



## Mathematics Policy

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Review Body	Teaching staff
Approved	By the Local Governing Body
Next Review Due	Annually – July 2019

### Policy Consultation & Review

This policy is available on our school website and is available on request from the school office.

This policy will be reviewed in full by the Governing Body on an annual basis.

Signature \_\_\_\_\_  
Julia Humphrey, Executive Headteacher

Date:

Signature \_\_\_\_\_  
Tom North, Chair of Governors

Date:

**This policy details the key aspects of mathematics teaching and learning at Old Buckenham Primary School. It is intended to inform teaching staff, support staff, school leadership, the school governing body, parents and external visitors about what mathematics typically looks like at this school.**

**This is our philosophy:**

- We use the **mastery** approach (please see the attached OBPS Mastery Statement);
- We put the '3 aims' of **fluency, reasoning and problem solving** (from National Curriculum 2014) at the heart of everything we do in maths;
- We adopt a **Concrete, Pictorial, Abstract (CPA)** approach to working:
  - **Concrete representations**, making use of Numicon, bead strings or other resources;
  - **Pictorial representations**, such as arrays, diagrams or sketches;
  - **Abstract representations**, in the form of written calculations or jottings;
  - Note: these three elements may be done in any order, and may be repeated more than once in a single lesson. One such sequence may see a pupil begin with an abstract calculation, before being asked to represent that calculation pictorially, before tackling a different abstract calculation, before being asked to represent this using concrete resources.
- We aim to establish cross-curricular links to other subjects and topics where possible.

**These are the key features of Mathematics in our school:**

- Mixed ability grouping / seating, which allows children to work with a broad spectrum of mathematically-confident peers in their classroom across the school year;
- Lots of talking about mathematics – children answering in full sentences and providing reasoned responses to questions;
- Extensive opportunities for problem solving;
- Mini-plenaries during lessons, where pupils can share misconceptions, pose questions, challenge ideas and make and/or prove conjectures;
- Free access (for all pupils, in all year groups) to concrete manipulatives such as Numicon, counters, bead strings, number lines etc.

**This is how it works:**

- Children approach a task at largely the same level of challenge, but know that there are varied levels of challenge available if they feel that a task is too easy or too hard for them – teachers will differentiate for the range of abilities in their class and ensure that all pupils are able to access learning at a level that is appropriate for them;
- In KS1, maths investigation stations / maths areas are set up on a weekly basis, to link to current or previous week's learning;
- Teachers focus on mathematical language, such as a 'word of the day' or related vocabulary, displayed on washing lines / working walls for children to see and make use of;
- There are frequent opportunities to talk mathematically, both to the teacher and to each other;
- Using 'Answer, prove, explain' (APE), pupils are expected to demonstrate their understanding in multiple ways, to avoid the focus being purely on getting the correct answer;
- Children are given the time they need to solve problems (returning to a task in a subsequent lesson, for example), meaning that sessions are more 'fluid' than they are 'compartmentalised';
- Teaching assistants (TAs) are sometimes used to pre-teach concepts to targeted pupils ahead of a lesson.

### **This is what staff do:**

- Plan to include a discrete focus on the '3 aims' (see above);
- Reflect on lessons in order to inform next steps for individuals and groups of children;
- Incorporate social, moral, spiritual and cultural (SMSC) elements in our teaching;
- Encourage positive attitudes to mistakes / misconceptions, in discussions and in the learning environment
- Participate in regular book scrutinies, learning walks, planning audits and pupil perception sessions;
- Engage in whole-school professional development;
- Raise the profile of mathematics – Maths Café, STEM week, whole-school challenges to motivate children and celebrate their learning;
- Encourage parental involvement in their children's maths journeys through school.

### **This is what you might typically see and hear in our classrooms:**

- Open-ended investigations, including low threshold/high ceiling tasks to ensure access for all pupils;
- Word problems that encourage pupils to 'find the maths' contained within;
- Pupils talking mathematically, making conjectures and applying reasoning skills to problems;
- Calculations represented in different ways – missing digit problems, 'Here's the answer, what's the question?', CPA representations;
- Paired / group work;
- Working walls containing relevant examples of work, key vocabulary and photographic evidence;
- Active maths, where pupils move around the room or work outside;
- Teachers encouraging pupils to discuss and prove / challenge other pupils' conjectures and ideas.

### **This is what you will see on our working walls:**

- Examples of pupils' work;
- 'Word of the day' and any other relevant module-specific vocabulary;
- Stem sentence to do with the current module;
- Evidence of mistakes and misconceptions to promote positive attitudes to these;
- Photos of children working;
- Examples of children using CPA approaches;
- Number lines - differentiated by year group (for example, 0-100 in KS1, negative numbers/ratio lines in UKS2) and big enough for children to get up and use freely.

### **This is how we know how well our pupils are progressing:**

- Prompt marking of classwork, with appropriate feedback and 'next steps' given;
- Pupil progress meetings;
- Teacher assessment judgements and target-setting;
- Photo evidence of practical maths in books, annotated by either the teacher (KS1) or the pupil (KS2) so that the learning journey is clear, including any mistakes and misconceptions that were encountered;
- Targeted use of TAs, who make notes about observations of, and discussions with, pupils.

### **This is the impact of our teaching:**

- Confident children who can talk about maths in a positive manner;
- Children displaying a real love of the subject, putting it in their 'top 3' lessons;
- A depth of understanding and the ability to apply this in a variety of contexts.

**This is how we use intervention:**

- Use TAs to support small groups, either inside or outside of class, based on misconceptions that have been identified during lessons, promoting the progression of all children rather than some.

**This is how we challenge higher attaining pupils / rapid graspers:**

- Encourage them to use HOTS to solve problems in a range of contexts;
- Ask for developed reasoning and justification in support of an answer or solution;
- Encourage them to support other pupils, to help spot any misconceptions in their working and model the correct steps to solve a problem;
- Ask them to make generalisations and conjectures, and test (prove / disprove) these.