

# Science

VISION:	AIM:	RIGHTS RESPECTING SCHOOLS (RRS)	Behaviour charter
<p><b>At Tillingbourne we want children to:</b></p> <ol style="list-style-type: none"> <li>1. Love Learning</li> <li>2. Find their strengths and talents</li> <li>3. Achieve more than they thought possible</li> </ol>	<p><b>Children are successful at Tillingbourne School because they are:</b></p> <ul style="list-style-type: none"> <li>• Aspirational</li> <li>• Responsible</li> <li>• Resilient</li> <li>• Curious</li> <li>• Confident</li> <li>• Caring</li> </ul>	<p><b>FOCUS RIGHTS</b></p> <ol style="list-style-type: none"> <li>1. The right to learn</li> <li>2. The right to be heard</li> <li>3. The right to be me</li> </ol>	<p><b>All children must be:</b></p> <p>Ready Respectful Safe</p>

	EYFS and KS1	Year 3	Year 4	Year 5	Year 6
<b>Biology</b>					
<b>Animals including humans</b>	<ul style="list-style-type: none"> <li>• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals.</li> <li>• Identify and name a variety of common animals that are carnivores, herbivores and omnivores.</li> <li>• Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets)</li> <li>• Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense</li> <li>• Notice that animals, including humans, have offspring which grow into adults.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify that humans and some other animals have skeletons and muscles for support, protection and movement.</li> <li>• Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat.</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the simple functions of the basic parts of the digestive system in humans.</li> <li>• Identify the different types of teeth in humans and their simple functions.</li> <li>• Construct and interpret a variety of food chains, identifying producers, predators and prey.</li> </ul>	<ul style="list-style-type: none"> <li>• Describe the changes as humans develop from birth to old age.</li> </ul>	<ul style="list-style-type: none"> <li>• Identify the main parts of the human circulatory system and describe the function of the heart, blood vessels and blood.</li> <li>• Describe the ways in which nutrients and water are transported within animals including humans.</li> <li>• Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function.</li> </ul>

	<ul style="list-style-type: none"> <li>● Find out about and describe the basic needs of animals, including humans, for survival (water, food and air).</li> <li>● Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.</li> </ul>				
<b>Plants</b>	<ul style="list-style-type: none"> <li>● Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees.</li> <li>● Identify and describe the basic structure of a variety of common flowering plants, including trees.</li> <li>● Observe and describe how seeds and bulbs grow into mature plants.</li> <li>● Find out and describe how plants need water, light and warmth to grow and stay healthy.</li> </ul>	<ul style="list-style-type: none"> <li>● Identify and describe the functions of different parts of a flowering plant.</li> <li>● I can explore the requirements of plant life and growth.</li> <li>● I can investigate the way in which water is transported within plants.</li> <li>● I can explore the part that flowers play in the lifecycle of flowering plants including pollination, seed formation and seed dispersal.</li> </ul>			
<b>Living things</b>	<ul style="list-style-type: none"> <li>● Explore and compare the difference between things that are living, dead and things that have never been alive.</li> <li>● Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other.</li> <li>● Identify and name a variety of plants and animals in their habitats, including micro-habitats.</li> <li>● Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and name the different sources of food.</li> </ul>		<ul style="list-style-type: none"> <li>● Recognise that living things can be grouped in a variety of ways.</li> <li>● Explore and use classification keys to help group.</li> <li>● Identify and name a variety of living things in the environment.</li> <li>● Recognise that environments can change and this can sometimes pose dangers to living things.</li> </ul>	<ul style="list-style-type: none"> <li>● Describe the differences in life cycles of a mammal, an amphibian, an insect and a bird.</li> <li>● Describe the life process of reproduction in some plants and animals.</li> </ul>	<ul style="list-style-type: none"> <li>● Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences including micro-organisms, plants and animals.</li> <li>● Give reasons for classifying plants and animals based on specific characteristics.</li> </ul>

## Chemistry

<p><b>Rocks</b></p>		<ul style="list-style-type: none"> <li>• Compare and group together different kinds of rocks on the basis of their appearance and simple physical properties.</li> <li>• Describe in simple terms how fossils are formed when things that have lived are trapped within rock.</li> <li>• Recognise that soils are made from rock and organic matter.</li> </ul>			
<p><b>States of matter</b></p>			<ul style="list-style-type: none"> <li>• Compare and group materials together, according to whether they are solids, liquids or gases.</li> <li>• Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius.</li> <li>• Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature.</li> </ul>		
<p><b>Properties and changes in materials</b></p>	<ul style="list-style-type: none"> <li>• Distinguish between an object and the material from which it is made.</li> <li>• Identify and name a variety of everyday materials, including wood, metal, plastic, glass, water and rock.</li> <li>• Describe the simple physical properties of a variety of everyday materials.</li> <li>• Compare and group together a variety of everyday materials on the basis of their simple properties.</li> <li>• Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses.</li> <li>• Find out how shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.</li> </ul>			<ul style="list-style-type: none"> <li>• Compare and group together everyday materials based on their properties, including hardness, solubility, transparency, conductivity and response to magnets.</li> <li>• Know that some materials will dissolve in liquid to form a solution and describe how to recover a substance from a solution.</li> <li>• Use knowledge of solid, liquid and gas to decide how mixtures might be separated including through filtering, sieving and evaporation.</li> <li>• Give reasons based on evidence from comparative tests for the particular uses of everyday materials including metals, wood and plastic. Demonstrate that dissolving, mixing and changes of state are reversible changes.</li> <li>• Explain that some changes result in the formation of new materials and</li> </ul>	

				<p>this kind of change is not usually reversible including changes associated with burning and the action of acid on bicarbonate of soda.</p>	
Physics					
Electricity			<ul style="list-style-type: none"> <li>Identify common appliances that run on electricity.</li> <li>Construct simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers.</li> <li>Identify whether or not a lamp will light in a simple circuit, based on whether or not the lamp is part of a complete loop with a battery.</li> <li>Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit.</li> <li>Recognise some common conductors and insulators, and associate metals with being good conductors.</li> </ul>		<ul style="list-style-type: none"> <li>To compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches.</li> <li>To associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit.</li> <li>To use recognised symbols when representing a simple circuit in a diagram.</li> </ul>
Light	<ul style="list-style-type: none"> <li>Observe changes across the four seasons.</li> <li>Observe and describe weather associated with the seasons and how day length varies.</li> </ul>	<ul style="list-style-type: none"> <li>Recognise we need light in order to see things and that dark is the absence of light.</li> <li>Light is reflected from surfaces.</li> <li>Recognise that light from the sun can be dangerous and that there are ways to protect your eyes.</li> <li>Recognise that shadows are formed when light from a light source is blocked by an opaque object.</li> <li>Find patterns in the way that the shadows change.</li> </ul>			<ul style="list-style-type: none"> <li>Recognise that light appears to travel in straight lines.</li> <li>Use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye.</li> <li>Explain that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes.</li> <li>Use the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them.</li> </ul>
Sound			<ul style="list-style-type: none"> <li>Identify how sounds are made, associating some of them with something vibrating.</li> <li>Recognise that vibrations from sounds travel through a medium to the ear.</li> <li>Find patterns between the volume of a sound and the strength of the vibrations that produced it.</li> </ul>		

			<ul style="list-style-type: none"> <li>Recognise that sounds get fainter as the distance from the sound source increases.</li> </ul>		
Forces		<ul style="list-style-type: none"> <li>Compare how things move on different surfaces.</li> <li>Notice that some forces need contact between two objects, but magnetic forces can act at a distance.</li> <li>Observe how magnets attract or repel each other and attract some materials and not others.</li> <li>Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet and identify some magnetic materials.</li> <li>Describe magnets as having two poles. Predict whether two magnets will attract or repel each other, depending on which poles are facing.</li> </ul>		<ul style="list-style-type: none"> <li>Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.</li> <li>Identify the effects of air resistance, water resistance and friction, that act between moving surfaces</li> <li>Recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect</li> </ul>	
Earth and space				<ul style="list-style-type: none"> <li>Describe the movement of the Earth and other planets, relative to the sun in the solar system.</li> <li>Describe the movement of the moon relative to the Earth.</li> <li>Describe the Sun, Earth and Moon as approximate spherical bodies.</li> <li>Use Earth rotation to explain day and night due to the apparent movement of the sun across the sky.</li> </ul>	