and Direction			Problem solving and efficient methods		Measurement: Time		Measurement: Mass, Capacity and Temperature			Investigations	

Ks2- Year 3

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value			Number: Addition and Subtraction					Number: Multiplication and Division			Consolidation
Spring	Number: Multiplication and Division		Measurement: Money	Statistics		Measurement: Length and Perimeter			Number: Fractions			Consolidation
Summer	Number: Fractions			Measurement: Time			Geometry: Properties of Shape		Measurement: Mass and Capacity			Consolidation

Year 4

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value				Number: Addition and Subtraction			Measurement: Length and Perimeter	Number: Multiplication and Division			Consolidation
Spring	Number: Multiplication and Division			Measurement: Area	Number: Fractions				Number: Decimals			Consolidation
Summer	Number: Decimals		Measurement: Money		Measurement: Time	Statistics		Geometry: Properties of Shape			Geometry: Position and Direction	Consolidation

Year 5

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value				Number: Addition and Subtraction			Measurement: Length and Perimeter	Number: Multiplication and Division			Consolidation
Spring	Number: Multiplication and Division			Measurement: Area	Number: Fractions				Number: Decimals			Consolidation
Summer	Number: Decimals		Measurement: Money		Measurement: Time	Statistics		Geometry: Properties of Shape			Geometry: Position and Direction	Consolidation

Year 6

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value		Number: Addition, Subtraction, Multiplication and Division				Number: Fractions				Geometry: Position and Direction	Consolidation
Spring	Number: Decimals		Number: Percentages		Number: Algebra		Measurement: Converting Units	Measurement: Perimeter, Area and Volume		Number: Ratio		Consolidation
Summer	Geometry: Properties of Shape		Problem Solving			Statistics		Investigations				Consolidation

What Maths lessons looks like in our school;

- Teachers give children the opportunity to review previous learning, provide models for the kinds of responses pupils are required to produce, provide adequate time for practise to embed skills securely and scaffold new learning.
- Activities such as choral counting, chanting, quick fire maths games are used to ensure basic skills are overlearned in order to become automatic, thus freeing working-memory capacity. X factor is used to ensure quick and accurate recall of number bonds and times tables facts.
- Access to manipulatives/concrete resources is available to support understanding.
- Flexible mixed ability groupings / seating in place to allow children to work with different people over the course of time.
- Lots of talk—reasoning with a strong focus on using specific mathematical language, especially when explaining why.
- Patterns and opportunities for 'making connections.'
- Opportunities to practise and become fluent in written and mental calculation methods.
- Mini-quizes of new knowledge and vocabulary are used to encourage better organisation of a pupil's knowledge and to encourage their metacognitive monitoring.
- Mini plenaries to share misconceptions, pose questions, challenge ideas.
- Structured problems that challenge thinking.
- Teachers pre-teaching a concept ahead of the lesson for children identified in pre-assessments.
- Problem solving challenges are set that challenge thinking.
- Reasoning activities such as; 'true or false', 'prove it', 'always, sometimes never'.

This is what we do:

- Planning includes discrete focus on 3 aims of curriculum - Fluency, Reasoning and Problem Solving; reflection to drive next steps learning and planning; SMSC.
- Emphasis on quality first teaching.
- Positive use of mistakes/misconceptions- learning environment.
- Regular book scrutiny, learning walks, planning audits, pupil perceptions.
- Whole school CPDL.
- Raise the profile of Mathematics through workshops, maths leaders, lunchtime clubs and after school maths cubs.

IMPACT:

This is the impact of the teaching:

- Confident children who can talk about maths and their own reasoning.
- Confident children who have a depth of understanding/application in different contexts.

This is how we monitor the impact

- Tracking grids submitted to HT each term for analysis based on end of year age expectations.
- Pupil progress meetings - involving teacher, subject lead and HT/AHT.
- Teacher assessment/ targets.
- Marking and feedback.
- Photo evidence of practical maths where manipulatives are effectively being used to improve understanding.
- Targeted use of TAs - TA's noting and recording learning observations of individual children.
- TA/Teacher conversations and feedback time.

This is how we use intervention:

- Quick response intervention (reteach in books), following marking / assessments with identified children.
- Small group additional teacher support for reteach of identified areas from half termly grids on specified children.
- Pre-teaching to specific groups of children.

This is how we challenge the rapid graspers:

- Problem solving in different contexts.
- Deepening reasoning and justification.
- Generalising and testing rules.