

# **WEST PARK CE PRIMARY SCHOOL**



## **Curriculum Policy for Mathematics**

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### The Team 2020-21

- Emma Sleight – Subject Leader KS1
- Nick Choate – Subject Leader KS2
- Caitriona Bull Line Manager of Subject Leader
- Jonathan Monk Governor for Maths

### Intention

Mathematics is vital; it is our key to making sense of the world around us. We strive to provide a mathematically stimulating environment where children are able to calculate, reason and solve problems both in number and in their everyday lives. We aim to build a mathematical learning culture where children are resilient and take risks in their learning.

- We believe that mathematics provides a means of communication which is powerful, concise and unambiguous
- We believe that Mathematics is fun!

During their time at this school children will be encouraged to see mathematics as both a written and spoken language. Teachers will support and guide children through the following important stages:

- Developing fluency, reasoning and problem solving through the use of concrete, pictorial and abstract.

### Implementation

#### Aims

The national curriculum for mathematics aims 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 develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **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.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not

sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

### **School Curriculum**

The programmes of study for mathematics are set out year-by-year for key stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage, if appropriate. All schools are also required to set out their school curriculum for mathematics on a year-by-year basis and make this information available online. Examples of work are displayed in each year group in the Maths Area, these are updated each half-term.

### **Calculation Policy**

This policy looks at both mental and written procedures. It is important that children do not abandon jottings and mental methods once pencil and paper procedures are introduced. Therefore, children will always be encouraged to look at a calculation/problem and then decide which is the best method to choose; concrete, pictorial or abstract. Children are not expected to work through every stage at a set time; it is about working at the right level and using the methods appropriate for each child.

This policy is for guidance purposes only as our job is to find the most efficient method that the individual child can use with understanding. This may well mean that children do not experience all the methods illustrated and focus on one or two.

Schools have a choice in the way that they teach calculations.

The children will always be exposed to the concrete, pictorial and abstract way of working to solve a problem.

However, they may progress more quickly through these stages to abstract once they are fluent in their concrete and pictorial understanding.

This is on display in the Maths Area and available on the school website.

### **Times Tables**

Teaching of times tables is important. Children must have a conceptual understanding in order to apply the knowledge to problems. Teachers will teach children times tables through a range of fun, interactive activities to build confidence and understanding.

Alongside this, we use Times Tables Rock Stars in order to further improve speed of tables recall and use in school. Each pupil has their own individual login and is able to practise both in school and at home. Pupils will be expected to use this as part of homework tasks throughout the year. Class teachers can set specific tables goals for them using this programme if it is required.

### **Testing of Tables**

- Children may be tested on specific key tables in lessons but this is done in a supportive, non-threatening, environment BUT most importantly they need to be taught how to **learn and use** their times tables.

### **Differentiation**

- The children should be working in mixed ability groupings.
- Tasks can be differentiated through the use of concrete, pictorial and abstract representations.

### **Lesson planning**

- We plan to succeed but we do not plan for the sake of it – plans should be seen as working documents that change according to the needs of the children.

- White Rose planning is followed and adapted as necessary.

Key features that must be included on all plans

- What are we learning?
- How will we get there?

Homework

Homework is set in line with the school’s Homework Policy. Please see the homework policy for timings.

- Homework should be directly related to the class work
- Homework is set weekly allowing a few days for children to complete tasks in case of clashes with after school clubs
- Parents will be provided with information/examples of methods to be used so that support is directed appropriately
- Parents and children can comment in the diary
- Homework MUST be marked each week in line with the school policy
- On-line homework can be set but this should never be the predominant method of setting homework
- Homework should be completed or stuck into a dedicated homework book or into their maths exercise book
- Reference to the calculation policy on the school website should be made

Classroom Equipment

- This will vary from year group to year group as this has to be age appropriate
- All resources MUST be easily accessible to all children so that they can make the important decisions regarding which equipment to use
- Equipment is regularly used by teachers to model its’ application.

Central Resources

- |                    |                             |                  |
|--------------------|-----------------------------|------------------|
| • Metre sticks     | • Digital scales            | • Clocks         |
| • Trundle wheels   | • Measuring jugs/containers | • 3D shapes      |
| • Balancing scales | • Geoboards                 | • Fraction walls |
| • Weighing scales  | • Dice                      | • Coins          |
|                    |                             | • Tape measures  |

Digital Resources

**nrich** = good for ideas for explorative and investigational work suitable for Early years / Primary and Secondary!

Subscribe free to get email updates otherwise no login required

Select ‘teachers’ → Age group (Primary) → use topic box top right hand corner for drop down list or enter aspect interested in to search box [Algebra]

**nctem** (National Centre for Excellence in teaching of Mathematics)

You need to register for this.

Brilliant video resources to implementing the New National Curriculum (Video 1 introduces clips from all 60 and you can short cut select from menu) all linked to developing Fluency, Reasoning and Problem Solving

Resources and ideas for 1:1 teaching

Resources and ideas for cross-curricular work

**Youcubed** = Forum and research site

sign up for regular updates (New site through Stanford university starting in one month) American site / View intro video with Jo Boaler

Research based solutions

Example of ways to teach maths

Section 2 Contents and tasks to explore (Not a quick dip in)

### **In-house for Maths CPD**

- NCh and ES available for support on a Wednesday (am)
- Staff meetings
- Training offered by the Maths Hub and WSCC will also be accessed and shared.

### **Impact**

#### Attainment targets

- By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study. (See National Curriculum)

#### Individual pupil targets / Next Steps (Child specific)

- All children should have individual targets agreed on half termly basis. These should be agreed between the child and the teacher and a copy sent home to inform parents
- These should be stuck in to their books so that they can be flipped out and referred to in all lessons
- The National Curriculum can be used to inform the wording of these targets

#### End of unit assessments

- At West Park we use White Rose assessments.
- For Year 2 to Year 6, these occur at the end of each term and are used to inform teacher assessments and should test 'new learning' in a new context.
- In Year 1 the children are slowly introduced to these tests throughout the year and all children will have completed such assessment by the end of the summer term of Year 1.
- Year group teams work together to analyse all assessments completed to identify gaps in learning and provision and to ensure this is in place for the next half term of planning. This information is passed on to the maths subject leader.

#### Statutory Assessments

- EYFS Baseline assessments
- KS1 National Curriculum Tests and teacher Assessments (Year 2)
- Multiplication Tables Check (Year 4)
- KS2 National Curriculum Tests and teacher Assessments (Year 6)

#### Data

All teachers are responsible for keeping accurate records of attainment and progress made in line with the school policy on recording data (Target Tracker). See assessment policy.

#### **Marking**

Work should be marked in line with the school policy for marking. Live, in the lesson, verbal feedback is to be encouraged so that children are being supported and moving children on during the lesson rather than retrospective marking which has less impact.

### **Display**

See school policy. We aim to inspire and challenge the children, supporting their learning through a working wall combined with celebrating achievement.

- All classrooms must have a display area for maths and a working wall
- Working walls should be referred to during the lesson and reflect current learning

### **Exercise books**

- The size of the squares in the maths book should be chosen carefully; they should be ability appropriate
- Children should have experience of maths calculations on blank paper or in books without worrying about poor presentation.

### **Monitoring of Standards**

Monitoring of maths across the whole school is completed by the maths Subject Leaders and Headteacher. Year leaders and members of the maths team have the responsibility of monitoring their year group each term and reporting to the Subject Leader.

- 'Week in the life of'
- Lesson observations
- Book scrutiny
- Pupil voice meetings
- Audit of marking across year groups
- Termly data tracking (Key Performance Indicators / target tracker/progress through the sublevels)

### **Links to other policies:**

- Calculation policy
- Assessment policy
- Display policy
- Inclusion policy
- Homework policy
- Marking and feedback policy