

# 7 Planning

The main Framework for Teaching Mathematics consists of yearly teaching programmes, or programmes of study summarising objectives for each year from Reception to Year 6 (see page 38 of the NNF). Each year contains certain Key objectives to which priority should be given within planning. The NNF offers guidance in respect of planning by offering planning grids for each yearly programme. These grids indicate the topics that should be taught and the recommended number of lessons for each topic (see Section 3 NNF). Mixed age classes are catered for within the planning as the grids for Y1 and Y2 and for Y3 and Y4 and for Y5 and Y6 correspond very closely.

The DfEE have now produced further guidance on planning numeracy for pupils with SLD and PMLD (January 2000). This guidance can be found in 'The Green Box – Professional Development Materials 3 and 4'. In the box is a spiral bound book called *Guidance for Your Professional Development: Book 4*.

In Chapter 7 – Addressing Special Needs in Mathematics Lessons, page 146 suggests that SLD and PMLD schools may wish to base their planning on the National Numeracy Framework planning grids:

YR 1 and 2, use the YR planning grid  
Y3 and 4, use the Y1 planning grid  
Y5 and 6, use the Y2 planning grid.

This advice can be applied if the class has pupils who are at level 1 even if there are some pupils working at much lower levels. This ensures that expectations are appropriate and earlier objectives can be inserted for the less able pupils. However where all the pupils are working below level 1, the YR planning grid can continue to be used for pupils in Y3 to Y6.

The examples on pages 147 and 148 of the DfEE guidance assume there are a number of pupils in the class across a wide ability range. Objectives can be selected from chapter 5 to insert in the planning grid, which match the pupils needs.

This frequent revisiting of topics over the terms is proving to support pupils with learning difficulties as well.

Pupils with SEN in mainstream schools are catered for within the NNF (see pages 18–23). The philosophy of the NNF is one of inclusion and teachers are encouraged to include all pupils with SEN in whole-class mathematics lessons wherever possible, with an emphasis on support and access, with appropriate adaptations. Pupils with more complex special needs may require individual

learning programmes within the main body of the lesson. Their needs can be catered for in the 'whole-class' sessions by ensuring that the content is suitable for all pupils. Pupils' IEPs should be used to indicate modifications to the teaching programme, particularly in the main body of the lesson where they may receive additional support.

### **Principles of good planning**

**Long term plans:** the Framework – what you will teach long-term over the year, i.e. which objectives from Chapter 5 are to be taught during the year.

In the long term plan for the year, the overall teaching programme for the class needs to be identified. This will include the appropriate year's outline from the NNS Framework for Teaching Mathematics. For pupils working towards level 1, the reception pages (pages 3–5 Section 3) should be used. The Key objectives can then be pasted in to the right hand column from Chapter 5 of this book depending on the ability levels within the class. Where there are some pupils working from later objectives they can be matched and pasted in on the same grid.

**Medium term plans:** Outline of the term's work – what you will cover and when (see example on page 99 and 100).

This provides the basis for short-term planning and should focus on which of the objectives or parts of the objectives will be taught across the term.

Procedures for devising medium-term plans for pupils with severe and profound learning difficulties should reflect the planning advice on page 41 of the NNF:

- common formats for planning a balanced programme of work should be developed;
- staffing/support allocations should be agreed;
- planning deadlines should be adhered to;
- monitoring and evaluation of planning and progression should be established.

The planning grid format suggested in Section 3 should be used.

### **Short term plans:**

Short Term Plans: Lesson Weekly/Two weekly plans relating to tasks, questions, activities, grouping and staffing. [Example on pages 101–106]

Short-term planning can be on a daily, weekly or fortnightly basis, but common procedures should be established across the school.

Short-term planning is characterised by stating 'how' each topic or each objective will be taught, and by identifying resources, staffing and assessment opportunities.

Planning in the short term should take account of the following questions:

- How will I teach this?
- Which staff will be allocated to which pupil?
- What do I expect outcomes to be?
- How will I know that the pupils have made gains in knowledge?
- How much time will I allocate?

**Example medium term plan**

**Mathematics  
First Half Autumn Term  
Every day 11.00–11.45**

<b>Number of sessions</b>	<b>Topic</b>	<b>Learning objectives Pupils will be taught to</b>
5	Pattern (Objective 8)	<ul style="list-style-type: none"> <li>– talk about, recognise and recreate simple patterns</li> <li>– have a given 'blob' and an add rule to make a pattern</li> </ul>
5	Counting Comparing and Ordering (Objective 2)	<ul style="list-style-type: none"> <li>– say the number names to 5 in familiar contexts</li> <li>– recite the number names in order 1–10</li> <li>– use more/less to compare two numbers, or amounts where one number is smaller than the other</li> </ul>
5	Shape and Space (Objective 10)	<ul style="list-style-type: none"> <li>– use everyday words to describe position</li> <li>– put in order 3 objects with an evident difference in size</li> </ul>
3	Addition and Subtraction (Objective 5)	<ul style="list-style-type: none"> <li>– in practical activities and discussion, begin to use the vocabulary involved in adding and subtracting</li> <li>– understand combining and partitioning, e.g. putting things together and taking them apart</li> </ul>
2	Addition and Subtraction (Objective 6)	<ul style="list-style-type: none"> <li>– find one more, or one less, than a number up to 5</li> </ul>
5	Measures (Objective 4)	<ul style="list-style-type: none"> <li>– begin to use vocabulary of time, including before, after, next, later, earlier</li> <li>– talk about experiences, such as events in the day</li> <li>– sequence up to 3 familiar events</li> </ul>
6	Measures (Objective 4)	<ul style="list-style-type: none"> <li>– make direct comparisons of two masses, using language heavier than/lighter than</li> <li>– fill and empty containers, using language such as full/empty, holds more/less</li> </ul>
3	Assess and Review	

Total 34 days

**Example medium term plan**

**Mathematics  
Second Half Autumn Term  
Every day 11.00–11.45**

<b>Number of sessions</b>	<b>Topic</b>	<b>Learning objectives Pupils will be taught to</b>
3	Number names (Objective 1)	<ul style="list-style-type: none"> <li>– say and use the number names in order in familiar contexts</li> <li>– understand that things have labels (e.g. 2 is a label, and that numbers come in a particular order (e.g. 2 always follows 1))</li> </ul>
5	Numerals (Objective 3)	<ul style="list-style-type: none"> <li>– recognise numerals to 5 and understand each numeral has a constant shape</li> <li>– show understanding that each numeral is linked to a number name</li> </ul>
5	Shape and Space (Objective 9)	<ul style="list-style-type: none"> <li>– use language such as circle, triangle, square to describe 2D shapes</li> <li>– group and sort 2D shapes by properties (edges, corners)</li> </ul>
5	Counting (Objective 2)	<ul style="list-style-type: none"> <li>– count reliably up to 5 objects</li> <li>understand one-to-one correspondence</li> <li>– understand the twoness of 2</li> </ul>
5	Capacity and Mass (Objective 4b)	<ul style="list-style-type: none"> <li>– use of language: more than/less than to compare capacity of two containers</li> <li>– use of language: heavier than/lighter than to compare mass of two objects</li> </ul>
2	Numbers (Objective 2)	<ul style="list-style-type: none"> <li>– recognise none and zero in stories and rhymes</li> </ul>
5	Addition and Subtraction (Objective 7)	<ul style="list-style-type: none"> <li>– begin to relate addition to combining two groups of objects, and subtraction to partitioning</li> <li>– relate combining to groups of objects, e.g. 3 cups and 2 cups is 5 cups</li> </ul>
3	Assess and Review	

Total 33 days

## **Examples of short term planning**

### **Example Lesson Plan 1**

**Key objective:** Talk about, recognise and recreate simple patterns

**Specific objective:** Pupils will be able to recognise, copy and recreate simple mathematical patterns

#### **Mental oral session (10 minutes)**

Ensure that all pupils are involved in the session, either by experiencing the beat through body taps or by joining in with clapping.

- Introduce clapping patterns (e.g. clap, clap, rest, clap, clap, rest, etc.).
- Use drum to beat out a pattern (e.g. short, short, short, long, short, short, short, long, etc.).
- Peg coloured cards to washing line (e.g. red, yellow, blue, green, red, yellow, blue, green, etc.).
- Peg digit cards to number line (e.g. 5, 2, 5, 2, 5, 2, 5, 2, etc.).
- Peg large coin cards on washing line (e.g. 1p, 10p, 50p, 1p, 10p, 50p, etc.).
- Use large boxes covered in different coloured wrapping paper, arrange in a pattern (e.g. boxes covered in silver, gold, silver, gold, etc.).
- Draw mathematical pattern on white board (e.g. ||●||●||●||●).

Pupils experience the patterns. Teacher describes the pattern and asks for next one. Teacher introduces the word/symbol/sign for pattern.

#### **Main activity (30 minutes)**

Pupils are grouped by prior attainment

##### *Squares*

(P1–3) Working from own IEP targets. Working with LSAs to experience patterns using a variety of materials. Pupils to be encouraged to explore and experience the objects used in the pattern. For example, drum beat, body movements (arms out, arms in, arms out, arms in), selection of materials from above.

##### *Triangles*

(P4 & 5) Pupils given beads and string to thread to match patterns.  
Pupils use blocks to copy patterns on cards.  
Cards provided with pictures of simple mathematical patterns.

##### *Circles*

(P7 & 8) Pupils recreate patterns using a variety of materials – beads and threads – from pictures on display or patterns made by others.

**Plenary (10 minutes)**

*Circles* to show their patterns. They are passed around for pupils to explore and feel. Pupils asked what might come next. Others feel and touch patterns. Drum beat and clapping patterns to finish. All pupils to join in, with a Learning Support Assistant involved as necessary.

Key word: Pattern (to be displayed prominently in the classroom) together with lots of examples of mathematical patterns.

## **Example Lesson Plan 2**

**Key objective:** Use language such as more or less, longer or shorter, heavier or lighter to compare two quantities

**Specific objective:** Pupils will be able to compare two masses and identify which one is heavier than the other

### **Mental oral session (10 minutes)**

Each pupil is given two boxes to hold and explore – one is heavier than the other. Introduce the concept and vocabulary ‘heavier than’, ‘lighter than’ (words/symbols and signs). Pupils to hold heavier box, then lighter box. Repeat with two stones, two toys, two blocks, etc., each time teacher identifying the heavier item, then the lighter item. More able pupils asked to identify for themselves which is heavier/lighter than the other. (*Note.* Ensure items, in most cases, are the same size and same colour to avoid misconception.)

### **Main activity (30 minutes)**

Pupils are grouped by prior attainment

#### *Squares*

(P1–3) Working from own IEP targets. Working with LSAs to experience and explore pairs of similar items, one which is heavier than the other. Pupils to be encouraged to explore and experience the objects used. They should hold one first, then the other. Then they should hold one object in each hand. Teacher/LSA to reinforce vocabulary: ‘This is heavier than that’, ‘This is lighter than that’.

#### *Triangles*

(P4 & 5) Play with similar objects which have different masses. Take two and compare by feeling and exploring. With teacher direction, identify which one is heavier than the other. Choose another two and repeat, each time identifying which one is heavier/lighter than the other.

Use a wide variety of items and ensure that, in several cases, pupils are comparing items which are the same in all attributes except their mass. Pupils match the label (written or sign or oral) ‘heavier than’, ‘lighter than’, with the appropriate item.

#### *Circles*

(P7 & 8) Pupils given pairs of items which have different masses. Asked to find out which is heavier than the other, and which is lighter than the other.

Provided with a pan balance and shown how to use it. Pupils taught that the side that goes down farther than the other has the item in it which is heavier than the other. Pupils asked to find out, for each of their pairs of objects, which one is heavier than the other and which one is lighter. Pupils to put objects in pairs. All the heavier items should be placed on the left hand side and all the lighter items on the right hand side.

**Plenary (10 minutes)**

Pupils from the *circles* group to 'show and tell' others about the pan balance and demonstrate its use using two new items. Some items (e.g. blocks) are given to all pupils to feel and explore and compare for themselves. Teacher labels (written flash card, sign, orally) the heavier and lighter items.

At end of the lesson create an interactive table display of pairs of items identifying which one is heavier than the other, which one is lighter than the other. Display to include pan balance for use by pupils in unstructured time.

Key words: Heavier than, lighter than (to be displayed with items on table).

### **Example Lesson Plan 3**

**Key objective:** Count reliably up to 10 everyday objects

#### **Mental oral session (10 minutes)**

Arrange three pupils at the front of the classroom, facing the rest of the group. Say 'today we are going to count how many pupils there are because we need to know how many dinners to order'. Count the three pupils ensuring that

- each pupil is touched as they are counted;
- the number name is said/signed as they are counted;
- the last number said is declared as the total.

Count them again, this time placing a large sign around their necks with the number written on, ensuring that the above points are again followed. Pupils return to their places. Pupils are given a number of items to count (these may be placed on their trays or in their laps).

Teacher/Learning Support Assistant (LSA) helps pupils count by touching/pointing to each item (differentiate for prior attainment).

Teacher holds up puppets at the front of the class and pupils count together focusing on pointing to each one as number is said/signed, and the last number said is the total count. Repeat with other items, e.g. soft toys, other pupils, bricks, pencils.

#### **Main activity (30 minutes)**

Pupils are grouped by prior attainment

##### *Squares*

(P1–3) Working from own IEP targets. Working with LSAs to experience and explore one item, as the LSA says the word/signs 'one'. Then two items – the LSA touches the first and says/signs 'one' then passes the second item and says/signs 'two'. LSA says 'There are two . . .' Items to use, bricks/toys/pencils/cups/cards, etc.

##### *Triangles*

(P4 & 5) Pupils given two items (e.g. bears/toys/pencils/bricks/cubes, etc.). Asked 'How many have you got?' With help, joins in touching/pointing/eye pointing to each one in turn saying/signing with each 'one, two'. Pupil then says/signs 'I have two . . .'. Pupils given digit cards to hold up – teacher puts 1 or 2 items on their tray, pupils asked to hold up correct card to indicate how many items they have on their tray. Additionally pupils asked the following questions, and have to hold up digit card in response, or hold up correct number of fingers to say/sign number.

- How many arms have you got?
- Ears?

- Eyes?
- Noses?
- Legs?
- Mouths?
- Feet?
- Hands?
- Tummies?

*Circles*

(P7 & 8) Pupils shown a washing line. Teacher/LSA pegs a number of socks on the line. Pupils asked 'How many socks are on the line?' Pupils touch/point/eye point each in turn and identify correctly number of socks, then say/sign the answer. Other items are pegged on the line, e.g. jumpers, shorts, gloves, hats and other items of clothing. Increase number of items to stretch pupils' counting ability. Reinforce with digit cards.

**Plenary (10 minutes)**

String washing line across classroom so all pupils can see.

Peg on a few items. Pupils to count and hold up digit card to represent total.

Differentiate for triangles/squares/circles.

Key words: Count, one 1, two 2, three 3, etc. Have all displayed prominently around the classroom including on a number line.