

# Riverside Junior School

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

## Overview of Approach

*Use bold text throughout this document to indicate those aspects which are required in order to comply with the new National Curriculum*

*As part of the new science curriculum, Riverside Junior School will take an **enquiry based approach** within science lessons, to encourage children to '**work and think**' scientifically. Children will be helped to **develop a deeper understanding** of scientific ideas. This will be incorporated across a curriculum which encourages **scientific enquiry** to enable children to formulate and raise their own questions and devise solutions to answer them. In doing so children will be encouraged to **articulate their ideas and thoughts**, developing their **scientific vocabulary – in order to read, spell and pronounce correctly**.*

## How we will ensure that the approach taken to *subject*:

- [ **Reflects and reinforces Riverside's vision and values**
- [ **Supports the goal of ensuring outstanding learning for all**
- [ **Appropriately optimises opportunities to develop numeracy and literacy**

The Science Curriculum will aim to develop children by a creative and challenging approach through an enquiry based provision. Such provision is set to inspire children into developing 'enquiring minds' and problem solving abilities – incorporating maths and computing on a cross curricular basis. Children will be encouraged to **articulate their ideas and thoughts**, developing their **scientific vocabulary – in order to read, spell and pronounce correctly**. Promoting oracy and confidence.

Monitoring and assessment will be done on a termly basis, following the assertive mentoring criteria. Science files will be kept for each child with a record of their progress. A strong emphasis on problem solving will be promoted by themed science weeks/days throughout the year. Children will be actively encouraged to use computing and maths skills.

Each topic will start with a question.

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<b>SCIENCE SCHEME OF WORK SUBJECT OVERVIEW</b>								
<b>Year</b>	<b>Autumn</b>		<b>Spring</b>		<b>Summer</b>			
<b>3</b>	<p style="text-align: center;"><b>Animals inc. Humans</b></p> <p><i>&gt;nutrition/skeletons/muscle/protection/movement Pupils should continue to learn about the importance of nutrition and should be introduced to the main body parts associated with the skeleton and muscles, finding out how different parts of the body have special functions.</i></p>		<p style="text-align: center;"><b>Rocks</b></p> <p><i>Linked with work in geography, pupils should explore different kinds of rocks and soils, including those in the local environment.</i></p>		<p style="text-align: center;"><b>Plants</b></p> <p><i>Pupils should be introduced to the relationship between structure and function: the idea that every part has a job to do. They should explore questions that focus on the role of the roots and stem in nutrition and support, leaves for nutrition and flowers for reproduction.</i></p>		<p style="text-align: center;"><b>Light</b></p> <p><i>Pupils should explore what happens when light reflects off a mirror or other reflective surfaces, including playing mirror games to help them to answer questions about how light behaves. They should think about why it is important to protect their eyes from bright lights. They should look for, and measure, shadows, and find out how they are formed and what might cause the shadows to change.</i></p>	<p style="text-align: center;"><b>Forces and Magnets</b></p> <p><i>Pupils should observe that magnetic forces can act without direct contact, unlike most forces, where direct contact is necessary (for example, opening a door, pushing a swing). They should explore the behaviour and everyday uses of different magnets (for example, bar, ring, button and horseshoe).</i></p>
<b>4</b>	<p style="text-align: center;"><b>Electricity</b></p> <p><i>Pupils should construct simple series circuits, trying different components, for example, bulbs, buzzers and motors, and including switches, and use their circuits to create simple devices. Pupils should draw the circuit as a pictorial representation, not necessarily using conventional circuit symbols at this stage; these will be introduced in year 6.</i></p>	<p style="text-align: center;"><b>Sound</b></p> <p><i>Pupils should explore and identify the way sound is made through vibration in a range of different musical instruments from around the world; and find out how the pitch and volume of sounds can be changed in a variety of ways.</i></p>	<p style="text-align: center;"><b>Animals inc. Humans</b></p> <p><i>Pupils should be introduced to the main body parts associated with the digestive system, for example, mouth, tongue, teeth, oesophagus, stomach and small and large intestine and explore questions that help them to understand their special functions.</i></p>		<p style="text-align: center;"><b>States of Matter</b></p> <p><i>Pupils should explore a variety of everyday materials and develop simple descriptions of the states of matter (solids hold their shape; liquids form a pool not a pile; gases escape from an unsealed container). Pupils should observe water as a solid, a liquid and a gas and should note the changes to water when it is heated or cooled.</i></p>		<p style="text-align: center;"><b>Living Things and their Habitats</b></p> <p><i>Pupils should use the local environment throughout the year to raise and answer questions that help them to identify and study plants and animals in their habitat. They should identify how the habitat changes throughout the year. Pupils should explore possible ways of grouping a wide selection of living things that include animals and flowering</i></p>	

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						<p><i>plants and non-flowering plants. Pupils could begin to put vertebrate animals into groups such as fish, amphibians, reptiles, birds, and mammals; and invertebrates into snails and slugs, worms, spiders, and insects.</i></p>	
<p><b>5/6</b></p>	<p><b>Animals inc. Humans</b></p> <p>Pupils should build on their learning from years 3 and 4 about the main body parts and internal organs (skeletal, muscular and digestive system) to explore and answer questions that help them to understand how the circulatory system enables the body to function.</p>		<p><b>Forces</b></p> <p>Pupils should explore falling objects and raise questions about the effects of air resistance. They should explore the effects of air resistance by observing how different objects such as parachutes and sycamore seeds fall. They should experience forces that make things begin to move, get faster or slow down. Pupils should explore the effects of friction on movement and find out how it slows or stops moving objects, for example, by observing the effects of a brake on a bicycle wheel. Pupils should explore the effects of levers, pulleys and simple machines on movement. Pupils might find out how scientists, for example, Galileo Galilei and Isaac Newton helped to develop the theory of gravitation.</p>	<p><b>Evolution and Inheritance</b></p> <p>Building on what they learned about fossils in the topic on rocks in year 3, pupils should find out more about how living things on earth have changed over time. They should be introduced to the idea that characteristics are passed from parents to their offspring, for instance by considering different breeds of dogs, and what happens when, for example, labradors are crossed with poodles. They should also appreciate that variation in offspring over time can make animals more or less able to survive in particular environments, for example, by exploring how giraffes' necks got longer, or the development of insulating fur on the arctic fox. Pupils might find out about the work of palaeontologists such as Mary Anning and about how Charles Darwin and Alfred Wallace developed their ideas on evolution.</p>	<p><b>Living Things and their Habitats</b></p> <p>Pupils should build on their learning about grouping living things in year 4 by looking at the classification system in more detail. They should be introduced to the idea that broad groupings, such as micro-organisms, plants and animals can be subdivided. Through direct observations where possible, they should classify animals into commonly found invertebrates (such as insects, spiders, snails, worms) and vertebrates (fish, amphibians, reptiles, birds and mammals). They should discuss reasons why living things are placed in one group and not another.</p>	<p><b>Light and Electricity</b></p> <p>Building on their work in year 4, pupils should construct simple series circuits, to help them to answer questions about what happens when they try different components, for example, switches, bulbs, buzzers and motors. They should learn how to represent a simple circuit in a diagram using recognised symbols.</p>	

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## Scheme/Block of Work (medium term plan) template

<b>Title of scheme</b> (eg, Creative Writing / Persuasive writing / a literary text)		
<b>Year/class:</b> year group/ designation	<b>Dates</b> (from.....to.....)	<b>Number of lessons:</b>
<b>Objectives to be addressed in whole scheme</b> NC English or cross curricular PSHE etc/ <i>Framework/</i> Exam syllabus		
<b>Learning outcomes from the scheme/block</b> <i>Work which pupils will produce. This is likely to be all the work that you will assess, so include oral work as well as written. Should identify, in broad terms, how work will be differentiated according to ability.</i>		

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Lesson no.	1. <b>Key</b> Nat.Curr./ <i>Framework</i> /exam syllabus references; 2. Learning Outcomes	<b>Specific learning objectives (LOb)</b> (use dynamic verb; link to NC English or cross curricular PSHE etc/ <i>Framework/ Exam syllabus</i> )	<b>Brief outline of</b> lesson content & teaching / learning activities	Resources; <b>uses of ICT,</b> if available	<b>Assessment: how will you know whether pupils have met the LObs?</b> (e.g., observation & recording; marking written or oral work...)
	1. Refs:          2. Outcomes:				

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