Wistow Parochial Primary School
Design and technology – Progression of skills

EYFS Framework	National Curriculum Key Stage 1 Expectations	National Curriculum Lower Key Stage 2 Expectations	National Curriculum Upper Key Stage 2 Expectations
• Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used. • Make use of props and materials when role playing characters in narratives and stories.	• design purposeful, functional, appealing products for themselves and other users based on design criteria • generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology	• 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	• 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

Design - Key Skills and Aims

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Structures	• Making verbal plans and material choices. • Developing a junk model • Designing a junk model boat. • Using knowledge from exploration to inform design.	• Learning the importance of a clear design criteria. • Including individual preferences and requirements in a design.	• Generating and communicating ideas using sketching and modelling • Learning about different types of structures, found in the natural world and in everyday objects.	• Designing a building with key features to appeal to a specific person/purpose. • Drawing and labelling a design using 2D shapes, labelling: -the 3D shapes that will create the features - materials needed and colours.	Designing a stable structure that is aesthetically pleasing and selecting materials to create a desired effect. • Building frame structures designed to support weight.		Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs.

Mechanisms/ Mechanical systems			• Selecting a suitable linkage system to produce the desired motion. • Designing a wheel • Creating a class design criteria for a moving object. • Designing a moving object for a specific audience in accordance with a design criteria.		• Designing a shape that reduces air resistance. • Drawing a net to create a structure from. • Choosing shapes that increase or decrease speed as a result of air resistance. • Personalising a design. • Designing a pop-up book which uses a mixture of structures and mechanisms. • Naming each mechanism, input and output accurately. • Storyboarding ideas for a book.		
Electrical systems					• Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.		• Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product. • Developing design criteria based on findings from investigating existing products.

							• Developing design criteria that clarifies the target user.
Cooking and nutrition		• Designing packaging by-hand.		• Designing a recipe to fulfil set critera.		• Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients. • Writing an amended method for a recipe to incorporate the relevant changes to ingredients. • Designing appealing packaging to reflect a recipe. • Researching existing recipes to inform ingredient choices.	
Textiles	• Discussing what a good design needs. • Designing a simple pattern with paper. • Choosing from available materials.	• Using a template to create a design.					• Designing a stuffed toy in accordance to a specification linked to set of design criteria. • Annotating designs, to explain their decisions.
Digital world				• Problem solving by suggesting which features on a micro: bit might be useful			• Writing a design brief from information

				and justifying my ideas. • Drawing and manipulating 2D shapes, using computer-aided design. • Developing design ideas through annotated sketches to create a product concept. • Developing design criteria to respond to a design brief.			submitted by a 'client' • Developing design criteria to fulfil the client's request • Considering and suggesting additional functions for my navigation tool • Developing a product idea through annotated sketches • Placing and manoeuvring 3D objects. • Changing the properties of, or combine one or more 3D objects.

Make

EYFS Framework	National Curriculum Key Stage 1 Expectations	National Curriculum Lower Key Stage 2 Expectations	National Curriculum Upper Key Stage 2 Expectations
•	• select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] • select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics	• 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	• 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

Make - Key Skills and Aims

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
structures	• Improving fine motor/scissor skills with a variety of materials. • Joining materials in a variety of ways (temporary and permanent). • Joining different materials together. • Describing their junk model, and how they intend to put it together. • Making a boat that floats and is waterproof,	• Making stable structures from card, tape and glue. • Learning how to turn 2D nets into 3D structures. • Following instructions to cut and assemble a supporting structure. • Making functioning turbines and axles which are assembled into a main supporting structure.	• Making a structure according to design criteria. • Creating joints and structures from paper/card and tape. • Building a strong and stiff structure by folding paper.	• Constructing a range of 3D geometric shapes using nets. • Creating special features for individual designs. • Making facades from a range of recycled materials.	• Creating a range of different shaped frame structures. • Making a variety of free standing frame structures of different shapes and sizes. • Selecting appropriate materials to build a strong structure and cladding. • Reinforcing corners to strengthen a structure.		• Building a range of play apparatus structures drawing upon new and prior knowledge of structures. • Measuring, marking and cutting wood to create a range of structures. • Using a range of materials to reinforce and add decoration to structures.

	considering material choices.				• Creating a design in accordance with a plan. • Learning to create different textural effects with materials.		
Mechanical/mechanism systems			• Selecting materials according to their characteristics. • Following a design brief. • Making linkages using card for levers and split pins for pivots. • Experimenting with linkages adjusting the widths, lengths and thicknesses of card used. • Cutting and assembling components neatly.		• Measuring, marking, cutting and assembling with increasing accuracy. • Making a model based on a chosen design.	• Following a design brief to make a pop up book, neatly and with focus on accuracy. • Making mechanisms and/or structures using sliders, pivots and folds to produce movement. • Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result.	
Electrical systems					• Making a torch with a working electrical circuit and switch. • Using appropriate equipment to cut and attach materials. • Assembling a torch according to the design and success criteria.	• Altering a product's form and function by tinkering with its configuration. • Making a functional series circuit, incorporating a motor. • Constructing a product with consideration for the design criteria.	

						• Breaking down the construction process into steps so that others can make the product. Evaluate • Evaluating electrical products. • Testing and evaluating the success of a final product. • Carry out a product analysi	
Cooking and nutrition		• Chopping fruit and vegetables safely to make a smoothie. • Juicing fruits safely to make a smoothie.		• Following the instructions within a recipe. • Tasting seasonal ingredients. • Selecting seasonal ingredients. • Peeling ingredients safely. • Cutting safely with a vegetable knife.		• Cutting and preparing vegetables safely. • Using equipment safely, including knives, hot pans and hobs. • Knowing how to avoid cross-contamination. • Following a step by step method carefully to make a recipe	
textiles	• Developing fine motor/cutting skills with scissors. • Exploring fine motor/threading and weaving (under, over technique) with a variety of materials.	• Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing the steps taken during construction.					• Using a template when cutting fabric to ensure they achieve the correct shape. • Using pins effectively to secure a template to fabric without creases or bulges.

	• Using a prepared needle and wool to practise threading.						• Marking and cutting fabric accurately, in accordance with their design. • Sewing a strong running stitch, making small, neat stitches and following the edge. • Tying strong knots. • Decorating a waistcoat, attaching features (such as appliqué) using thread. • Finishing the waistcoat with a secure fastening (such as buttons). • Learning different decorative stitches. • Sewing accurately with evenly spaced, neat stitches
Digital world				• Following a list of design requirements. • Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm.			• Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo) • Explaining material choices and why they were chosen as

							part of a product concept • Programming an N,E, S,W cardinal compass

Evaluate

EYFS Framework	National Curriculum Key Stage 1 Expectations	National Curriculum Lower Key Stage 2 Expectations	National Curriculum Upper Key Stage 2 Expectations
•	• explore and evaluate a range of existing products • evaluate their ideas and products against design criteria	• 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	• 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

Evaluate - Key Skills and Aims

	EYFS	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Structures	• Giving a verbal evaluation of their own and others' junk models with adult support. • Checking to see if their model matches their plan. • Considering what they would do differently if they were to do it again. • Describing their favourite and least favourite part of their model. • Making predictions about,	• Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't • Suggest points for improvements	• Exploring the features of structures. • Comparing the stability of different shapes. • Testing the strength of own structures. • Identifying the weakest part of a structure. • Evaluating the strength, stiffness and stability of own structure.	• Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison to the original design. • Suggesting points for modification of the individual designs.	•Evaluating structures made by the class. • Describing what characteristics of a design and construction made it the most effective. • Considering effective and ineffective designs.		• Improving a design plan based on peer evaluation. • Testing and adapting a design to improve it as it is developed. • Identifying what makes a successful structure.

	and evaluating different materials to see if they are waterproof. • Making predictions about, and evaluating existing boats to see which floats best. • Testing their design and reflecting on what could have been done differently. • Investigating the how the shapes and structure of a boat affect the way it moves.						
Mechanical/mechanisms			• Evaluating different designs. • Testing and adapting a design. • Evaluating own designs against design criteria. • Using peer feedback to modify a final design.		e • Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.	.• Evaluating the work of others and receiving feedback on own work. • Suggesting points for improvement.	
Electrical systems			.		• Evaluating electrical products. • Testing and evaluating the success of a final product.	• Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses. • Determining which parts of a product affect its function	

						and which parts affect its form. • Analysing whether changes in configuration positively or negatively affect an existing product. • Peer evaluating a set of instructions to build a product.	
Cooking and nutrition		• Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on packaging. • Comparing their own smoothie with someone else's.		.• Establishing and using design criteria to help test and review dishes. • Describing the benefits of seasonal fruits and vegetables and the impact on the environment. • Suggesting points for improvement when making a seasonal tart.		• Identifying the nutritional differences between different products and recipes. • Identifying and describing healthy benefits of food groups.	
Textiles	• Reflecting on a finished product and comparing to their design.	• Reflecting on a finished product, explaining likes and dislikes.					• Reflecting on their work continually throughout the design, make and evaluate process.
Digital world				• Analysing and evaluating wearable technology. • Using feedback from peers to improve design			• Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool • Developing an awareness of sustainable design

							• Identifying key industries that utilise 3D CAD modelling and explain why • Describing how the product concept fits the client's request and how it will benefit the customers • Explaining the key functions in my program, including any additions • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool • Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch • Demonstrating a functional program as part of a product concept

Unit Specific Vocabulary

	Structures	Mechanisms	Cooking and nutrition	Textiles	Digital World	Electrical Systems
EYFS	Join, Stick, Cut, Bend, Slot, Scissors, Measure, Materials, Fix Waterproof, Absorb, Prediction, Variable, Experiment, Investigate, Float, Sink, Junk			Thread, Weave, Pattern, Sew, Sewing needle, Embroider, Design, Evaluate		
Year 1	Client, Design, Evaluation, Net, Stable, Strong, Test, Weak, Windmill		Blender, Fruit, Healthy, Ingredients, Recipe, Smoothie, Vegetable, Seed, Root, Leaf, Stem, Flavour, Design, Cut, Juice, Table Knife, Juicer, Plant, Bush, Tree, Vine, Chopping board, Fork, Taste, Select, Blend, Evaluate, Compare	Decorate, Design, Fabric, Glue, Model, Hand puppet, Safety pin, Staple, Stencil, Template		
Year 2	Function, Man-made, Mould, Natural, Stable, Stiff, Strong, Structure, Test, Weak	Evaluation, Input, Lever, Linear motion, Linkage, Mechanical, Mechanism, Motion, Oscillating motion, Output, Pivot, Reciprocating motion, Rotary motion, Survey				

		Axle, Decorate, Evaluation, Ferris wheel, Mechanism, Stable, Strong, Test, Waterproof, Weak				
Year 3	2D shapes, 3D shapes, Castle, Design criteria, Evaluate, Façade, Feature, Flag, Net, Recyclable, Scoring, Stable, Strong, Structure, Tab, Weak		Arid, Climate, Complementary, Country, Export, Import, Mediterranean, Mock-up, Mountain, Peel, Polar, Seasonal, Seasons, Snip, Temperate, Texture, Tropical, Weather		Analogue, Analyse, Annotate, Badge, Control. Design criteria, Develop, Digital, Digital revolution, Digital world, Display, Electronic, Fastening, Feature, Feedback, Form, Function, Layers, Loops, Monitor, Net, Product, Program, Sense, Test, User	
Year 4	Aesthetic, Cladding, Design criteria, Evaluation, Frame Structure, Function, Inspiration, Pavilion, Reinforce, Stable, Structure, Texture, Theme	Aesthetic, Air resistance, Chassis, Design, Design criteria, Function, Graphics, Kinetic energy, Mechanism, Net, Structure				Battery, Bulb, Buzzer, Cell, Component, Conductor, Copper, Design criteria, Electrical item, Electricity, Function, insulator, Series Circuit, Switch, Test, Torch, Wire
Year 5		Aesthetic, Caption, Design, Design brief, Design criteria, Exploded-Diagram, Function, Input, Linkage, Mechanism, Motion, Output, Pivot, Prototype, Slider, Structure, Template	Abattoir, Adaptation, Balanced, Brand, Cross-contamination, Develop, Enhance, Equipment, Label, Measure, Nutrient, Nutrition, Preference, Press, Process, Safety, Theme			Circuit Component, Configuration, Current, Develop, DIY, Investigate, Motor, Motorised, Problem solve, Product analysis, Series circuit, Stable, Target user

Year 6	Adapt, Apparatus, Bench hook, Cladding, Coping saw, Design, Dowel, Evaluation, Feedback, Idea, Landscape, Mark out, Measure, Modify, Natural materials, Plan view, Playground, Prototype, Reinforce, Sketch, Strong, Structure, Tenon saw, Vice			Accurate, Adapt, Annotate, Detail, Fabric, Fastening, Knot, Properties, Running-stitch, Sean, Sew, Shape, Template, Thread, Unique, Waistcoat, Waterproof.	Application, Biodegradable, Cardinal Compass, Client, Concept, Convince, Corrode, Duplicate, Finite, Infinite, Lightweight, Loop, Manufacture, Mouldable, Navigation, Non-recyclable, Product lifecycle, Product lifespan, Program, Recyclable, Smart, Sustainable, Variable	