

## Teaching Summary Guidance

### Maths

*"Without mathematics, there's nothing you can do. Everything around you is mathematics. Everything around you is numbers."*

*- Shakuntala Devi, Indian writer and mental calculator*

By the end of Year 6, we want children to be masters in number fluency and self-assured, curious reasoners. Children will articulate and justify their understanding and will be fluent and secure in a range of number facts based around addition, subtraction, multiplication and division. They will be able to confidently recall this knowledge using a variety of concrete, pictorial and abstract strategies. Children will have well developed reasoning skills which allow them to independently and collaboratively solve problems by using calculation skills, making connections with learnt skills and being able to explain and justify their process with conviction applying it to real life context.

### Teaching Maths

#### Teaching and Learning in Maths at PSJ.pptx

In EYFS, Maths is based around Mastery Number. Nursery focuses on subitising small quantities (up to 3) and this is practised through oral instructions and in everyday conversation. Nursery also practises counting through gross motor skills (e.g. jumping in puddles) and fine motor skills (e.g. beads on a string). In Reception, Maths follows the Mastering Number yearly overview and progression. There are daily sessions which are taught as a whole class. Throughout the day, Maths is incorporated into everything children do. Throughout the week, there should be continuous provision activities which are linked to the Maths taught that week.

Dual counting (11, 12, 13, etc & ten-one, ten-two, ten-three, etc) should be used in Maths lessons so that there is consistency in delivering the sessions of Mastering Number and it embeds the understanding of numbers from 11-19.

From Year 1 to Year 6, we deliver a mastery curriculum using targets taken from the National Curriculum, supplemented by using a mix of resources from the White Rose Maths scheme, NRICH, NCETM, I See Reasoning, Testbase, Third Space Learning, the CGP textbooks and Target Your Maths textbooks. The underpinning pedagogy of oracy is a foundation of every Maths lesson, which is supported by Maths Talk and lesson structure focusing on 'DELBAR', where pupils start with 'Do It Now' recall/ reactivate activity, which links onto a previous learning or learning to be considered. Following the 'Engage' part, which enables pupils to explore a mathematical concept, linking to discussion and reasoning for example 'Maths Talk'. This is an opportunity for pupils to explore, collaborate and justify their thinking. The 'Learn and Build' part of the lesson is the learning, which involves scaffolding of teacher's modelling and pupils responding to that using (I Do, We Do, You Do in order that is responsive to the live teaching) following Rosenshine Principles. Throughout the lesson, hinge questions should be used to assess the pupils' understanding in the moment and react to this effectively with support or release. This builds onto an 'Apply' part, which is adapted to the needs of pupils depending on their understanding with support from adults, peers or independent learning. It is important that there is an appropriate level of challenge for all pupils, including problem solving and reasoning. The structure of the 'Apply' part should consist of a clear

progression from short fluency practice to apply and deepening activities (TAD) where at each stage pupils are encouraged to check their answers before they move on (marking station). The 'Review' part is to consolidate learning and for the teacher to have a clear understanding who needs a mop-up and who is secure. A flexible grouping should be seen in every Maths session.

Manipulatives are carefully chosen to support the mathematical concept and understanding instead of enabling pupils to gain the answer. A high level of skilled questioning is the driver in every lesson, which is supported with a strong oracy model.

### [Teaching and Learning in Mathematics PSJ](#)

The Teaching in Mathematics guidance (DFE, Ready-to-Progress criteria) can be found in [Teaching Mathematics DFE](#) long term plans [Long Term Plans](#) which are live documents and are continuously updated mirroring the needs of the cohort.

Work in Maths books is to be of a high standard. There should be one digit in each square when writing numbers in books. Questions answered in books should show **a clear annotated thinking**, jottings, **a pictorial representation** and an abstract method. Each year group should use the correct concrete, pictorial and written method as outlined in the [PSJ Calculation Policy](#)

It is an expectation from Reception to Year 6 that all numerals are formed correctly. Teachers should pick up on individual cases of incorrect numeral formation and all children should be given time to practise this with a purple pen. All year groups should model and reinforce the expectation that only one numeral is written per square in Maths books. Again, teachers should pick up on individual cases of this and give time for children to practise with a purple pen. Whole-class marking in purple pen is acceptable and designated marking stations are encouraged for pupils to develop independence. Teachers and support staff should be marking the reasoning and problem solving questions, where deeper thinking needed to be shown. Pupils need to be modelled how to respond when their answers are wrong. The expectation is that they will recalculate in purple pen and check with adult and /or ask for help if unsure. Teachers are expected extending pupil's answers where required.

Maths lessons should be vocabulary rich. Tier 3 vocabulary should be written on the whiteboard in lessons and referred to during teaching. Tier 2 vocabulary should be discussed throughout the lessons and explained where necessary. [!\[\]\(a870788d6ed9b8fd294b7654a8c8526b\_img.jpg\) Reception Mathematical Vocabulary.pdf](#)

[!\[\]\(de95854c7ee024cfadc48187bbb781b2\_img.jpg\) Year 1 Mathematical Vocabulary.pdf](#) [!\[\]\(cef08d8c15d8a8acd5e25ab0d65432c3\_img.jpg\) Year 2 Mathematical Vocabulary.pdf](#) [!\[\]\(c244836fd67166dc60ebf5279a0f8377\_img.jpg\) Year 3 Mathematical Vocabulary.pdf](#)

[!\[\]\(3211b5d1d968fc1665909b34f9f16010\_img.jpg\) Year 4 Mathematical Vocabulary.pdf](#) [!\[\]\(d47ad152ec3d86a04ad64c8049e1f17f\_img.jpg\) Year 5 Mathematical Vocabulary.pdf](#) [!\[\]\(6b7fbb0b7bdb78cadf73d50851a4dfb1\_img.jpg\) Year 6 Mathematical Vocabulary.pdf](#)

### **Assessment of Learning**

Formative assessment during the lessons is consistently delivered by live marking, live feedback, hinge questions, pupils' apply activities TAD and review part of the lesson. These forms of assessment are informing Mop-up.

The assessment tracking sheets [Maths Assessment tracking sheets](#) will be completed and monitored on-going whenever the class have finished their assessment of the unit they were learning. The assessment of the completed unit should be at least 2- 3 weeks after the learning has happened to show the secure understanding.

This will inform further steps in supporting and challenging pupils' learning including designing of intervention, which are tracked by adults, who are delivering these, monitor progress(RAG rating) [RAG Monitoring Sheet](#) (please make a copy).

### **Number Fluency: Mastering Number & Number Sense**

Understanding number is the foundation of mathematics (equal to phonics in reading).

Reception and KS1 are following Mastering number lessons every day of the week.

From Year 3 to Year 6, there will be a daily 15 minute Number Sense session. These need to be delivered in a time slot different to Maths lessons. Please note, Number Sense should not be used as a replacement for recall in every Maths lesson.

Number Fluency progress needs to be monitored and assessed weekly.

The planning and resources are provided by Mastering Number and Number Sense; teachers should follow as directed by the programme but **adapted to**. **It is very important that we follow the dual counting shown in the programme** (11, 12, 13, etc & ten-one, ten-two, ten-three, etc) during sessions and in Maths lessons. The worksheet exercises can be used as part of a mental recall in extra practice; Maths lessons (where appropriate) ; for pre-teaching; for reactive teaching and/or for interventions but are not needed during Number Sense sessions.

KS2 Number Sense Session should be an engaging short lesson where focus is to explore taught strategy through: discussions, open-ended questions (informal assessment, which will guide your session), use of manipulatives and /or visual representation, which will encourage your pupils to develop flexible thinking to understand numbers. Booklets will need to be completed daily (4x a week) and one day assessment on a mixture of times tables. Number Sense provides planning and resources for interventions. Class teachers should discuss with intervention LSAs which area they would like the intervention to focus on and work together to monitor progress(RAG rating) [RAG Monitoring Sheet](#) (please make a copy)

### **Assessment of Number Fluency**

In Years 1 - 2, assessments for Fluency are completed, revised termly along with interventions (RAG monitoring sheet) and teachers are monitoring the children they have been targeting to have additional precision teaching of facts or intervention using Number Sense.

**Number Fact Fluency - waiting to improve it link to be added**

In Years 3 - 6, the Times Table Fluency programme progress (daily booklet score and weekly overview score) are completed in

This then informs interventions, for those children, who have gaps in their times table knowledge, they need to have a precision teaching intervention (to close the gaps as fast as possible).

If you need guidance with this please see subject lead or SLT.

**Times Table Fluency - waiting to improve it link to be added**

### **Number Fluency Interventions**

The pupils, who are not secure in number fluency will be assessed and assigned to a correct intervention using Number Sense, [Number Sense](#). The intervention will be monitored by using progress (RAG rating) [RAG Monitoring Sheet](#) completed by the adult, who does the intervention. The teacher will complete the overall tracking sheet [Number Fluency Intervention Tracking sheet](#) to show pupils on-going progress.

### **Planning**

Reception will use a Mastering number planning with adaptations where appropriate. [Reception Planning template](#)  
Years 1 - 6 will use the same planning template. [Year 1-6 Planning template](#)

The planning boxes should include stem sentences and key vocabulary discussed in each part of the lesson, including highlighting which vocabulary will be written on the whiteboard and referred to during the lesson. Planning boxes should also highlight where possible misconceptions will occur and ensure it explains how these will be addressed. Suggestion of open-ended questions and the type of hinge question that will be asked needs to be incorporated within the plan as well.

### **Displays**

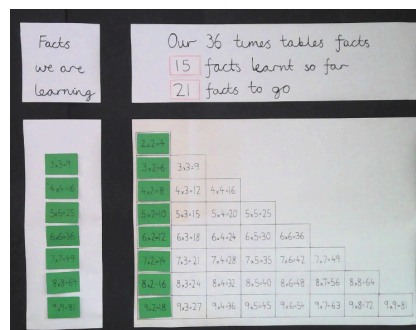
In Reception, Maths displays should revolve around the quantity being taught. Displays should contain a mix of manipulatives and photos of real life examples. Numerals should also be displayed with good examples from the children. The classroom should display a number line from 0 - 20.

In Years 1 - 6, Maths displays should be working walls. They could include for example:

- The name of the current block being taught
- Key vocabulary
- Relevant stem sentences - taken from the termly planning overview
- A concrete, pictorial and abstract display
- Relevant information from the progression document at the side for the teacher to view. This should include information from the year before and the year after so that the teacher is aware of progression in learning.
- Years 1 & 2 should have a Number Sense number facts display. Years 3 - 6 should have a Number Sense times table facts display.



Years 1 & 2 Number Fluency



Years 3 - 6 Number Sense

## Home Learning

**Reception:** 1/2 DoodleMaths assignments, with a link to DoodleMaths on the slide.

**Year 1:** Number bonds practice in the autumn and spring terms (to 10, 20 & 100), counting in 2s, 5s and 10s in the summer terms; 2-3 DoodleMaths assignments which link to the learning during the week *and* a recap assignment which recaps learning from the previous year as a preloader to the next week of maths learning.

**Year 2:** Times table practice (2s, 5s and 10s) before moving on to an expectation of 15 minutes of Garage on TTRS from Term 5 (2s, 5s and 10s); 2-3 DoodleMaths assignments which link to the learning during the week *and* a recap assignment which recaps learning from the previous year as a preloader to the next week of maths learning.

**Year 3:** An expectation of 15 minutes of Garage on TTRS with children having been set specific times tables (at least 2s, 5s & 10s); specific & ambitious times table practice (e.g. a mix of 2s, 5s & 10s / 3s / 4s); 2 DoodleMaths assignments which link to the learning during the week

**Year 4:** An expectation of 15 minutes of Garage on TTRS with children having been set specific times tables; specific times table practice which links to NumberSense; 2 DoodleMaths assignments which link to the learning during the week and recent QLA

**Year 5:** An expectation of 15 minutes of Garage on TTRS with children having been set specific times tables; specific times table practice which links to NumberSense; 2 DoodleMaths assignments which link to the learning during the week

**Year 6:** An expectation of 15 minutes of Garage on TTRS with children having been set specific times tables; CGP book work set (this replaces DoodleMaths assignments set earlier on in the year)

Heatmaps from TTRS should be sent home every 6 weeks in Years 3-6, with Year 2 sending home heatmaps from Term 5 onwards.

## **Maths Awards & Certificates**

### **DoodleMaths**

Doodle Maths trophy - The trophy is awarded to the class in each phase which has the highest % of children in the green zone (at *least* above 50%) Streaks

- 10 - 40 day streaks (increments of 10) are awarded a DoodleMaths sticker
- 50 day streak - certificate
- 100 day streak - certificate and a pencil
- 150 day streak - certificate and a ruler
- 200 day streak - certificate and a wristband
- 250 day streak - certificate and a pin badge
- Any further streaks will be certificates and a combination of the additional rewards, e.g. 300 day will be certificate, pencil and a ruler

### **TTRS**

TTRS Trophy - 1 for the school

- The TTRS trophy is awarded to the class which has improved the most in the number of correct answers in the previous 7 days

Certificates

- A certificate is awarded to the child with the highest number of correct answers in previous 7 days in their year group (Years 3-6, including Year 2 from Term 5 onwards)