

Riverside Junior School

Nurture : Inspire : Challenge to develop **Creativity : Love of Learning : Excellence**

Overview of Approach

Rationale:

Mathematics is a body of knowledge, which provides a way of viewing and making sense of the world. It is used to analyse and communicate ideas and information and to tackle a range of practical tasks and real life problems.

Aims:

At Riverside our aims are that all children will:

- Enjoy the subject and study it with confidence and a sense of achievement
- Become fluent in the fundamentals of mathematics (have 'facts at their finger tips') & make connections between different areas of the subject
- Have the confidence to solve problems (word problems and investigations) and persevere in seeking solutions
- Reason mathematically by following a line of enquiry, work together and reach a consensus
- Be given sufficient time for thinking, for dialogue and to communicate their findings using appropriate vocabulary
- Use their numerical skills widely in everyday situations and be prepared for secondary school
- To take charge of their learning and know what they need to do to improve

PRINCIPLES OF THE TEACHING AND LEARNING OF MATHEMATICS

Planning:

Planning begins from a thorough understanding of children's needs gleaned through effective and rigorous assessment and tracking, combined with high expectations and ambition for all children to achieve.

Mathematics is a core subject of the National Curriculum 2014 arranged into lower (Year 3 & 4) & Upper (Year 5 & 6) Key stages. The planning structure is organised into four areas:

- Number: Place value, Addition & subtraction, Multiplication & Division, Fractions
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Riverside Junior School

Nurture : Inspire : Challenge to develop **Creativity : Love of Learning : Excellence**

- Measurement
- Geometry: Shape, Position & direction
- Statistics
- These areas are described separately but have many connections between them. The teaching plans must cover all areas and must help children explore the links that exist between the different parts.
- Medium term planning will outline the areas of mathematics that will be taught during the term to ensure coverage of the National Curriculum. Each half term will begin with calculations & place value (as outlined in the scheme of work). Opportunities for cross curricular links are exploited where possible.
- Where children are working significantly above or below age related expectations, and where extending this by expanding the learning objective seems inappropriate, objectives from higher or lower age-groups will need to be planned and taught.
- Planning, where possible, should involve real life contexts for maths, where children are problem solving with a purpose in mind. Skills of problem solving can be taught. (see Appendix A)

Teaching Principles:

Mathematical learning builds from a concrete understanding of concepts where children are manipulating objects. When children are able to see concepts this way, they then need to understand the same concepts represented pictorially. Children are then ready for abstract representation before being able to apply their knowledge to different situations.

- Mathematics teaching takes place for 5 hours per week. It should provide a balance of exploration, acquisition, consolidation and application with time built in to review the children's learning with them.
- A progression towards efficient written calculations should be developed and applied consistently in each year-group. The school Calculation Policy should be followed.
- Children should be encouraged at all times to communicate their understanding of maths so that it clarifies their thoughts.
- Children's mental maths is of great importance, with number bonds, times tables facts and various strategies for calculation taught and practised at school with support sought from parents through homework activities.

Riverside Junior School

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- Teachers should give well-directed opportunities for children to use and apply their learning in problem solving and investigational activities.
- Calculators are used in upper KS2 to enable children to work on investigational activities without the need to focus on computation, and as a way of checking their mental calculations. They are not a substitute for pencil and paper methods.

Deployment of Teaching Assistants:

- Supporting group activities
- Supporting the class while the teacher works with a specific group
- Providing extra help for specific children (including interventions) as directed by the class teacher

Assessment:

- Assessment for learning should occur throughout the entire maths lesson, enabling teachers/teaching assistants to adapt their teaching/input to meet the children's needs.
- On a daily basis children should self-assess against the learning objective using a traffic light system.
- Pupil's work should be marked in line with the Marking Policy. Three ticks applied to the learning objective & Close The Gap Marking used at least once a week.
- Formative assessment is ongoing by the class teacher and marked on the AM (Assertive Mentoring) in the child's maths folder.
- Summative assessments are made once per half term using AM tests in order to provide further understanding of a child's abilities. This information is recorded on the AM sheets & clearly tracks a child's progress as the year progresses.
- Tracking is used in order that children who are not making good progress over time can be targeted for support. The nature of the support depends upon the child's needs and it may be a simple strategy within whole class teaching that is needed.
- Where further support is deemed necessary, children can access interventions, explained below.
- Targets can be highlighted on the AM sheet and made child friendly by cross referencing to the prompt sheets in the maths file.

Tracking and Intervention:

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- At Riverside we aim to provide children who are not making good progress, with extra support through interventions.
- Intervention provided to boost children's progression in maths should be tightly planned, with success criteria set and assessments made frequently to ensure progress is being made.
- Whilst interventions could be carried out by Teaching Assistants, what is being taught and how it is delivered is the class teacher's responsibility and communication is essential.
- Each half term the progress of ability groups, those entitled to the Pupil Premium and those with a Special Educational Need is examined, as are children who are making progress but below Age Related Expectations. This data is examined as part of teacher performance review meetings and appropriate interventions are planned.

Display and Resources:

- In the classrooms there should be a working wall with the weekly focus & learning objectives stated. Mathematical vocabulary and calculation policy should be displayed and where relevant there should be examples of the children's work.
- Practical resources should either be on display or easily accessible to children, particularly concrete and pictorial apparatus to help children to grasp concepts. Resources to help learners with dyslexia and dyscalculia are available in every classroom: numicon materials, number lines and squares, multiplication tables, mathematical symbols etc.
- Once a year mathematics is the focus for the hall display in order to encourage a positive attitude and enthusiasm towards the subject.
- Centrally held resources are kept in the Learning Pod and all classes have access to laptops and tablets to supplement learning. To assist the teaching there is the published scheme, Abacus Evolve. However, the teachers should use resources which best fit the success criteria.

Monitoring:

Monitoring of children's progress begins with performance review meetings but continues with the subject leader evaluating further evidence to ensure children are making progress. This monitoring happens through examination of work in books, pupil interviews and learning walks.

Other policies and documents to be read in conjunction with the Maths Policy:

Calculation policy

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National Curriculum 2014
Scheme of Work
Marking Policy
SEN Policy and Equal Equality
Homework Policy

Guidance for Problem solving:

PREPARE

Understanding the language of problems;
Identifying the information crucial to the problem (distilling);
Describing the problem to others (clarifying);

THINK

Using what you know (summoning up relevant knowledge from memory;
experiences of similar problems);
Asking the right questions about the problem (questions based on the
difference between what you know and what you don't know);

DO

Creating systems – formulating a strategy (in order to be systematic and
find all possibilities);
Organising information (representing solutions in an ordered way /
creating charts and graphs);
Trial and adjust, retry, reflecting and improving;

PRESENT

Communicate new knowledge effectively

SCHEME OF WORK SUBJECT OVERVIEW

y3

y4

y5

y6

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<u>Autumn 1</u>	<i>Place value & calculations: Strand 1</i>
	<i>Geometry: Strand 3</i>
<u>Autumn 2</u>	<i>Place value & calculations: Strand 1</i>
	<i>Fractions & decimals: Strand 1</i>
<u>Spring 1</u>	<i>Place value & calculations: Strand 1</i>
	<i>Measures: Strand 2</i> <i>Ratio (Y5/6)</i>
<u>Spring 2</u>	<i>Place value & calculations Strand 1</i>
	<i>Geometry (position & direction): Strand 3</i>
<u>Summer 1</u>	<i>Place value & calculations Strand 1</i>
	<i>Fractions: Strand 1</i>
<u>Summer 2</u>	<i>Place value & calculations Strand 1</i>
	<i>Statistics: Strand 4</i>
