Toll Bar Primary School

Mathematics Policy

1 Aims and objectives

1.1 Mathematics teaches us how to make sense of the world around us through developing a child's ability to calculate, to reason and to solve problems. It enables children to understand and appreciate relationships and pattern in both number and space in their everyday lives. Through their growing knowledge and understanding, children learn to appreciate the contribution made by many cultures to the development and application of mathematics.

1.2 The aims of mathematics are:

- To promote enjoyment and enthusiasm for learning through practical activity, exploration and discussion;
- To promote confidence and competence with numbers and the number system;
- To develop the ability to solve problems through decision-making and reasoning in a range of contexts;
- To develop a practical understanding of the ways in which information is gathered and presented;
- To explore features of shape and space, and develop measuring skills in a range of contexts;
- To understand the importance of mathematics in everyday life.

1.3 As a Primary School it is very important to create an agreed whole school approach of which staff, children, parents, governors and other agencies have a clear understanding.

2 Teaching and learning style

2.1 The school uses a variety of teaching and learning styles in mathematics lessons. Our principal aim is to develop children's knowledge, skills and understanding in mathematics. We do this through a daily lesson that has a high proportion of whole-class and group-direct teaching. During these lessons we encourage children to ask as well as answer mathematical questions. They have the opportunity to use a wide range of resources such as number lines, place value cards, number squares, digit cards and small apparatus to support their work. These are organised in tool boxes to which children have access for every mathematics lesson and the contents of which the children are trained in using. Mathematical dictionaries are available in all classrooms. Children use ICT in mathematics lessons where it will enhance their learning, as in modelling ideas and methods. Wherever possible, we encourage the children to use and apply their learning in everyday situations.

2.2 In all classes there are children of differing mathematical ability. We recognise this fact and provide suitable learning opportunities for all children by matching the challenge of the task to the ability of the child. We achieve this through a range of strategies – in some lessons through differentiated group work, and in other lessons by organising the children to work in pairs on open-ended

problems or games. We use classroom assistants to support some children and to ensure that work is matched to the needs of individuals.

2.3 Resources of time, people and equipment are planned, budgeted for and detailed according to the needs of individuals.

3 Mathematics curriculum planning

3.1 Mathematics is a core subject in the National Curriculum, and we use the National Numeracy Strategy as the basis for implementing the statutory requirements of the programme of study for mathematics.

3.2 In 2007 the introduction of the Primary Strategy for both literacy and mathematics support the NNS and has reviewed expectations of children within mathematics.

3.3 We carry out the curriculum planning in mathematics in three phases (long-term, medium-term and short-term). The National Numeracy Strategy Framework for Teaching gives a detailed outline of what we teach in the long term, while our yearly teaching programme identifies the key objectives in mathematics that we teach in each year.

3.4 Our medium-term mathematics plans, which are adopted from the Framework and give details of the main teaching objectives for each term match to mixed aged groups. They ensure an appropriate balance and distribution of work across each term. These plans are kept and reviewed by the mathematics subject leader.

3.5 It is the class teacher who completes the weekly plans for the teaching of mathematics. These weekly plans list the specific learning objectives for each lesson and give details of how the lessons are to be taught. The class teacher keeps these individual plans, and the class teacher and mathematics subject leader often discuss them on an informal basis.

3.6 Where appropriate teachers will receive regular updates through the subject leader and any relevant training will be offered to all staff (Teachers and TA's) to improve their professional development.

3.7 Children identified from teacher assessment and non-statutory SATS results will receive specific targeted support in the form of structured support schemes including Max's Marvellous Mathematics, Monster Mathematics, Springboard 3, 4, 5, 6, Wave 3 and Spaced Out, teachers and support staff will be offered training to remain up to date with recent changes.

4 The Foundation Stage

4.1 We teach early mathematical skills in the nursery and reception class. We relate the mathematical aspects of the children's work to the objectives set out in the Early Learning Goals, which underpin the curriculum planning for children aged three to five. We give all the children ample opportunity to develop their understanding of number, measurement, pattern, shape and space through varied activities that allow them to enjoy, explore, practise and talk confidently about mathematics.

5 Calculation Policy

5.1 At Toll Bar Primary we recognise the importance of establishing a secure foundation in mental calculation and recall of number facts before standard written methods are introduced.

We use a mathematics learning wall to support and assist children and their learning. This displays targets, objectives, vocabulary as well as visual aids to support visual, auditory and kinaesthetic learners.

5.2 Mathematics contributes to many subjects and it is important the children are given opportunities to apply and use Mathematics in real contexts.

> "It is important that time is found in other subjects for pupils to develop their Numeracy skills, e.g. there should be regular, carefully planned opportunities for measuring in science and technology, for the consideration of properties of shape and geometric patterns in technology and art, and for the collection and presentation of data in history and geography." NNS (1999)

We endeavour at all times to set work that is challenging, motivating and encourages the pupils to talk about what they have been doing.

5.3 The school has developed and agreed a whole school calculation policy which supports and structures the approach to mathematical addition, subtraction, multiplication and division.

The approach specifically sets out how the staff at Toll Bar Primary teach and guide children through calculation strategies. The underlying theme throughout the policy is that children must have a secure foundation in mental calculation before being introduced to written methods both formal and informal.

5.4 Mental Mathematics Challenge

At Toll Bar Primary School we have identified a need to improve mental mathematics calculations. As a school from Year One upwards children will take part in a ten minute practice of mental mathematics, three times a week. This will reinforce learning from the daily mathematics lesson as well as putting mental calculations in the practical situations and recognising patterns in numbers.

5.5 Presentation Policy

The staff have agreed and developed a policy of oral and written presentation with regard to mathematics. The document gives structure to all staff in the expected presentation of written mathematics. It gives both staff and children a common approach and guidelines to the marking criteria and the recognised achievement of children in respect of mathematics.

6 Contribution of mathematics to teaching in other curriculum areas

6.1 English

Mathematics contributes significantly to the teaching of English in our school by actively promoting the skills of reading, writing, speaking and listening. For example, we encourage children to read and interpret problems in order to identify the mathematics involved. The children explain and present their work

to others during plenary sessions. Younger children enjoy stories and rhyme that rely on counting and sequencing. Older children encounter mathematical vocabulary, graphs and charts when using non-fiction texts.

6.2 Information and communication technology (ICT)

Children use and apply mathematics in a variety of ways when solving problems using ICT. Younger children use ICT to communicate results with appropriate mathematical symbols. Older children use it to produce graphs and tables when explaining their results or when creating repeating patterns, such as tessellations. When working on control, children use standard and non-standard measures for distance and angle. They use simulations to identify patterns and relationships.

6.3 Personal, Social and Health Education (PSHE) and Citizenship

Mathematics contributes to the teaching of personal, social and health education, and citizenship. The work that children do outside their normal lessons encourages independent study and helps them to become increasingly responsible for their own learning. The planned activities that children do within the classroom encourage them to work together and respect each other's views. We present older children with real-life situations in their work on the spending of money.

6.4 Spiritual, moral, social and cultural development

The teaching of mathematics supports the social development of our children through the way we expect them to work with each other in lessons. We group children so that they work together, and we give them the chance to discuss their ideas and results. The study of famous mathematicians around the world contributes to the cultural development of our children.

7 Teaching mathematics to children with special educational needs

7.1 At our school we teach mathematics to all children, whatever their ability. Mathematics forms part of the school curriculum policy to provide a broad and balanced education to all children. Through our mathematics teaching we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Assessment against the National Curriculum allows us to consider each child's attainment and progress against expected levels.

7.2 When progress falls significantly outside the expected range, the child may have special educational needs. Our assessment process looks at a range of factors – classroom organisation, teaching materials, teaching style, differentiation – so that we can take some additional or different action to enable the child to learn more effectively. This ensures that our teaching is matched to the child's needs.

7.3 Intervention through School Action and School Action Plus will lead to the creation of an Individual Education Plan (IEP) for children with special educational needs. The IEP may include, as appropriate, specific targets relating to mathematics.

7.4 We enable pupils to have access to the full range of activities involved in learning mathematics. Where children are to participate in activities outside the classroom, for example, a mathematics trail, we carry out a risk assessment

prior to the activity, to ensure that the activity is safe and appropriate for all pupils.

8 Assessment and recording

8.1 We assess children's work in mathematics from three aspects (long-term, short-term and medium-term). We make short-term assessments which we use to help us adjust our daily plans. These short-term assessments are closely matched to the teaching objectives.

8.2 We make medium-term assessments to measure progress against the key objectives, and to help us plan the next unit of work. We use termly tests to help with target setting.

8.3 We make long-term assessments twice yearly, and we use these to assess progress against school and national targets. We can then set targets for the next school year and make a summary of each child's progress before discussing it with parents. We pass this information on to the next teacher at the end of the year, so that s/he can plan for the new school year. We make the long-term assessments with the help of end-of-year tests and teacher assessments. We use the national tests for children in Year 2 and Year 6, plus the optional national tests for children at the end of Years 3, 4 and 5. We also make annual assessments of children's progress measured against the level descriptions of the National Curriculum. Standardised scores from the above will be entered on the year group tracking sheets.

8.4 The mathematics subject leader uses the DCSF Standards Booklet to demonstrate what the expected level of achievement is in mathematics in each year of the school.

8.5 Records are kept for all children plotting their progress against the end of year expectations. Each child will be monitored against key objectives and against level descriptions of the National Curriculum.

8.6 Children's progress is tracked bi-annually by class teachers showing progress if any and highlighting children not making progress so that interventions can be planned.

The subject leader tracks children throughout the school and offers suggestions about the best intervention where appropriate whilst also offering extensions support for those recognised as gifted and talented.

8.7 The staff at Toll Bar Primary School regularly set targets to enable children to be aware of the next steps in mathematics. The targets are regularly reviewed, recorded, and displayed in the classroom on tables and in planners.

The target setting process informs teachers of progress, misconceptions and challenge for the class groups and individuals.

Targets are collected and monitored by the subject leader and Headteacher and these contribute to the end of Key Stage percentage targets set by the LA and Governing body.

9 Resources

9.1 There is a range of resources to support the teaching of mathematics across the school. All classrooms have 100 squares, counting sticks, vocabulary aids, individual mathematical toolboxes for each child, a variety of number lines and a wide range of appropriate small apparatus. Mathematical dictionaries are available in classrooms. Calculators and a range of audio visual aids are also available in classrooms. A range of software is available to support work.

9.2 Published schemes are to be used with discrimination. New concepts and topics should always be introduced through appropriate oral and practical with the computers.

10 Equal Opportunities

10.1 We incorporate mathematics into a wide range of cross curricular subjects and seek to take advantage of multicultural aspects of mathematics e.g. Islamic patterns in RE.

All children have equal access to the curriculum regardless of their gender. This is monitored by analysing pupil performance throughout the school to ensure that there is no disparity between groups.

11 Parental Involvement

11.1 At Toll Bar Primary School we encourage parents to be involved by: -

- Inviting them into school twice yearly to discuss the progress of their child.
- Inviting parents into school in the summer term to discuss the yearly report.
- Circulating termly newsletters informing parents of features of the mathematics curriculum to be focused upon that term.
- Inviting parents of Year 2 and 6 pupils to a meeting in October with the intention of encouraging their support for the children preparing for their SATs.
- Encouraging parents to help in classrooms.

11.2 Homework

Children from Year 1 upwards are set homework on a regular basis (ideally weekly) and this has the intention of reinforcing key concepts being taught in the daily mathematics lesson.

There is an expectation that parents will support children in completing the work set and encourage children to seek further support if necessary. It is recommended that parents use the individuals planner to communicate any difficulty or extreme ease at completing homework.

The school has undertaken an agreement to be signed by pupil, parent and teacher which declare each will support and complete any homework set.

12 Monitoring and review

12.1 Monitoring of the standards of children's work and of the quality of teaching in mathematics is the responsibility of the mathematics subject leader and the Headteacher. The Head and subject leader meet for a termly review of children's progress and to review targets. The work of the mathematics subject leader also involves supporting colleagues in the teaching of mathematics, being informed about current developments in the subject, (a half termly Doncaster LA meeting is attended) and providing a strategic lead and direction for the subject in the school.

12.2 The mathematics subject leader gives the Headteacher an annual action plan in which she evaluates strengths and weaknesses in the subject and indicates areas for further improvement.

12.3 The Headteacher allocates regular management time to the mathematics subject leader on a rolling programme with other subject leaders so that she can review samples of children's work and undertake lesson observations of mathematics teaching across the school. The LA Advisory teacher is also invited to observe lessons with the subject leader and review developments within the school.

12.4 A named member of the school's governing body is briefed to oversee the teaching of numeracy. This governor meets regularly with the subject leader to review progress and on occasions observes lessons.

The governor is invited to relevant school INSET and has been offered the opportunity to participate in relevant training. The governor will then report back to the curriculum committee on a regular basis.

13 Reporting to parents

13.1 Parents will be consulted under the SEN policy if special needs are noted during the year.

13.2 Mathematics is part of the annual written report issued during the summer term. N.C. levels are reported at the end of each Key Stage.

Signed: Y J Whaley Mathematics subject leader

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Next review March 2010