



# Maths

**SUBJECT LEADER:** Nicki Bradbury

## **PLANNING GUIDELINES.**

Teachers initially plan a learning overview mapping the learning progression throughout the unit. **This will be the only aspect of planning which will be regularly used for monitoring and evaluation of provision by the subject leader and SLT.**

Teachers plan each unit of work in advance of teaching it, using units from the NC 2014. This may be planned as a whole with the proviso that it is altered as necessary to respond to children's learning (AfL) or it may be planned only a few days at a time (as long as the teacher allows sufficient time for full preparation of the lessons).

- *White Rose Hub plans (written by maths mastery hubs) are useful in guiding planning and ensuring that number sense and reasoning are developed continually as part of each lesson to give children greater dexterity and fluency in handling numbers.*
- *NCETM plans and resources follow a similar theme and may also be useful guidance.*

Teachers are to plan using the agreed school pro-forma for the Learning Overview.

Teachers are to use this grid to plan a broadly three-part Mathematics lesson, although where appropriate the structure of the maths lesson will change to facilitate different styles of learning and lessons:

1. **Mental and Oral starter** - this sometimes links to objectives within a given unit where these lend themselves to mental and oral work. They should also link to specific issues for children within the class regarding mental calculation, recall, oral and mental work on shape and measures, etc.

2. **Main Lesson** - use the objectives (Learning Intentions) taken directly from the relevant unit of the Renewed Framework using the specific “I can...” statements for each unit. Useful documents include:
  - a. Models and Images including Bar Modelling.
  - b. ITPs both NNS and Gordon’s.
  - c. Progression in Calculations Policy.
3. **Plenary** - this should refer back to the learning intention to review learning or lay the foundations for a subsequent lesson, plenaries may be used at intervals throughout the lesson to recap on learning, address misconceptions and draw the class together to consider next steps.

This lesson format is flexible but it is essential that there is a section of revise and rehearsing mental maths each lesson and also a section of reviewing and reflecting on learning.

Children in the Foundation Stage follow the Early Year’s Foundation Stage Curriculum through daily adult led Maths sessions and planned opportunities for Maths learning in continuous provision both indoors and out.

#### **ADDRESSING UNDER-ATTAINMENT / UNDER-ACHIEVEMENT**

A number of publications are in school to support teachers and teaching assistants to meet the needs of specific groups of children. The following may be used for small group work, intervention work or as resources to support whole class teaching where appropriate. Even following the demise of levels, these resources remain useful to dip into. :

- (1) **Springboard 3, 4, 5 and 6:** These give teaching and learning activities focused on the previous year’s key learning to address the needs of children falling behind national expectations.
- (2) **Moving Children On:** These booklets and CD-roms are interactive to guide teachers on addressing the needs of specific children and enable them to move to the next level in maths. Resources are available for: L1 to 2, L2 to 3 and L3 to 4. The interactive resources are largely self-explanatory and are on the T drive via folders: Curriculum, Maths, Moving Children On.
- (3) **Securing Levels:** these booklets give guidance regarding what specific levels look like in maths in terms of specific knowledge and understanding. There are no CD-roms with this resource.
- (4) **Wave 3:** This resource targets particular gaps in children’s learning and is easy to use by TAs.

**New resources linked with teaching mastery include:**

- **NCETM Teaching for Mastery Questions, Tasks to support Assessments Y1-6 in various aspects of mathematics.** These resources are useful to pinpoint and address gaps in understanding.

#### **DISPLAY** : minimum requirements

Each classroom should have the following;

- 100 square
- Number line
- Working wall with that lesson’s vocabulary.

- Learning intention
- Success criteria
- Four rules vocabulary
- Each child or group should have ready access to practical resources appropriate to their age group

Working walls should be used with prompts to support independence following whole class teaching.

### **RESOURCES:**

Centrally stored resources are kept in the cupboards in the “welly area”. Many resources are kept in class and children should have ready access to resources to support learning e.g. number lines, counters, Base 10, Cuisenaire, Numicon, multi-link, bead strings, dice, digit cards, place value cards, 100 squares, protractors, rulers, shapes, etc.

We have a strong emphasis on the use of concrete, practical apparatus to develop a solid understanding of all aspects of mathematics: number, calculation, proportional reasoning, shape, space, measure and statistics. As such we are well equipped with the necessary equipment and children are actively encouraged to use all that is provided as well as seeking additional equipment where they require it. We promote the use of practical and visual equipment as a route for good mathematicians rather than only to support children who struggle with maths. It is well documented that children are still in the concrete phase of learning for the whole of their primary years (though they will be able to use abstract processes where they have already developed a good understanding) therefore, all new concepts and concepts that aren't yet secure are approached using practical apparatus and visual models and images.

### **Computer-based resources**

**Testbase** is available on the school system - past SATs questions which may be adapted to make new resources or used in plenaries to test understanding.

**Numberfun:** each class has a Numberfun CD-Rom and teaching resources using song to convey maths concepts.

**Maths Packs:** on the network there is access to Maths Pack 2 with visual resources and also Teaching Time, Tables, Money and Measures.

**Gordon's ITPs and NNS ITPs:** these are useful for whole class teaching, modelling, demonstrating and consolidation games.

**Smartboard Software:** All computers are enabled with Smart software which can be used to create resources, models and images.

**White Rose Hub supporting resources:** including models, images and visual representations of processes to support teaching and learning.

### **OUR APPROACH TO A PROGRESSION TOWARDS FORMAL CALCULATIONS**

We believe strongly in the need to ensure that children have a solid understanding of the number system, place value and mental calculation to underpin their written calculation and any work with calculation in any area of mathematics. To this end we begin with a focus on exploring number concepts through the use of concrete apparatus: counters, beads, arrays on peg boards, Numicon, beadstrings, 5s, 10s and 20s boards, place value equipment, abacus as well as visual models and images: place value charts, number tracks, number lines, number squares, multiplication squares, arrays, etc.

We follow a clear progression in calculations always underpinned by the thought process: “Can I do it in my head? Can I do it in My head with jottings? Do I need a formal algorithm/method? Do I need a calculator?”

Our aim is for children to sue the most efficient and effective method at all times rather than following a learned method by rote with little understanding or appreciation of the number system.

As such we use the Lancashire Progression in Calculations Policies (with some adjustments to the multiplication policy as detailed below). These are found in separate files within a Maths: Progression in Calculations Policy. We supplement this with the models, images and approaches promoted by White Rose Maths in the 4 rules to assist in our teaching and the children’s learning by representing concepts in a range of ways to best access each individual child’s understanding and learning styles.

### **Appendix to Progression Towards a Written Method for Multiplication**

During Year 6, children may be introduced to the traditional vertical method of multiplication. This should only happen if they are very secure with grid multiplication, place value and the number system. It should be introduced gradually with an expanded form and making very explicit the links between grid and compact multiplication.

Children are always encouraged to use the most efficient method of calculation for all operations: mental, mental with jottings, written, compact written. They will still be encouraged to use grid multiplication the majority of the time because it is more reliable and still efficient in most situations and builds on children’s knowledge of times tables and place value.