**Kensington Primary School**

**Mathematics Policy (Updated January 2015)**

## Rationale

Mathematics is all around us and it underpins much of our daily lives and our future as individuals and collectively. At Kensington our aim is to ensure that all children have the best grounding in mathematics and that they are challenged regularly to grow in their love of mathematics.

## Aims:

At Kensington we actively aim to:

- Develop a fascination and love for investigating, problem solving and application of knowledge, in a variety of contexts.
- Provide a relevant, challenging and enjoyable mathematics curriculum for all pupils;
- Meet the requirements of the National Curriculum programmes of study;
- To enable all students to understand the value of mathematics in everyday situations;
- Raise standards and achievement levels in mathematics both independently and in co-operation with others
- To progressively roll out Maths Mastery from September 2015
- Ensure that all students know the times tables up to 12 by the end of Year 4 (to begin September 2015)

## Objectives:

- To give students opportunities in daily maths lessons to use and apply learning to real life situations and contexts;
- Encourage students to work logically and systematically in problem solving and multi-step problems;
- Develop the use of mathematical language through speaking and listening to include reasoning and explanations;
- Explore and develop a range of strategies for both written and mental calculation;
- To develop the skills of effective use of apparatus and concrete materials;
- To develop confidence, knowledge and skills of the Support Staff;
- To develop effective use of ICT based apparatus in lessons regularly.

## Planning and Organisation

In the Foundation Stage class' mathematics is taught in accordance with the Maths Mastery Programme. Foundation stage children are taught in a way that promotes

play, social skills and the development of mathematical language and understanding through real life contexts. Mathematics is taught approximately in 45 minute daily lessons to ensure coverage of all EYFS objectives throughout the year. The provision for FS provides a bridge from the Early Learning Goals to the National Curriculum requirements in Year 1.

In Key Stage 1 and 2 each year group will follow the Kensington Primary School medium term plans. These provide teachers with a clear learning journey and ensure curriculum coverage based on the New Curriculum Document. Each year group will focus on a particular Strand each half term with opportunities provided to revisit Number and other prior learning.

*NB: Year 3, 4, & 5 are currently working from the medium term plans. The rest of the school not working from the Maths Mastery Programme will be working from these from September 2015*

**Foundation Stage**

| **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
|---|---|---|---|---|---|
| Maths Mastery | | | | | |

**Year 1**

| **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
|---|---|---|---|---|---|
| Maths Mastery | | | | | |

**Year 2**

| **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
|---|---|---|---|---|---|
| Maths Mastery | | | | | |

**Year 3**

| **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
|---|---|---|---|---|---|
| Number | Fractions Number | Measurement Number | Geometry Number | Statistics Number | Teacher choice based on need |

**Year 4**

| **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
|---|---|---|---|---|---|
| Number | Measurement Number | Geometry Number | Statistics Number | Fractions Number | Teacher choice based on need |

**Year 5**

| **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
|---|---|---|---|---|---|
| Number | Measurement Number | Geometry Number | Statistics Number | Fractions Number | Teacher choice |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | based on need |

**Year 6**

| **Autumn 1** | **Autumn 2** | **Spring 1** | **Spring 2** | **Summer 1** | **Summer 2** |
|---|---|---|---|---|---|
| Number-PV/Number properties 4 operations | Measurement Number (Fractions) | Geometry Number (Algebra) | Statistics Number (Revision) | Revision Using and applying | Using and applying |

Teachers use this teaching timeline as the basis for each terms planning.

Long Term Planning – The New National Curriculum Document.

Medium Term Planning – The Kensington Primary School Medium Term Plans

Short Term Planning – Weekly plans that include (consistent with school planning template): learning intentions, success criteria, activities for learning including 'Do now' talk tasks and transition ideas, differentiated tasks, challenges, links to The National Curriculum statements, a plenary, star words and resources required.

*(See appendix)*

In addition to this students will be expected to learn and know the following times tables (to begin September 2015):

| | **Autumn** | **Spring** | **Summer** |
|---|---|---|---|
| **EYFS** | Number bonds to 10 | Number bonds to 20 | 1/10 more and less than |
| **Year 1** | x1, x2 | x1, x10 | x5, x10 |
| **Year 2** | x1, x10, x11 | x2, x4 | x2, x4, x8 |
| **Year 3** | x3, x6 | Xx, x6, x12 | x3, x6, x9, x12 |
| **Year 4** | x2 + x5 = 7 | ALL | ALL |
| **Year 5** | ALL | ALL | ALL |
| **Year 6** | ALL | ALL | ALL |

**20/20 and 144 clubs (To begin September 2015)**

When students in KS1 know all their number bonds they will be become a member of the 20/20 club (badges will be given out half termly in assembly).

When students in KS2 know all their times tables they will become a member of the 144 club (badges will be given out half termly in assembly).

**NB: Students will be tested half termly to join the club and those already a member need to pass the test again to stay a member.**

**Approaches to Teaching and Learning**

We aim to provide all students in Reception 45 minutes and all students in KS1 and KS2 1 hour of mathematics every day. They will experience a range of whole class, group and individual learning and students will be placed in ability groups either within their classrooms or across the year groups. Teaching styles and lesson structure will provide opportunities for students to access new learning, consolidate previous learning, use and apply learnt skills and knowledge, display understanding, pose and ask questions, investigate mathematical ideas, reflect on their own learning and make links with other work.

Our approach to teaching is based on six key principles:

- a dedicated mathematics lesson every day;
- direct teaching, questioning and interactive oral starters (when appropriate);
- effective challenge and differentiation for the range of abilities in the classroom;
- Pacey and succinct lesson content pitched at children's next steps.
- Use of 3 stages of learning- concrete materials, pictorial and number properties (to begin September 2015)
- Students using star words in full sentences (to begin September 2015)

A proportion of each lesson (in most cases) will be spent on direct teaching and questioning of the whole class, groups or individuals. There should be if applicable an appropriate range of elements in the teaching, namely directing, instructing, modelling, explaining and illustrating, questioning and discussing, consolidating, evaluating responses, summarising and challenging. Students should be encouraged to make decisions, communicate their understanding to others, explain and to reason. Teachers aim should be to create an environment where students are secure and feel confident in being able to take risks in their learning.

Teachers are responsible for planning and teaching all elements of the mathematics curriculum to their students. The mathematics subject leader provides support and guidance to all teachers. Teacher planning will be monitored half termly by SLT along with the subject leader.

Students are expected to record their learning regularly (4-5 times a week) in mathematics books: photographs can suffice accompanied by observation notes for practical work. Daily recording should represent independent work underpinned by high expectations for outcome and presentation. Worksheets should be kept to a minimum. The students' mathematics books will be monitored each half term by SLT along with the subject leader. Lessons could end with a plenary.

**Additional Adults**

Teachers are supported by teaching assistants, whose work is directed by the teacher. In general, their role is to help the students they work with access the curriculum and make as much progress in lessons as possible. They take part in staff development and have regular discussions with teachers about the purpose of activities and the progress that students they work with make. Teaching assistants are required to mark student work and give next step comments of the students they are working with.

**Setting**

The settings for class groupings are flexible at Kensington and will reflect the needs of the class and the outcomes of PPM's. Mathematics sessions will involve the successful deployment of whole class teaching, guided group work with mixed and ability groupings, paired work and individual activities.

In Years 1, 2 3, 4, 5 and 6, children can be set according to their mathematics attainment and taught accordingly. Teachers are encouraged to make professional judgements regarding setting to meet the needs of the children.

**Modelling**

Teachers should be modelling how to answer mathematics questions using visual models and images to aid learning. Teachers should think aloud 'talk for maths' and explain how they might break down calculations or problems, using formal and informal written methods or diagrams, therefore modelling what the children will need to do for themselves.

**Calculation guidance (refer to appendix)**

Teachers should refer to the year group expectations as a basis for the calculations that they are teaching. Calculation approaches should be differentiated according to the children**,** though year group expectations should always be aspired to.

**Speaking and listening**

At Kensington we believe that speaking and listening is integral for the learning of mathematics. Therefore, within every lesson speaking and listening activities should be encouraged and key questions planned for. Children should be encouraged to answer in full sentences using key mathematical vocabulary to justify their ideas.

Ideas for teachers:

Why is *** the answer?
Why can **** not be the answer?
Can you explain how you came to your answer?
Can you explain how your partner came to that answer?

Key mathematics topic words or star words should be displayed on the Mathematics Learning Wall and referred to during the lesson so that they are rehearsed and used within a context and in full sentences. Correct mathematical vocabulary (star words) should be used at all times through out the school.

**ICT**

Opportunities to use ICT to support teaching and learning in Mathematics will be planned for and used appropriately, including the versatile use of the IWB, Ipads and laptops in The Early Years, KS1 and KS2.

**Resources**

In addition to the maths equipment located in each classroom, resources are held centrally in the resource room, located in the shed. Any additional requests for mathematics resources, to support teaching and learning, should be made directly to the subject leader. Each group in each class will have a small box of equipment everyday on their tables to support and develop learning (to begin September 2015).

| **Year 1 Contents** |
|---|
| |
| Dice x6 |
| Arrow cards (H,T,U) x2 |
| 100 Dienes x2 |
| 10 Dienes x10 |
| Units |
| Beadstring x6 |
| Counters |
| Multilink Cubes |

| **Year 2 Contents** |
|---|
| |
| Dice x6 |
| Arrow cards (H,T,U) x2 |
| 100 Dienes x5 |
| 10 Dienes x5 |
| Units |
| Beadstring x3 |
| Counters |
| Multilink Cubes |

| **Year 3 Contents** |
|---|
| |
| Dice x6 |
| Arrow cards (H,T,U) x2 |
| Mirrors x3 |
| Small protractors x3 |
| 100 Dienes x5 |
| 10 Dienes x5 |
| Units |
| Beadstring x3 |
| Counters |
| Multilink Cubes |

| **Year 4 Contents** |
|---|
| |
| Dice x6 |
| Arrow cards (H,T,U) x2 |
| Mirrors x3 |
| Small protractor x3 |
| 100 Dienes x5 |
| 10 Dienes x5 |
| Units |
| Beadstring x3 |
| Counters |
| Multilink Cubes |

| **Year 5 Contents** |
|---|
| |
| Dice x6 |
| Arrow cards (H,T,U) x2 |
| Mirrors x3 |
| 180 degrees Small protractor x3 |
| 360 degrees protractor x3 |
| 100 Dienes x5 |
| 10 Dienes x5 |
| Units |
| Beadstring x2 |
| Counters |
| Multilink Cubes |

| **Year 6 Contents** |
|---|
| |
| Dice x6 |
| Arrow cards (H,T,U) x2 |
| Mirrors x3 |
| 180 degrees Small protractor x3 |
| 360 degrees protractor x3 |
| 100 Dienes x5 |
| 10 Dienes x5 |
| Units |
| Beadstring x2 |
| Counters |
| Multilink Cubes |
| |

**Learning Environment**

All classrooms should have at least one Mathematics board displaying children's work in a colourful and attractive way. Key Vocabulary (star words) will be displayed

to support children's understanding of mathematical concepts and when possible supplemented with visual images.

**Inclusion**

The daily mathematics lesson must be accessible for all students. Teachers will involve all students through differentiating:

- Success Criteria (levelled where appropriate)
- Challenging Tasks
- Questioning
- Teaching Styles
- Use of colour semantics
- Resources

It is the responsibility of the class teacher, in collaboration with the inclusion team, to ensure that the needs of each individual student are being met. Activities should reinforce and challenge student's understanding and love of the subject. Students identified as more able should be given open-ended tasks and challenging investigations to solve problems and find solutions. EAL children will have key vocabulary displayed and illustrated to develop subject-specific language.

**Intervention**

The subject leader along with classroom teachers will be responsible for analysing school wide data every half term through PPM's. Students who are identified as making inadequate progress or working two sublevels below national expectations will be flagged as 'at risk' children. These students will be provided with a targeted programme in the classroom and/or intervention programmes. These will be monitored and impact measured every half term through Pupil Progress Meetings with SLT.

**Parental Involvement**

The link between home and school is forged in a number of ways. Our Maths workshops will take place once a term for all children in KS1 and KS2, where parents will be invited to learn what is being taught in the mathematics curriculum and how best to support them at home.

In addition, parents are given guidance on calculation strategies taught at school during parent review days to support work been done at home.

**Assessment and Record Keeping**

Assessment both formative and summative is an integral part of teaching and learning in mathematics. Assessment for Learning takes place through daily observations, focused questioning, guided group work and marking children's work. Planning is annotated daily and assessment data is recorded on Daily planning sheets and APP grids.

- Reception children will follow end of Foundation Stage assessments
- End of Key stage 1 and 2 SATs will take place.
- Optional QCA tests will take place every half term for Years 3,4 and 5.

- Years 1 and 2 will carry out teacher assessment using the APP grids but will end the year with a published assessment pack to inform APP judgements.
- Assessment Trackers will be kept and a traffic light system used to track children's progress for all learning objectives.

**Target Setting**

Targets are set using the NAWKI framework. This enables teachers to set level-appropriate targets. They are reviewed regularly (at least fortnightly) with the children. The sub-levelled target sheets are then reviewed at each assessment window and updated where relevant.

**Monitoring and Evaluation**

Regular monitoring is used to evaluate how effective the teaching and learning is in raising standards. Monitoring focuses on those aspects of our work that have direct relevance to pupils and their learning, namely:

- what the pupils are learning;
- their attitudes to learning (pupil voice);
- the standards they attain;
- the quality of planning, teaching and assessment.

Evaluation of this information informs strategic planning and the subject action plan

To do this the following monitoring activities take place across the school year in line with the school's monitoring calendar.

- looking at pupils' work;
- talking with a sample group of pupils;
- observing lessons;
- looking at teachers' planning;
- discussing with staff, students, parents and the governing body;
- analysing a range of data and records (e.g. assessments and test results).
- moderation

This will be carried out by SLT and the subject leader.

**Role of The Mathematics Subject Leader**

The subject leader will be responsible for improving standards of teaching and learning in Mathematics through:-

- Student Progress
- Provision of Maths (including intervention and support programmes)
- The quality of the learning environment
- Taking the lead in policy development
- Auditing and supporting colleagues in their CPD
- Purchasing and organising resources
- Keeping up to date with Mathematics developments

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