

**Science and Technology**

**1: Being curious and searching for answers is essential to understanding and predicting phenomena.**

Age 5 End of Reception (N and R)	Age 8 End of year 3 (KS1 Yr 1 - 3)	Age 11 End of Year 6 (KS2 Yr 4 - 6)
Progression step 1	Progression step 2	Progression step 3
<b>ST WMS 1 PS 1a</b> I can show curiosity and question how things work.	<b>ST WMS 1 PS 2a</b> I can ask questions and use my experience to suggest simple methods of inquiry.	<b>ST WMS 1 PS 3a</b> I can identify questions that can be investigated scientifically and suggest suitable methods of inquiry.
	<b>ST WMS 1 PS 2b</b> I can recognise patterns from my observations and investigations and can communicate my findings.	<b>ST WMS 1 PS 3b</b> I can suggest conclusions as a result of carrying out my inquiries.
	<b>ST WMS 1 PS 2c</b> I can use my <i>knowledge</i> and understanding to predict effects as part of my scientific exploration.	<b>ST WMS 1 PS 3c</b> I can evaluate methods to suggest improvements.
		<b>ST WMS 1 PS 3d</b> I can engage with scientific and technological evidence to inform my own opinions.
	<b>ST WMS 1 PS 2e</b> I can recognise that what I do, and the things I use, can have an impact on my environment and on living things.	<b>ST WMS 1 PS 3e</b> I can understand how my actions and the actions of others impact on the environment and living things.
	<b>ST WMS 3 PS 2d</b> I can explore relationships between living things, their habitats and their <i>life cycles</i> .	<b>ST WMS 1 PS 3g</b> I can describe the impacts of science and technology, past and present, in my everyday life.
	<b>ST WMS 4 PS 2e</b> I can observe and describe ways in which materials change when they are mixed together.	
	<b>ST WMS 5 PS 2d</b> I can investigate different forms of energy and how it can be transferred.	
	<b>ST WMS 5 PS 2g</b> I can explore and communicate the basic properties of light, sound, electricity and magnetism.	
	<b>ST WMS 2 PS 2h</b> I can identify things in the environment which may be harmful and can act to reduce the risks to myself and others.	

**2: Design thinking and engineering offer technical and creative ways to meet society's needs and wants.**

Age 5 End of Reception (N and R)	Age 8 End of year 3 (KS1 Yr 1- 3)	Age 11 End of Year 6 (KS2 Yr 4-6)
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Progression step 1	Progression step 2	Progression step 3
<b>ST WMS 2 PS 1a</b> I can design while I make and communicate about what I am making.	<b>ST WMS 2 PS 2a</b> I can produce designs to communicate my ideas in response to particular contexts.	<b>ST WMS 2 PS 3a</b> I can draw inspiration to design from historical, cultural and other sources.
<b>ST WMS 2 PS 1b</b> I can safely use simple tools, materials and equipment to construct and deconstruct.	<b>ST WMS 2 PS 2b</b> I can make design decisions, using my <i>knowledge</i> of materials and existing products, and suggest design improvements.	<b>ST WMS 2 PS 3b</b> I can creatively respond to the needs and wants of the user, based on the context and on the information collected.
<b>ST WMS 2 PS 1c</b> I can explore the properties of materials and choose different materials for a particular use.	<b>ST WMS 2 PS 2c</b> I can explore how different component parts work together.	<b>ST WMS 2 PS 3c</b> I can identify and consider factors when developing design proposals.
		<b>ST WMS 2 PS 3d</b> I can use <i>design thinking</i> to test and refine my design decisions without fear of failure.
<b>ST WMS 2 PS 1e</b> I can identify, follow and begin to create sequences and patterns in everyday activities.	<b>ST WMS 2 PS 2e</b> I can safely use a range of tools, materials and equipment to construct for a variety of reasons.	
		<b>ST WMS 2 PS 3f</b> I can apply my knowledge and and <i>skills</i> when making design decisions in order to produce specific outcomes.
	<b>ST WMS 2 PS 2g</b> I have experienced using basic prototyping techniques to improve outcomes.	<b>ST WMS 2 PS 3g</b> I can consider how my design proposals will solve problems and how this may affect the environment.
	<b>ST WMS 2 PS 2h</b> I can identify things in the environment which may be harmful and can act to reduce the risks to myself and others.	<b>ST WMS 2 PS 3h</b> I can use design communication methods to develop and present ideas, and respond to feedback.
	<b>ST WMS 2 PS 2i</b> I can explore and describe the properties of materials and justify their uses.	
<b>3. The world around us is full of living things which depend on each other for survival.</b>		
<b>Age 5 End of Reception (N and R)</b>	<b>Age 8 End of year 3 (KS1 Yr 1 - 3)</b>	<b>Age 11 End of Year 6 (KS2 Yr 4 - 6)</b>
<b>Progression step 1</b>	<b>Progression step 2</b>	<b>Progression step 3</b>

<b>ST WMS 3 PS 1a</b> I can recognise that plants and animals are living things which grow.	<b>ST WMS 1 PS 2b</b> I can recognise patterns from my observations and investigations and can communicate my findings.	<b>ST WMS 3 PS 3a</b> I can describe how living things compete for specific resources and depend on each other for survival.
<b>ST WMS 3 PS 1b</b> I can identify, follow and begin to create sequences and patterns in everyday activities.	<b>ST WMS 1 PS 2c</b> I can use my <i>knowledge</i> and understanding to predict effects as part of my scientific exploration.	<b>ST WMS 3 PS 3b</b> I can describe the features of organisms and recognise how they allow them to live, grow and reproduce for survival in their environment.
	<b>ST WMS 1 PS 2e</b> I can recognise that what I do, and the things I use, can have an impact on my environment and on living things.	<b>ST WMS 3 PS 3c</b> I can explain the role of different organs and systems that enable plants and animals to live and grow.
	<b>ST WMS 3 PS 2d</b> I can explore relationships between living things, their habitats and their <i>life cycles</i> .	<b>ST WMS 3 PS 3d</b> I can describe some changes in growth and development caused by hormones.
		<b>ST WMS 3 PS 3e</b> I can identify the threats to the development and health of organisms and recognise some natural defences, preventions and treatments.

#### 4. Matter and the way it behaves defines our universe and shapes our lives.

Age 5 End of Reception (N and R)	Age 8 End of year 3 (KS1 Yr 1 - 3)	Age 11 End of Year 6 (KS2 Yr 4 - 6)
Progression step 1	Progression step 2	Progression step 3
<b>ST WMS 4 PS 1a</b> I can explore the properties of materials and choose different materials for a particular use.	<b>ST WMS 1 PS 2b</b> I can recognise patterns from my observations and investigations and can communicate my findings.	<b>ST WMS 4 PS 3a</b> I can recognise that changes in materials affect their properties and uses under different conditions.
<b>ST WMS 4 PS 1b</b> I can identify, follow and begin to create sequences and patterns in everyday activities.	<b>ST WMS 1 PS 2c</b> I can use my <i>knowledge</i> and understanding to predict effects as part of my scientific exploration.	
	<b>ST WMS 2 PS 2b</b> I can make design decisions, using my <i>knowledge</i> of materials and existing products, and suggest design improvements.	
	<b>ST WMS 2 PS 2i</b> I can explore and describe the properties of materials and justify their uses.	<b>ST WMS 4 PS 3d</b> I can recognise that our planet provides natural materials and can explain why they may have been processed to make them useful.
	<b>ST WMS 4 PS 2a</b> I can observe and describe ways in which materials change when they are mixed together.	

#### 5. Forces and energy provide a foundation for understanding our universe.

Age 5 End of Reception (N and R)	Age 8 End of year 3 (KS1 Yr 1 - 3)	Age 11 End of Year 6 (KS2 Yr 4 - 6)
Progression step 1	Progression step 2	Progression step 3
<b>ST WMS 5 PS 1a</b> I can identify, follow and begin to create sequences and patterns in everyday activities.	<b>ST WMS 1 PS 2b</b> I can recognise patterns from my observations and investigations and can communicate my findings.	<b>ST WMS 5 PS 3a</b> I can explore how the motion of objects can be affected by applying specific <i>forces</i> .
	<b>ST WMS 1 PS 2c</b> I can use my <i>knowledge</i> and understanding to predict effects as part of my scientific exploration.	<b>ST WMS 5 PS 2b</b> I can use a variety of simple <i>models</i> to describe the <u>forces</u> acting on an object.
		<b>ST WMS 5 PS 3c</b> I can explain that <u>energy</u> can be transferred from one place to another and how this can be used to provide the energy we need in our modern lives.
	<b>ST WMS 5 PS 2d</b> I can investigate different forms of <u>energy</u> and how it can be transferred.	
		<b>ST WMS 5 PS 3e</b> I can describe the factors that affect <u>electrical circuits</u> and this will enable me to change variables and predict what will happen.
	<b>ST WMS 5 PS 2f</b> I can communicate the effect <i>forces</i> have on myself and on objects.	<b>ST WMS 5 PS 3f</b> I can explain how the properties of <u>sound and light</u> will affect how they are experienced.
	<b>ST WMS 5 PS 2g</b> I can explore and communicate the basic properties of <u>light, sound, electricity and magnetism</u> .	<b>ST WMS 5 PS 3g</b> By manipulating the properties of <u>sound and light</u> , I can produce a desired effect.
		<b>ST WMS 5 PS 3h</b> I can describe how <u>magnetic fields</u> behave and explore a range of practical uses for them.

## 6. Computation is the foundation for our digital world.

Age 5 End of Reception (N and R)	Age 8 End of year 3 (KS1 Yr 1 - 3)	Age 11 End of Year 6 (KS2 Yr 4 - 6)
Progression step 1	Progression step 2	Progression step 3
I can identify, follow and begin to create sequences and patterns in everyday activities.	I can safely use a range of tools, materials and equipment to construct for a variety of reasons.	I can use conditional statements to add control and decision-making to <i>algorithms</i> .
I am beginning to follow a <i>sequence of instructions</i> .	I can use computational thinking techniques, through unplugged or offline activities.	I can identify repeating patterns and use loops to make my <i>algorithms</i> more concise.
I can experiment with and identify uses of a range of computing technology in the world around me.	I can create simple <i>algorithms</i> and am beginning to explain errors.	I can explain and debug <i>algorithms</i> .
	I can follow algorithms to determine their purpose and predict outcomes.	I can use sensors and actuators in systems that gather and process data about the systems' environment.

	I am beginning to explain the importance of accurate and reliable data to ensure a desired outcome.	I can identify positive and negative design elements that affect user interactions.
	I can follow instructions to build and control a <i>physical device</i> .	I can explain how digital devices can be interconnected locally and globally.
		I can explain the importance of securing the technology I use and protecting the integrity of my data.
		I can explain how my data is used by services, which can help me make more informed decisions when using technology.
		I can explain how data is stored and processed.
		I can effectively store and manipulate data to produce and give a visual form to useful information.