Linton Primary School
New Whole School Curriculum DESIGN and TECHNOLOGY

KS1

Key Learning in Design and Technology

Designing	Making	Evaluating
• Research different examples of what is to be made or produced. • Explore existing products and investigate their construction. • Decide how existing products do/ do not achieve their intended purpose. • Use drawings to record ideas. • Propose more than one idea for the product to be made. • Annotate drawings and describe ideas and intentions giving reasons for the choices made. • Use kits / reclaimed materials to develop and model ideas. • Consider appropriate construction techniques.	• Explore processes required to fulfil the job criteria. • Explore materials and techniques for construction associated with their use that address specific characteristics. • Discuss work as it progresses and identify where adjustments need to be made. • Select appropriate materials. • Select appropriate tools for working with specific materials. • Measure and weigh accurately as required. • Describe the stages of the making process.	• Discuss design ideas during the making process and identify where adjustments are necessary. • Identify potential problems during the making process. • Note any changes made by annotating designs. • Talk about the finished design identifying strengths and weaknesses of the finished product. • Give reasons for the success of the prouct. • Discuss how closely te finished product resembles the original design and how well it meets the design criteria and the needs of the user.

	Autumn Term	Spring Term	Summer Term
1	**Mind Over Matter** Looking at overcoming adversity, developing a 'Growth Mindset'. *What provides individuals with the motivation and determination to succeed?*	**Fight for Survival** Investigating settlements, communities and food chains. *What are the characteristics of success and failure?*	**Incredible Journeys** Taking a look at habitats, migration and nomadic lifestyles. *What drives them on?*
KS1	• Investigate different foods, e.g. those considered to be healthy / unhealthy. • Develop a food vocabulary using sight, taste, smell, and description of texture. • Group familiar food products. • Understand the need for a variety of foods in our diet. • Discover information relating to the benefits of a particular food. • Design a healthy food product, e.g. fruit snack, cupcake, bar, pizza etc. • Work safely and hygienically. • Measure and weigh foods accurately. • Create then taste the product. • Evaluate the success of the product, giving reasons for the conclusions reached.	• Investigate clay as a material for construction. • Identify the properties of clay and associated methods required to work successfully with it. • Investigate sculpting and joining methods. • Design a replica of an artefact, e.g. a fossil, coil pot or dinosaur etc. • Create a model considering accuracy of shape, size and decoration. • Evaluate making process and identify specific requirements of working with clay. • Evaluate success of own model.	• Research different examples of a particular structure, e.g. living wagon, canal equipment, temporary shelter etc. • Explore the specific characteristics of the structure, e.g. axle fittings, frame or chassis, wheels, canvas body etc. • Explore how such a structure is made strong enough to do the job, e.g. investigate shape, combination of structures and materials etc. • Select materials that will meet the design criteria. • Investigate how different materials can be altered to make them stronger and fit for purpose. • Investigate appropriate methods of joining. • Use a template to mark out materials prior to cutting. • Test structures for strength and stability. • Consider how decoration could enhance the finished product. • Evaluate own work.

2	Unknown Universe	Heroes and Villains	The Greatest Gift
	Space exploration, breakthroughs and new discoveries. *How are we changing the world?*	Taking a closer look at making and breaking the rules. *Who's got talent and influence?*	Discussing and debating the impact of talent. *What impact will you have on the world?*
KS1	• Investigate the properties and characteristics of a range of malleable materials, e.g. plasticine, salt dough, modelling clay etc. • Consider what a specific object needs to meet the requirements of its environment, e.g. an alien, creature or spacecraft. • Design an object, e.g. a poseable figure or model to be used to tell a story. • Adapt and refine the model. • Use technology to record a story.	• Investigate a number of images and representations of heroes and villains. Consider the characteristics that define them. • Consider how to represent them, e.g. as a toy, puppet, role play garment etc. • Explore the properties of different fabrics, formed from natural and man-made materials. • Choose fabrics that best fit the purpose of the task. • Make / use a template. • Cut out shapes which have been created by drawing round a template/ marking out onto fabric. • Join fabrics by using an appropriate method, e.g. stitching, gluing, stapling, taping etc. • Decorate the product by colouring / attaching items, e.g. buttons, beads, sequins, ribbons or braids etc. • Collaboratively evaluate.	• Investigate products/ inventions that have made a task easier. • Consider how and why it works so well. • Consider its construction and the characteristics that contribute to its success. • Experiment with levers and sliders to find different ways of making things move in 2D &/ or 3D. • Use construction kits such as mechano, knex etc to create working models to demonstrate effectiveness and ease of use. • Design packaging and adverts to market product. • Evaluate own and each others' ideas, designs, build quality and marketing of final product.
3	Seasons of Change	Home Grown	Hidden World
	Charting changes in the environment and over time. Exploring how to cope with change. *How can we use change to our advantage?*	Influential individuals from our region who have changed our lives locally, nationally and globally. *What are the effects of innovation?*	Using charts, maps and information to establish areas that remain enigmatic. *What lies in wait - is still to come?*
KS1	• Investigate different foods, e.g. those available at different times of the year. • Investigate where our food comes from. • Develop a food vocabulary using sight, taste, smell, and description of texture. • Group familiar food products. • Understand the need for a variety of foods in our diet. • Discover information relating to the benefits of a particular food. • Design a healthy food product using locally available produce, e.g. soup, dessert, sausage etc. • Work safely and hygienically. • Measure and weigh foods accurately. • Create then taste the product. • Evaluate the success of the product, giving reasons for the conclusions reached.	• Research different examples of a particular structure, e.g. a vehicle, shelter etc. • Explore the specific characteristics of the structure, e.g. sides / walls, axle fittings, frame or chassis, wheels, body etc. • Explore how such a structure is made strong enough to do the job, e.g. investigate shape, combination of structures and materials etc. • Select materials that will meet the design criteria, e.g. wood, plastic etc. • Investigate how different materials can be altered to make them stronger and fit for purpose. • Investigate appropriate methods of construction and joining. • Use tools such as hacksaws, hammers etc. safely. • Use a template to mark out materials prior to cutting. • Test structures for strength and stability. • Consider how decoration could enhance the finished product. • Evaluate own work.	• Investigate different materials discovered that have been used as alternatives for construction. • Identify the properties and associated methods required to work successfully with such materials. • Investigate production of new materials, necessary preparation and joining methods. • Design a new, innovative product to address a specific need, e.g. a shelter for humans/ animals, a vessel, container or other means of carrying or transporting etc. • Work collaboratively. • Create a model considering accuracy of shape, size and decoration. • Evaluate making process and identify specific requirements of working with materials used. • Evaluate success of own product.

4	Secrets of the Deep Examining innovation underground and underwater. *What will the impact of new discoveries be?*	The Weird and the Wonderful Looking at civilisations and discoveries that have surprised, astounded and amazed. *What is the value of having an open mind?*	Awesome Explorers Considering who we remember and why. Delving into methods of recording. *What are the common characteristics of adventure?*
KS1	• Investigate the properties and characteristics of a range of malleable materials, e.g. plasticine, salt dough, modelling clay etc. • Consider what a specific object needs to meet the requirements of its environment, e.g. an alien, creature or craft. • Design an object, e.g. a poseable figure or model to be used to tell a story. • Adapt and refine the model. • Use technology to record a story. •	• Investigate a number of images of plants, animals, artefacts etc discovered from different civilisations. • Consider how to use the concept and adapt to design a functional item either to be worn or carried e.g. garment, jewellery or accessory. • Explore the properties of different fabrics, formed from natural and man-made materials. • Choose fabrics that best fit the purpose of the task. • Make / use a template. • Cut out shapes which have been created by drawing round a template/ marking out onto fabric. • Join fabrics/ materials by using an appropriate method, e.g. stitching, gluing, stapling, taping, threading etc. • Decorate the product by colouring / attaching items, e.g. tie-dying, buttons, beads, sequins, ribbons or braids etc. Collaboratively evaluate.	• Investigate ingenuity and invention in difficult circumstances. • Consider how and why a particular product or design works so well. • Consider its construction and the characteristics that contribute to its success. • Experiment with levers and sliders to find different ways of making things move in 2D &/ or 3D. • Design a product using a limited range of given objects and materials. • Create a working model. • Refine ideas and model to improve performance. • Demonstrate effectiveness and ease of use. • Produce final drawings of product complete with annotations and measurements. • Evaluate own and each others' ideas, designs, build quality and marketing of final product.

KS2

Key Learning in Design and Technology

Lower KS2

Upper KS2

Designing	Making	Evaluating
• Research different examples of what is to be made or produced to inspire starting points for a design. • Find out about the work of designers and inventors past and present. • Draw / sketch products to help analyse and understand how / why they might have been made. • Research the needs of the user. • Develop a series of design ideas / adaptations from an initial idea. • Consider strongest design idea to take forward to production. • Plan a sequence of actions that will be required to make a product. • Record by drawing and annotating. • Begin to use diagram, cross section and exploded sectional representations to explain ideas. • Make and use prototypes. • Plan the tools and materials that will be required. • Consider aesthetic qualities and performance of materials prior to making choices. • Use CAD where appropriate. • Research different products. • Consider user and purpose. • List tools needed before starting. • Plan the sequence of work. • Record ideas using annotated diagrams. • Use models, kits and drawings to formulate design ideas. • Combine modelling and drawing to refine ideas. • Devise step by step plans that can be followed by someone else. • Use exploded diagrams and cross sectional diagrams to communicate ideas. • Sketch and model alternative ideas. • Make an informed decision which design idea to develop.	• Explore processes required to achieve success with chosen materials. • Investigate appropriate tools and equipment required. • Select from a range of tools for cutting, shaping, joining and finishing. • Prepare pattern pieces and templates. • Cut out, including any slot / notches or internal shapes that need to be removed / added. • Select appropriate techniques for different stages of the making process. • Plan the stages of the making process. • Evaluate and adapt during the making process as necessary. • Use appropriate finishing techniques. • Make prototypes. • Develop one idea in-depth. • Use researched information to inform decisions. • Produce detailed lists of ingredients / components/ materials / tools and equipment. • Use a computer to model ideas. • Select from and use a wide range of tools (including specialist). • Cut accurately and safely to a marked line. • Select from and use a wide range of materials. • Broaden knowledge of a wide range of materials. • Use finishing techniques appropriate to the project. • Refine the product – review and re-work to improve.	• Identify the strengths and weaknesses of design ideas in relation to the purpose and identified needs of the user. • Consider success of form, function and aesthetic appeal. • Consider and describe how the making process could be refined or improved. • Consider and describe how the finished product could be refined and / or improved. • Discuss how well the finished product meets the criteria as set out in the design brief. • Consider final costings for a prototype and for a product going into production. • Evaluate effectiveness of existing products. • Identify strengths and weaknesses of design ideas. • Report using the correct technical vocabulary. • Consider and explain how the finished product could be improved in relation to the criteria as set out in the design brief. • Discuss how well the finished product meets the design criteria and test to demonstrate. • Understand how key individuals have influenced design.

	Autumn Term	Spring Term	Summer Term
1	**Mind Over Matter** Looking at overcoming adversity, developing a 'Growth Mindset'. *What provides individuals with the motivation and determination to succeed?*	**Fight for Survival** Investigating settlements, communities and food chains. *What are the characteristics of success and failure?*	**Incredible Journeys** Taking a look at habitats, migration and nomadic lifestyles. *What drives them on?*
Lower KS2 Upper KS2	• Develop sensory vocabulary / knowledge using sight, smell, taste and texture. • Analyse the taste, texture, smell and appearance of a range of foods (predominantly savoury). • Demonstrate competence in following instructions / recipes. • Broaden understanding of healthy food choices. • Make informed choices of ingredients to design a meal. • Join and combine a range of ingredients. • Explore seasonality of fruit and vegetables as well as availability of produce locally. • Discover origins of ingredients. • Develop an awareness of sustainability in regard to farming of fish, meat, fruit, vegetables, arable and other products. • Prepare food products taking into account the properties of ingredients and sensory characteristics. • Weigh and measure using scales. • Select and prepare foods for a particular purpose. • Work safely and hygienically. • Show an awareness and understanding of a healthy diet. • Use a range of cooking techniques. • Know where and how ingredients are grown and processed. • Consider the influence of contemporary chefs and causes they champion.	• Develop an understanding of the need for tools and objects relating to survival. • Develop vocabulary relating to the creation of tools and materials available to perform a specific task. (Tool, item of clothing or food / storage receptacle.) • Investigate and understand the limitations of available tools and materials, e.g. bone, clay, hide, flint etc. • Investigate methods of joining pieces together to assemble a product. • Produce a prototype. • Use the prototype to create a pattern. • Explore means of strengthening, hardening, stiffening materials. • Explore methods of fastening and recreate those appropriate to own design ideas. • Use appropriate decoration techniques. • Evaluate functional success of product. • Use the correct vocabulary appropriate to technical terms associated with the project. • Create 3D products using pattern, pieces and templates. • Consider where seam allowances and allowances necessary for joining occur. • Understand a pattern layout and quantities to maximise efficiency. • Construct temporarily to ensure accuracy, e.g. pin, tack or tape pieces together before joining permanently. • Where fabrics are used, gain experience of different methods of stitching including using a sewing machine under close supervision. • Explore different adaptations to materials to fulfil the design criteria. • Combine materials for strength and aesthetic effect. • Decorate appropriately. • Make a quality product.	• Develop vocabulary specific to the product to be designed. • Use mechanical systems such as gears, pulleys, levers and linkages. • Incorporate a circuit into a model. • Use electrical systems such a s switches, bulbs and buzzers. • Use ICT to control product. • Use rigid materials and structures to create levers and linkages. • Use linkages to make movement larger or more varied. • Develop a technical vocabulary specific and appropriate to the project and product being designed. • Use mechanical systems such as cams pulleys and gears. • Broaden knowledge and understanding of how and where these systems can be employed successfully. • Use electrical systems. • Include electrical components such as motors in designs. • Program, monitor and control a system using ICT. • Use specialist tools required to construct the materials being used. • Mark out and measure accurately. • Build frameworks to support mechanisms.

	Autumn Term	Spring Term	Summer Term
2	**Unknown Universe** Space exploration, breakthroughs and new discoveries. *How are we changing the world?*	**Heroes and Villains** Taking a closer look at making and breaking the rules. *Who's got talent and influence?*	**The Greatest Gift** Discussing and debating the impact of talent. *What impact will you have on the world?*
Lower KS2 Upper KS2	• Consider technology and inventions in the recent past and those currently being developed. • Develop vocabulary related to innovation and invention. • Consider what future human needs might be. • Develop a series of further developed ideas from one initial design idea. • Consider innovative materials that could be put to an alternative use. • Create 'shell' or frame, prototype structures. • Consider how to make structures more stable / durable. • Measure and mark components accurately. • Present design idea and prototype model, stating the benefits it might have for the user. • Evaluate each others' work. • Develop a technical vocabulary specific and appropriate to the project and product being designed. • Use the correct terminology for tools and materials being used. • Use specialist equipment to mark out, e.g. using a bradawl to mark hole positions. • Join materials using appropriate methods, e.g. nails / screws / glue for wood. • Build framework and refine and adapt to improve strength. • Explore how to reinforce complex structures.	• Use knowledge of the user's needs to design a specific product or garment for a Hero or Villain associated with our local region, e.g. a teapot for Earl Grey, a bag carrying system for an artist / draughtsman such as George Stephenson, L S Lowry or Thomas Bewick. • Investigate and broaden knowledge of appropriate materials. • Consider appropriate tools and methods of construction. • Explore methods of joining associated with particular materials. Ensure the success of function is considered. • Make a prototype. • Use the prototype to make a template or pattern. • Explore fastenings that are best fit to design and function. • Decorate to reflect identity of user. • Use the correct vocabulary appropriate to technical terms associated with the project. • Create 3D products using pattern, pieces and templates. • Consider where seam allowances and allowances necessary for joining occur. • Understand a pattern layout or quantities to maximise efficiency. • Construct temporarily to ensure accuracy, e.g. pin, tack or tape pieces together before joining permanently. • Where fabrics are used, gain experience of different methods of stitching including using a sewing machine under close supervision. • Explore different adaptations to materials to fulfil the design criteria. • Combine materials for strength and aesthetic effect. • Decorate appropriately. • Make a quality product.	• Design a mechanical system to perform a specific function, e.g. an irrigation system or wind powered system. • Investigate systems that involve gears, pulleys, levers or linkages. • Incorporate a circuit into a model. • Use an electrical system controlled by a switch that incorporates components such a s buzzers or bulbs. • Use ICT where applicable to control system / working model of system. • Choose and test materials to ascertain suitability for the task. • Use a variety of materials to create levers and linkages. • Use linkages to adapt and improve the system being created. • Evaluate efficiency of the system. • Develop a technical vocabulary specific and appropriate to the project and product being designed. • Use mechanical systems such as cams pulleys and gears. • Broaden knowledge and understanding of how and where these systems can be employed successfully. • Use electrical systems. • Include electrical components such as motors in designs. • Program, monitor and control a system using ICT. • Use specialist tools required to construct the materials being used. • Mark out and measure accurately. • Build frameworks to support mechanisms.

	Autumn Term	Spring Term	Summer Term
3	**Seasons of Change** Charting changes in the environment and over time. Exploring how to cope with change. *How can we use change to our advantage?*	**Home Grown** Influential individuals from our region who have changed our lives locally, nationally and globally. *What are the effects of innovation?*	**Hidden World** Using charts, maps and information to establish areas that remain enigmatic. *What lies in wait - is still to come?*
Lower KS2 Upper KS2	• Develop sensory vocabulary / knowledge using sight, smell, taste and texture. • Analyse the taste, texture, smell and appearance of a range of foods (predominantly savoury). • Demonstrate competence in following instructions / recipes. • Broaden understanding of healthy food choices. • Make informed choices of ingredients to design a meal. • Join and combine a range of ingredients. • Explore seasonality of fruit and vegetables as well as availability of produce locally. • Discover origins of ingredients. Develop an awareness of sustainability in regard to farming of fish, meat, fruit, vegetables, arable and other products. • Prepare food products taking into account the properties of ingredients and sensory characteristics. • Weigh and measure using scales. • Select and prepare foods for a particular purpose. • Work safely and hygienically. • Show an awareness and understanding of a healthy diet. • Use a range of cooking techniques. • Know where and how ingredients are grown and processed. • Consider the influence of contemporary chefs and causes they champion.	• Develop an understanding of the need for functional objects, e.g. items of clothing, items relating to food production, storage, preparation and presentation. • Develop vocabulary relating to the creation of products designed to perform a specific task. • Investigate and understand the limitations (including sustainability) of available materials. • Investigate methods of joining pieces together to assemble a product. • Produce a prototype. • Use the prototype to create a pattern. • Explore means of strengthening, hardening, stiffening materials. • Explore methods of production appropriate to own design ideas. • Use appropriate decoration techniques. • Evaluate functional success of product. • Use the correct vocabulary appropriate to technical terms associated with the project. • Create 3D products using pattern, pieces and templates. • Consider where seam allowances and allowances necessary for joining occur. • Understand a pattern layout to maximise efficiency. • Construct temporarily to ensure accuracy, e.g. pin, tack or tape pieces together before joining permanently. • Where fabrics are used, gain experience of different methods of stitching including using a sewing machine under close supervision. • Explore different adaptations to materials to fulfil the design criteria. • Combine materials for strength and aesthetic effect. • Decorate appropriately. • Make a quality product.	• Develop vocabulary specific to the product to be designed. • Use mechanical systems such as gears, pulleys, levers and linkages. • Incorporate a circuit into a model. • Use electrical systems such a s switches, bulbs and buzzers. • Use ICT to control product. • Use rigid materials and structures to create levers and linkages. • Use linkages to make movement larger or more varied. • Develop a technical vocabulary specific and appropriate to the project and product being designed. • Use mechanical systems such as cams pulleys and gears. • Broaden knowledge and understanding of how and where these systems can be employed successfully. • Use electrical systems. • Include electrical components such as motors in designs. • Program, monitor and control a system using ICT. • Use specialist tools required to construct the materials being used. • Mark out and measure accurately. • Build frameworks to support mechanisms.

	Autumn Term	Spring Term	Summer Term
4	**Secrets of the Deep** Examining innovation underground and underwater. *What will the impact of new discoveries be?*	**The Weird and the Wonderful** Looking at civilisations and discoveries that have surprised astounded and amazed. *What is the value of having an open mind?*	**Awesome Explorers** Considering who we remember and why. Delving into methods of recording. *What are the common characteristics of adventure?*
Lower KS2 Upper KS2	• Investigate a range of food stuffs sourced from beneath the ground / the sea to use as inspiration for a recipe. • Develop sensory vocabulary / knowledge using sight, smell, taste and texture. • Analyse the taste, texture, smell and appearance of a range of foods sourced from 'the deep'. • Demonstrate competence in following instructions / recipes. • Broaden understanding of healthy benefits of food choices. • Make informed choices of ingredients to design a recipe. • Join and combine ingredients adapting a basic recipe to give it a twist. • Explore seasonality and availability of ingredients. • Develop an awareness of implications of new ingredients and their future use and sustainability. • Prepare food products taking into account the properties of ingredients and sensory characteristics. • Weigh and measure using scales. • Select and prepare foods for a particular purpose. • Work safely and hygienically. • Show an awareness and understanding of a healthy diet. • Use a range of cooking techniques. • Know where and how ingredients are grown and processed. • Consider the influence of contemporary chefs and causes they champion.	• Investigate a range of products that have a function not obvious from their form. • Investigate and broaden knowledge of appropriate materials. • Consider appropriate tools and methods of construction. • Explore methods of joining associated with particular materials. Ensure the success of function is considered. • Make a prototype. • Use the prototype to make a template or pattern. • Explore fastenings that are best fit to design and function. • Decorate to reflect identity of user. • Use the correct vocabulary appropriate to technical terms associated with the project. • Create 3D products using pattern, pieces and templates. • Consider where seam allowances and allowances necessary for joining occur. • Understand a pattern layout to maximise efficiency. • Construct temporarily to ensure accuracy, e.g. pin, tack or tape pieces together before joining permanently. • Where fabrics are used, gain experience of different methods of stitching including using a sewing machine under close supervision. • Explore different adaptations to materials to fulfil the design criteria. • Combine materials for strength and aesthetic effect. • Decorate appropriately. • Make a quality product.	• Investigate a range of structures that exist to perform a specific function. • Develop and broaden vocabulary associated with structures to be designed to fulfil the design brief. • Create a shell or frame structure. • Explore ways of making the structure more stable, e.g. by widening the base. • Measure and mark out materials and component parts accurately. • Develop a technical vocabulary specific and appropriate to the project and product being designed. • Use the correct terminology for tools and materials being used. • Use specialist equipment to mark out, e.g. using a bradawl to mark hole positions. • Join materials using appropriate methods, e.g. nails / screws / glue for wood. • Build framework and refine and adapt to improve strength. • Explore how to reinforce complex structures.