



# Sutton in Craven C of E (VC) Primary School

## Calculations Policy

**Date Adopted: February 2015**

**Next Review: February 2018**

**Reviewed every 3 years by The Improvement Committee**

This policy is used alongside the revised National Curriculum (Sept 2014) and the attached appendix on agreed calculation methods and age-related expectations. It is designed to help improve the teaching of mathematics throughout the school and ensure clarity of expectation for teachers, teaching assistants, pupils and parents.

**See also 'Teaching and Learning Policy'.**

### Aims

- To ensure learning is based on 'concrete', hands-on, visual learning experiences.
- To align calculations with an agreed whole school approach to age-related expectations for each calculation method. It is recognised that some children will meet expectation, some will not and some will exceed expectation.
- To develop skills which enable children to use and apply numbers, measures, shape and space and data handling with competence and confidence in a range of contexts.
- To develop children's skills in mental calculation by ensuring they have a repertoire of known facts and strategies to draw upon.
- To ensure discussion and effective questioning play a central part in maths lessons.

### Roles and Responsibilities

#### **The Headteacher/Co-coordinator will:**

- Set high expectations and monitor teaching, learning and pupil progress.
- Encourage a whole school approach, keeping parents, governors and all support staff informed of approaches.
- Ensure underperforming children are identified, appropriate provision is put in place and its' impact measured.
- Track the impact of learning interventions and ensure support staff are effectively deployed.
- Ensure monitoring focuses on the mathematical *detail* of mathematical teaching and learning, as well as more generic lesson features.
- Help teachers support individual pupils and groups of pupils in their mathematical learning.
- Write and regularly review the mathematics action plan and policy, sharing developments with link Governor(s) and teachers.
- Offer support to teachers in planning, teaching and assessment; ensuring consistent and agreed approaches are implemented.
- Identify INSET needs and plan and deliver INSET.
- Ensure associated school policies and the revised national curriculum are being adhered to.

#### **Governors will:**

- Be well informed of standards and pupil achievement in mathematics, through the leadership of the Headteacher / Mathematics co-ordinator and the link governor's own monitoring visits to school.
- Support staff in implementing the school's policy for mathematics / calculations.
- Monitor and review progress on the mathematics action plan.

- Ensure they are familiar with the school's key assessment data, through Headteacher reporting and the Ofsted data dashboard.

#### **Teachers will:**

- Always introduce new concepts with visual, concrete examples relevant to the children's everyday life.
- Ensure mathematics is taught *conceptually* wherever possible with structures and relationships explored; rather than as a set of disparate skills. E.g. division as the inverse of multiplication, decimals as being used in notation of money, %'s and decimals as being fractions expressed in a different way.
- Play an active role in understanding curriculum and calculations progression and not just what their year group(s) learn.
- Base learning on the premise that teaching children too many calculation methods can confuse many of them. Whereas children need to be exposed to differing methods of calculation, (interim methods) they need to be *highly secure* in a more limited number.
- Ensure problem solving and application of mathematics play a central part in learning.
- Develop meaningful cross-curricular learning opportunities for maths wherever possible, this being recorded in 'topic / theme' books.
- Ensure children know what to do when they are stuck.
- Ensure higher attainers are stretched in every lesson.
- Make available, high quality resources and use these to support learning wherever possible and appropriate.
- Use a range of teaching styles to incorporate differing children's needs.
- Use the revised national curriculum to plan long term, medium term and short term learning opportunities, ensuring these are
- Adapt planning on an ongoing basis according to pupil's strengths and barriers to learning.
- Ensure their subject knowledge is sufficient to deliver the revised national curriculum and seek support if knowledge is lacking.
- Give homework activities in line with the school homework policy and in line with children's curricular targets.
- Ensure effective communication with support staff, so they are clear on learning intentions and their role in helping children meet them.

#### **In the daily mathematics lesson Teachers will:**

- Share clear learning objectives and develop success criteria with the children so that all children are clear not only of what they are *doing* but what they are *learning*.
- Encourage children at all times to *talk through* the processes they have used to get to their answer, with adults in the classroom and through the use of talk partners.
- Provide daily practice of mental skills including counting, rapid recall, newly learned facts and calculation strategies.
- Respond in lessons and on a daily basis to misconceptions, adapting learning / planning accordingly in order that next steps in learning are not impeded.
- Use accurate mathematical vocabulary and develop this with children.
- Engage pupils in challenging, differentiated activities using a range of resources, including IT.
- Ensure that where a calculation can be done mentally, children will be encouraged to do this rather than using pencil and paper method.

#### **The SENCO will:**

- Support teachers in supporting children with special needs and encourage whole class inclusion where possible.
- Use the objectives in the revised national curriculum when preparing individual education plans and pupil targets.
- Use tracking data to identify children in need of 'Springboard', First class@Number and other booster activities to support their progress.
- Work with the class teacher to use Wave 3 interventions when appropriate.

- Ensure that more able children are suitably challenged, including those recognised as 'gifted and talented'.

**Children will be encouraged to:**

- Enjoy mathematics and see its relevance in real life.
- Recognise that maths makes you think hard and that persevering is a pivotal skill in learning.
- Understand that making mistakes is central to getting better at maths.
- Understand exactly what is expected of them on a day-to-day basis and seek help if they do not.

**Support staff will:**

- Work with identified groups to deliver booster activities.
- Be included in staff training for mathematics where appropriate, this being led by the TA Leader or Headteacher / Mathematics Coordinator.
- Have a clear understanding of their role in each part of the lesson, facilitated through effective communication with the Class teacher.
- Be clear on the attainment level of the children they work with, their barriers to learning, next steps and how to help those children make the next steps in their learning.
- Share the learning objectives for each session taught, and know the key vocabulary and skills to be developed.

**Parents will:**

- Be encouraged to develop positive attitudes to mathematics and actively support their child (ren).
- Receive support materials to enable them to take an active part in their child's learning.
- Be informed of their children's progress through annual reports and parent's evenings.

**Planning, Assessment and Recording**

- Objectives and success criteria for each lesson should be shown clearly in planning, displayed in the classroom and made known to the children.
- Use formative and summative assessment to inform future learning / planning.
- Ensure high quality, constructive assessment for learning feedback is provided to pupils in order to challenge and check understanding, ensuring children have opportunities to read, reflect and respond accordingly.
- Assessment for learning strategies are used daily to inform short and medium term planning and children of the next steps in their learning.
- Termly assessments are made using agreed whole school formats.
- In the EYFS, observational assessments based on the numbers, counting and shape, space and measures strands are used to inform planning.
- Individual pupil targets are set each half term based on appropriate instant recall facts, these are linked to homework.
- Class teachers will teach in line with the agreed calculations approach, moving children on to more complex methods when they feel this is appropriate on a pupil-by-pupil basis.(See Appendix 1).
- Class teachers will assess at year end which calculation method each child is most secure on, so as to track progression and ensure smooth class transition. This will be recorded on the 'Calculation Methods' grid (Appendix 1)

**Strategies used for calculations**

**Children will be taught:**

- To use a range of calculation methods but work predominantly with those they are secure with.

- To use their knowledge to solve problems, see patterns, make predictions, present information clearly, interpret data.
- To give oral explanations of their methods.
- To discuss and explore problems with other children and feedback to others.
- To write their own word problems using their mathematical knowledge.
- To record in a number of ways e.g. in rough, using pictures, on whiteboards, using mind maps.
- To use mathematical vocabulary when explaining their thinking.
- To understand place value and the number system thoroughly, as a foundation for all mathematical learning.
- To understand written calculation methods via direct correspondence using concrete objects.
- To use efficient mental methods e.g. for subtraction; beginning with the lower number and counting up to the higher number and for addition; starting with the largest number first.
- To check their answers are reasonable and correct mistakes on a daily basis.
- To use the inverse operation to check results.
- To not erase mistakes but to view these as part of the learning process.
- To apply their mathematical skills and knowledge to everyday problems involving money, measures and data handling.
- To partition numbers, to rapidly recall number bonds for addition and subtraction and to know their 12 x 12 tables by the end of KS2

**Appendix 1: Progression in Calculations**

Calculation Methods age-related expectations								
	+		-		x		÷	
	Calculation	Vocabulary	Calculation	Vocabulary	Calculation	Vocabulary	Calculation	Vocabulary
<b>Rec. expected</b>	A1 & A2	Adding Sum Total Plus Increase altogether	S1	Take-away Difference Subtract Minus Decrease Less than		Repeated addition Groups of Times Multiply Product Lots of		Share / group Divide How many... Factors remainder
<b>Y1 expected</b>	A3		S2 & S3		M1		D1	
<b>Y2 expected</b>	A4		S4		M2		D2 (i) & (ii)	
<b>Y3 expected</b>	A5				M3		D3	
<b>Y4 expected</b>	A6		S6 & S7		M4		D4	
<b>Y5 expected</b>					M5			
<b>Y6 expected</b>					M6		D5	

Time- tables age-related expectations						
	Y1	Y2	Y3	Y4	Y5	Y6
X and ÷ tables		2, 5, 10's	3, 4, 8	2,3,4,5,6,7,8,9,10,11,12	1-12 & 25,50,75,100	Decimals 1/10ths
Counting in...	2, 5, 10	3	50, 100	6, 7, 9, 25, 100	decimals	Decimal 1/100ths