

TECHNOLOGY KS3 LTP

YEAR 01

Beginning 21-22 and every third year moving forward

Subject to timetable, class numbers and various factors specific to that year

THIS IS A WORKING DOCUMENT AND AS SUCH SUBJECT TO CHANGE DEPENDING ON FACTORS RELATING TO THE YEAR IN QUESTION

	Topic/Learning Pathway	Key Words	Links to previous learning	Links to wider curriculum
<b>AUTUMN TERM</b>	<ul style="list-style-type: none"> <li>H&amp;S and procedures.</li> <li>Clock</li> <li>Bauhaus Design Style</li> <li>Packaging (theory)</li>   <li>Mood Light</li> </ul>	<ul style="list-style-type: none"> <li>Health and Safety</li> <li>Personal</li> <li>Protective</li> <li>Equipment</li> <li>Accuracy</li> <li>Various tool names</li> <li>Bauhaus</li> <li>Design movement</li> <li>Function</li> <li>Form</li> <li>Aesthetic</li>   <li>Soldering</li> <li>Solder</li> <li>Volcano</li> <li>Various circuit components</li> <li>Designs</li> </ul>	<p><b>Key stage 2:</b> Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught to:</p> <p><b>Design</b></p> <ul style="list-style-type: none"> <li>use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</li> <li>generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</li> <li>select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>investigate and analyse a range of existing products</li> <li>evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>understand how key events and individuals in design and technology have helped shape the world Technical knowledge</li> <li>apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</li> <li>understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</li> <li>apply their understanding of computing to program, monitor and control their products.</li> </ul>	<p><b>Science-</b> Links to 'Science and the Universe' includes the structure of the earth and plate tectonics.</p> <p><b>Art-</b> Links to 'My World' in Art at KS3/4. - sculpting techniques</p> <p><b>Food Tech-</b> Health and Safety</p> <p><b>PSHE-</b> QA techniques and the importance in the industry</p> <p><b>ART-</b> Bauhaus design movement</p> <p><b>PSHE &amp; FOODTECH-</b> packaging and the environment/ important information per packaging.</p>
<b>SPRING TERM</b>	<ul style="list-style-type: none"> <li>Mood Light (cont)</li> <li>Technology Push and Pull (theory)</li>   <li>Wood Joinery- Lap Joint</li> </ul>	<ul style="list-style-type: none"> <li>Soldering</li> <li>Solder</li> <li>Volcano</li> <li>Various circuit components</li> <li>Designs</li> <li>Technology Push</li> <li>Technology Pull</li> <li>Need</li> <li>Want</li>   <li>Precise</li> <li>Measurement</li> <li>Gauge</li> <li>Wood</li> <li>Strength</li> </ul>	<p><b>Key stage 3</b> Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of domestic and local contexts [for example, the home, health, leisure and culture], and industrial contexts [for example, engineering, manufacturing, construction, food, energy, agriculture (including horticulture) and fashion]. When designing and making, pupils should be taught to:</p> <p><b>Design</b></p> <ul style="list-style-type: none"> <li>use research and exploration, such as the study of different cultures, to identify and understand user needs</li> </ul>	<p><b>ART-</b> Bauhaus design movement</p> <p><b>PSHE &amp; FOODTECH-</b> packaging and the environment/ important information per packaging.</p> <p><b>KS4 Construction-</b> Joinery</p> <p><b>Maths-</b> measuring</p>

<p><b>SUMMER TERM</b></p>	<ul style="list-style-type: none"> <li>• Wood Joinery- Lap Joint (cont)</li> <li>• Materials (Wood)</li>   <li>• Design and Make your own project</li> <li>• Fairtrade (theory)</li> </ul>	<ul style="list-style-type: none"> <li>• Precise</li> <li>• Measurement</li> <li>• Gauge</li> <li>• Wood</li> <li>• Strength</li>   <li>• Creativity</li> <li>• Suitability</li> <li>• Evaluate</li> <li>• Fairtrade</li> <li>• Ethical/ ethics</li> </ul>	<ul style="list-style-type: none"> <li>♣ identify and solve their own design problems and understand how to reformulate problems given to them</li> <li>♣ develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations</li> <li>♣ use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses</li> <li>♣ develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools</li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>♣ select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture</li> <li>♣ select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>♣ analyse the work of past and present professionals and others to develop and broaden their understanding</li> <li>♣ investigate new and emerging technologies</li> <li>♣ test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups</li> <li>♣ understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists</li> </ul> <p>Design and technology – key stage 3 3</p> <p><b>Technical knowledge</b></p> <ul style="list-style-type: none"> <li>♣ understand and use the properties of materials and the performance of structural elements to achieve functioning solutions</li> <li>♣ understand how more advanced mechanical systems used in their products enable changes in movement and force</li> <li>♣ understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]</li> <li>♣ apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].</li> </ul>	<p><b>KS4 Construction-</b> Joinery Maths- measuring</p> <p><b>ART-</b> design ability and skill between design and make <b>PSHE-</b> fairtrade and benefits toward people and the economy</p>
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TECHNOLOGY KS3 LTP

YEAR 02

Beginning 22-23 and every third year moving forward

Subject to timetable, class numbers and various factors specific to that year

THIS IS A WORKING DOCUMENT AND AS SUCH SUBJECT TO CHANGE DEPENDING ON FACTORS RELATING TO THE YEAR IN QUESTION

	Topic/Learning Pathway	Key Words	Links to previous learning	Links to wider curriculum
<b>AUTUMN TERM</b>	<ul style="list-style-type: none"> <li>H&amp;S and procedures.</li> <li>Wood Carving Project</li> <li>Rear bike light project</li> <li>Systems and control (Theory)</li> </ul>	<ul style="list-style-type: none"> <li>Health and Safety</li> <li>Personal</li> <li>Protective</li> <li>Equipment</li> <li>Accuracy</li> <li>Various tool names</li> <li>Chisel</li> <li>Files</li> <li>Rasps</li> <li>Soldering</li> <li>Solder</li> <li>Volcano</li> <li>Various circuit components</li> <li>Designs</li> </ul>	<p><b>Key stage 2:</b> Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught to:</p> <p><b>Design</b> ♣ use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups ♣ generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</p> <p><b>Make</b> ♣ select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately ♣ select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</p> <p><b>Evaluate</b> ♣ investigate and analyse a range of existing products ♣ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work ♣ understand how key events and individuals in design and technology have helped shape the world Technical knowledge ♣ apply their understanding of how to strengthen, stiffen and reinforce more complex structures ♣ understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] ♣ understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors] ♣ apply their understanding of computing to program, monitor and control their products.</p>	<p><b>Science-</b> Links to ‘Science and the Universe’ includes the structure of the earth and plate tectonics. <b>Art-</b> Links to ‘My World’ in Art at KS3/4. - sculpting techniques <b>Food Tech-</b> Health and Safety <b>PSHE-</b> QA techniques and the importance in the industry</p> <p><b>SCIENCE-</b> Electronics/ systems and control <b>PSHE &amp; FOODTECH-</b> packaging and the environment/ important information per packaging.</p>
<b>SPRING TERM</b>	<ul style="list-style-type: none"> <li>Rear Bike Light project (cont).</li> <li>Quality Assurance (Theory)</li> </ul>	<ul style="list-style-type: none"> <li>Soldering</li> <li>Solder</li> <li>Volcano</li> <li>Various circuit components</li> <li>Designs</li> <li>Testing</li> <li>Assurance</li> <li>Procedure</li> <li>Safety</li> <li>Precise</li> <li>Measurement</li> </ul>	<p><b>Key stage 3</b> Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of domestic and local contexts [for example, the home, health, leisure and culture], and industrial contexts [for example, engineering, manufacturing, construction, food, energy, agriculture (including horticulture) and fashion]. When designing and making, pupils should be taught to:</p> <p><b>Design</b></p>	<p><b>ART-</b> Bauhaus design movement <b>PSHE &amp; FOODTECH-</b> packaging and the environment/ important information per packaging.</p>

	<ul style="list-style-type: none"> <li>• Wood Joinery- Half-Lap Joint</li> </ul>	<ul style="list-style-type: none"> <li>• Gauge</li> <li>• Wood</li> <li>• Strength</li> </ul>	<ul style="list-style-type: none"> <li>♣ use research and exploration, such as the study of different cultures, to identify and understand user needs</li> <li>♣ identify and solve their own design problems and understand how to reformulate problems given to them</li> <li>♣ develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations</li> <li>♣ use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses</li> <li>♣ develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools</li> </ul>	<p><b>KS4 Construction-</b> Joinery <b>Maths-</b> measuring</p>
<b>SUMMER TERM</b>	<ul style="list-style-type: none"> <li>• Speaker Project</li> <li>• Materials (Metal)</li> </ul> <ul style="list-style-type: none"> <li>• Speaker Project</li> <li>• Fairtrade (Theory-Morality and ethics)</li> </ul>	<ul style="list-style-type: none"> <li>• Soldering</li> <li>• Solder</li> <li>• Volcano</li> <li>• Various circuit components</li> <li>• Designs</li> <li>• Testing</li> <li>• Precise</li> <li>• Measurement</li> <li>• Gauge</li> <li>• Wood</li> <li>• Strength</li> </ul> <ul style="list-style-type: none"> <li>• Creativity</li> <li>• Suitability</li> <li>• Evaluate</li> <li>• Fairtrade</li> <li>• Ethical/ ethics</li> </ul>	<p><b>Make</b></p> <ul style="list-style-type: none"> <li>♣ select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture</li> <li>♣ select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>♣ analyse the work of past and present professionals and others to develop and broaden their understanding</li> <li>♣ investigate new and emerging technologies</li> <li>♣ test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups</li> <li>♣ understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists</li> </ul> <p>Design and technology – key stage 3 3</p> <p><b>Technical knowledge</b></p> <ul style="list-style-type: none"> <li>♣ understand and use the properties of materials and the performance of structural elements to achieve functioning solutions</li> <li>♣ understand how more advanced mechanical systems used in their products enable changes in movement and force</li> <li>♣ understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]</li> <li>♣ apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].</li> </ul>	<p><b>KS4 Construction-</b> Joinery <b>Maths-</b> measuring</p> <p><b>ART-</b> design ability and skill between design and make <b>PSHE-</b> fairtrade and benefits toward people and the economy</p>

TECHNOLOGY KS3 LTP

YEAR 03

Beginning 23-24 and every third year moving forward

Subject to timetable, class numbers and various factors specific to that year

THIS IS A WORKING DOCUMENT AND AS SUCH SUBJECT TO CHANGE DEPENDING ON FACTORS RELATING TO THE YEAR IN QUESTION

	Topic/Learning Pathway	Key Words	Links to previous learning	Links to wider curriculum
<b>AUTUMN TERM</b>	<ul style="list-style-type: none"> <li>H&amp;S and procedures.</li> <li>Steady hand game</li> <li>Targeted marketing (Theory)</li> </ul>	<ul style="list-style-type: none"> <li>Health and Safety</li> <li>Personal</li> <li>Protective</li> <li>Equipment</li> <li>Accuracy</li> <li>Various tool names</li> <li>Function</li> <li>Form</li> <li>Aesthetic</li> <li>Soldering</li> <li>Solder</li> <li>Volcano</li> <li>Various circuit components</li> <li>Designs</li> </ul>	<p><b>Key stage 2:</b> Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment]. When designing and making, pupils should be taught to:</p> <p><b>Design</b></p> <ul style="list-style-type: none"> <li>♣ use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups</li> <li>♣ generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design</li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>♣ select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately</li> <li>♣ select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities</li> </ul> <p><b>Evaluate</b></p> <ul style="list-style-type: none"> <li>♣ investigate and analyse a range of existing products</li> <li>♣ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work</li> <li>♣ understand how key events and individuals in design and technology have helped shape the world Technical knowledge</li> <li>♣ apply their understanding of how to strengthen, stiffen and reinforce more complex structures</li> <li>♣ understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]</li> <li>♣ understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]</li> <li>♣ apply their understanding of computing to program, monitor and control their products.</li> </ul>	<p><b>Science-</b> Links to 'Science and the Universe' includes the structure of the earth and plate tectonics.</p> <p><b>Art-</b> Links to 'My World' in Art at KS3/4. - sculpting techniques</p> <p><b>Food Tech-</b> Health and Safety</p> <p><b>PSHE-</b> QA techniques and the importance in the industry</p>
<b>SPRING TERM</b>	<ul style="list-style-type: none"> <li>Alarm Project</li> <li>Technology Push and Pull (theory)</li> </ul>	<ul style="list-style-type: none"> <li>Soldering</li> <li>Solder</li> <li>Volcano</li> <li>Various circuit components</li> <li>Designs</li> <li>Technology Push</li> <li>Technology Pull</li> <li>Need</li> <li>Want</li> </ul> <ul style="list-style-type: none"> <li>Precise</li> </ul>	<p><b>Key stage 3</b> Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of domestic and local contexts [for example, the home, health, leisure and culture], and industrial contexts [for example, engineering, manufacturing, construction, food, energy, agriculture (including horticulture) and fashion]. When designing and making, pupils should be taught to:</p> <p><b>Design</b></p>	<p><b>ART-</b> Bauhaus design movement</p> <p><b>PSHE &amp; FOODTECH-</b> packaging and the environment/ important information per packaging.</p>

	<ul style="list-style-type: none"> <li>• Wood Joinery- Lap Joint</li> </ul>	<ul style="list-style-type: none"> <li>• Measurement</li> <li>• Gauge</li> <li>• Wood</li> <li>• Strength</li> </ul>	<ul style="list-style-type: none"> <li>♣ use research and exploration, such as the study of different cultures, to identify and understand user needs</li> <li>♣ identify and solve their own design problems and understand how to reformulate problems given to them</li> </ul>	<p><b>KS4 Construction-</b> Joinery <b>Maths-</b> measuring</p>
<b>SUMMER TERM</b>	<ul style="list-style-type: none"> <li>• 2D Design-laser Cutter</li> </ul>	<ul style="list-style-type: none"> <li>• Precise</li> <li>• Measurement</li> <li>• CAD (Computer Aided Design)</li> <li>• CAM (Computer Aided Manufacture)</li> <li>• Planning</li> <li>• Creativity</li> <li>• Suitability</li> <li>• Evaluate</li> </ul>	<ul style="list-style-type: none"> <li>♣ develop specifications to inform the design of innovative, functional, appealing products that respond to needs in a variety of situations</li> <li>♣ use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses</li> <li>♣ develop and communicate design ideas using annotated sketches, detailed plans, 3-D and mathematical modelling, oral and digital presentations and computer-based tools</li> </ul> <p><b>Make</b></p> <ul style="list-style-type: none"> <li>♣ select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture</li> <li>♣ select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties</li> </ul> <p>Evaluate</p> <ul style="list-style-type: none"> <li>♣ analyse the work of past and present professionals and others to develop and broaden their understanding</li> <li>♣ investigate new and emerging technologies</li> <li>♣ test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups</li> <li>♣ understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists</li> </ul> <p>Design and technology – key stage 3 3</p> <p><b>Technical knowledge</b></p> <ul style="list-style-type: none"> <li>♣ understand and use the properties of materials and the performance of structural elements to achieve functioning solutions</li> <li>♣ understand how more advanced mechanical systems used in their products enable changes in movement and force</li> <li>♣ understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]</li> <li>♣ apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].</li> </ul>	<p><b>KS4 Construction-</b> Joinery <b>Maths-</b> measuring</p> <p><b>ART-</b> design ability and skill between design and make</p>