Design Technology at
Exwick Heights Primary School

Overview

Design and Technology is an inspiring, rigorous and practical subject. It encourages children to learn to think and intervene creatively to solve problems both as individuals and as members of a team. At Exwick Heights, we encourage children to use their creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. Children are given the opportunity to solve real and relevant problems in D&T lessons, which means that they develop essential everyday skills, unlocking their ability to be the designers and innovators of tomorrow.

Curriculum Principles

By the end of their primary education, a pupil of Exwick Heights Primary School will:

- Be encouraged to use their creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values.
- Make links with work to other disciplines such as mathematics, science, engineering, computing and art.
- Understand the importance of the design process and learn through rigorous evaluation, how to make improvements that will feed into future projects.

By the end of Early Years, pupils can…

- Use a range of small tools, including scissors, paint brushes and cutlery;
- 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.

By the end of KS1, pupils can…

Design

- 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

Make

- 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

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Food and Nutrition

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

By the end of KS2, pupils can:

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.

Make

- 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.

Evaluate

- 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.

Food and nutrition

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where and how a variety of ingredients are grown,
- reared, caught and processed.

In order to achieve a true understanding of DT, topics are sequenced based on the following rationale:

- The three main strands of the National Curriculum will be followed: ***Design, Make, Evaluate***.
- Each year group follows a structured programme of work allowing them to put their learning from other areas of the curriculum into practice. This ensures that knowledge and skills develop progressively from the youngest to the oldest children in school.
- The emphasis is upon designing, developing and making good quality products with a purpose. A wide range of materials is used including wood, plastic sheeting, card, paper, textiles and food as well as graphic media.
- At all stages, the children are encouraged to find solutions to problems through evaluation of their own pieces of work as well as those of established designers.
- 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 diagrams, prototypes, pattern pieces and computer-aided design.

The DT curriculum will address social disadvantage by addressing gaps in students' knowledge and skills:

- At primary, children are tracked against the National Curriculum progression and assessed during and at the end of the cycle. Underachievement is identified and students are targeted in lessons to meet the objectives, through 1:1 support and small group work and feedback.
- Feedback is information given to the pupil or teacher about the learner's performance relative to learning goals or outcomes. The aim of feedback is to improve student learning by redirecting or refocusing the learner's actions to achieve a goal. Feedback can be verbal or written, or can be given through tests.
- Quality teaching and lesson content will ensure that all pupils can succeed and use the design booklets to track this process.
- Once identified, these pupils, along with others, will receive quality feedback and will benefit from peer tutoring and collaborative learning.

We fully believe DT can contribute to the personal development of students at Exwick Heights:

- Students will use, research and develop design criteria to inform the design of innovative, functional and 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 diagrams, prototypes, pattern pieces and computer-aided design.
- 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.
- 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. Understand and use electrical systems in their products. Apply their understanding of computing to program, monitor and control their products.
- Key skills and key knowledge for Design & Technology have been mapped across the school to ensure progression between year groups. This also ensures that there is a context for the children's work in Design and Technology; that they learn about real life structures and the purpose of specific examples, as well as developing their skills throughout the programme of study. Design and technology lessons can also be taught as a block so that children's learning is focused throughout each unit of work.

In each phase of learning, our belief is that homework should be a revision of powerful knowledge previously modelled and taught in lessons. This knowledge is recalled and applied through a range of quizzing and practice.

Curriculum Overview with Enrichment Opportunities

Year	Autumn	Spring	Summer
Nursery	In Nursery, children will begin to explore different materials and textures.		
Reception	In Reception: Structures; Junk modelling / Textiles; Making a bookmark / Structures; Boats		
Year 1	Constructing a windmill	Puppets	Fruit and vegetables
Year 2	Baby bear's chair	Making a moving monster or Ferris wheel	Pouches
Year 3	Electronic charm	Eating seasonally	Constructing a castle
Year 4	Pavilions	Making a slingshot car	Torches
Year 5	What could be healthier?	Making a pop-up book	Doodlers
Year 6	Waistcoats	Playgrounds	Navigating the world

Key **Electronic Systems** **Textiles** **Structure** **Digital World** **Food Technology** **Mechanical System**

Reach For The Heights

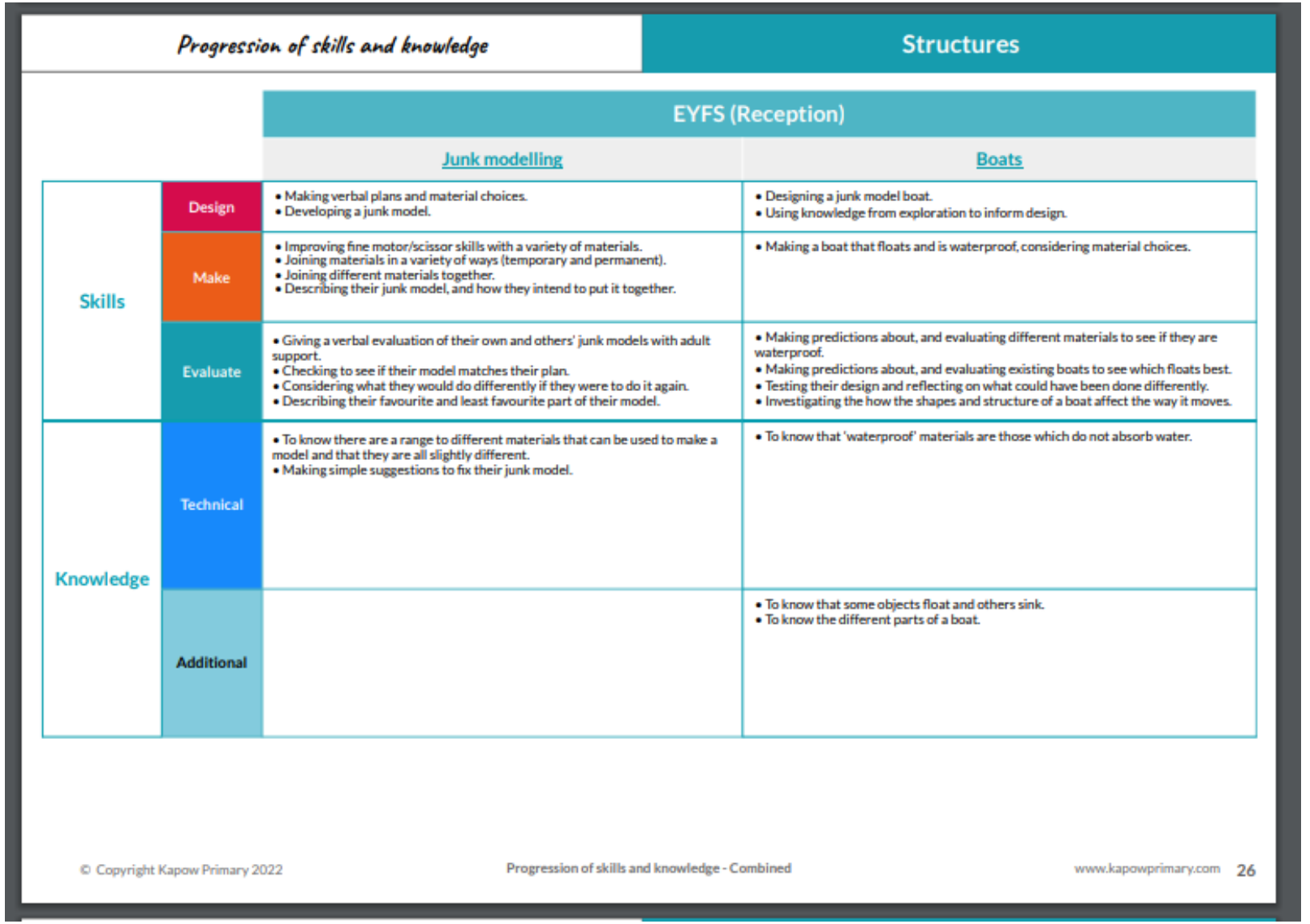
Our Spiral Curriculum

For Design and technology, the combined Art and DT curriculum includes carefully selected units to ensure gradual progression towards the National curriculum end of key stage attainment targets and to cover all of the four strands (Design, Make, Evaluate and Technical Knowledge) in enough detail.

Some key areas appear less frequently than others, for example Textiles, and this is deliberate. The National curriculum statements show that working with textiles is only a small element of the Make strand and many of the making techniques covered in the Textiles units are also covered with a range of materials in other units, such as the use of templates, modelling, measuring and marking out, cutting, shaping and joining.

All children are entitled to a curriculum and to the powerful knowledge, which will open doors and maximise their life chances. Below is a high-level overview of the critical knowledge children will learn in DT at each stage of their primary education, from Nursery through to Year 6. The curriculum is planned vertically and horizontally giving thought to the optimum knowledge sequence for building secure schema. This curriculum overview shows the knowledge, skills and understanding at each stage of a child's DT journey at Exwick Heights.

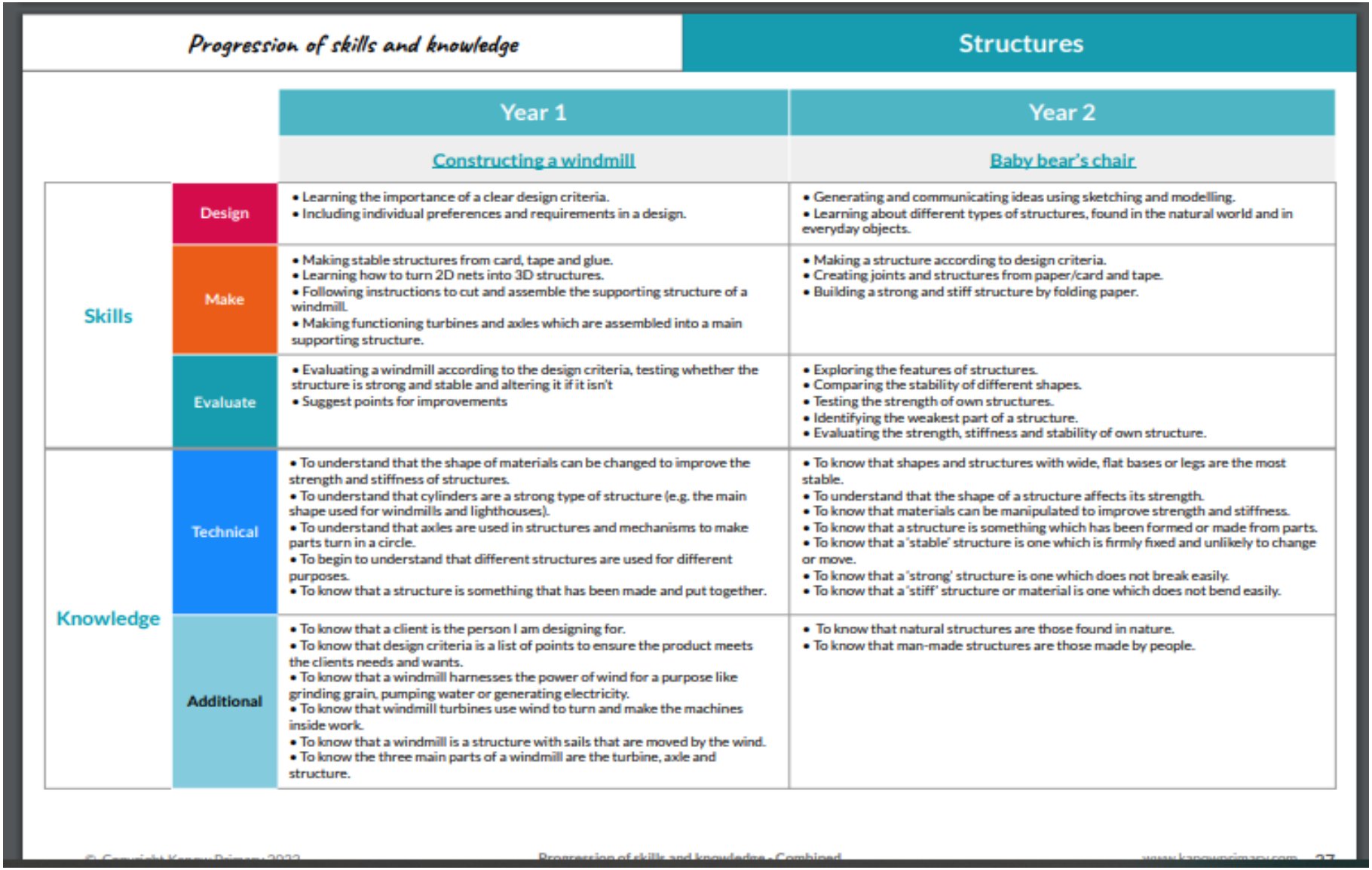
Nursery and Reception



Progression of skills and knowledge | **Structures**

		EYFS (Reception)	
		Junk modelling	Boats
Skills	Design	• Making verbal plans and material choices. • Developing a junk model.	• Designing a junk model boat. • Using knowledge from exploration to inform design.
	Make	• 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, considering material choices.
	Evaluate	• 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, 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.
Knowledge	Technical	• To know there are a range to different materials that can be used to make a model and that they are all slightly different. • Making simple suggestions to fix their junk model.	• To know that 'waterproof' materials are those which do not absorb water.
	Additional		• To know that some objects float and others sink. • To know the different parts of a boat.

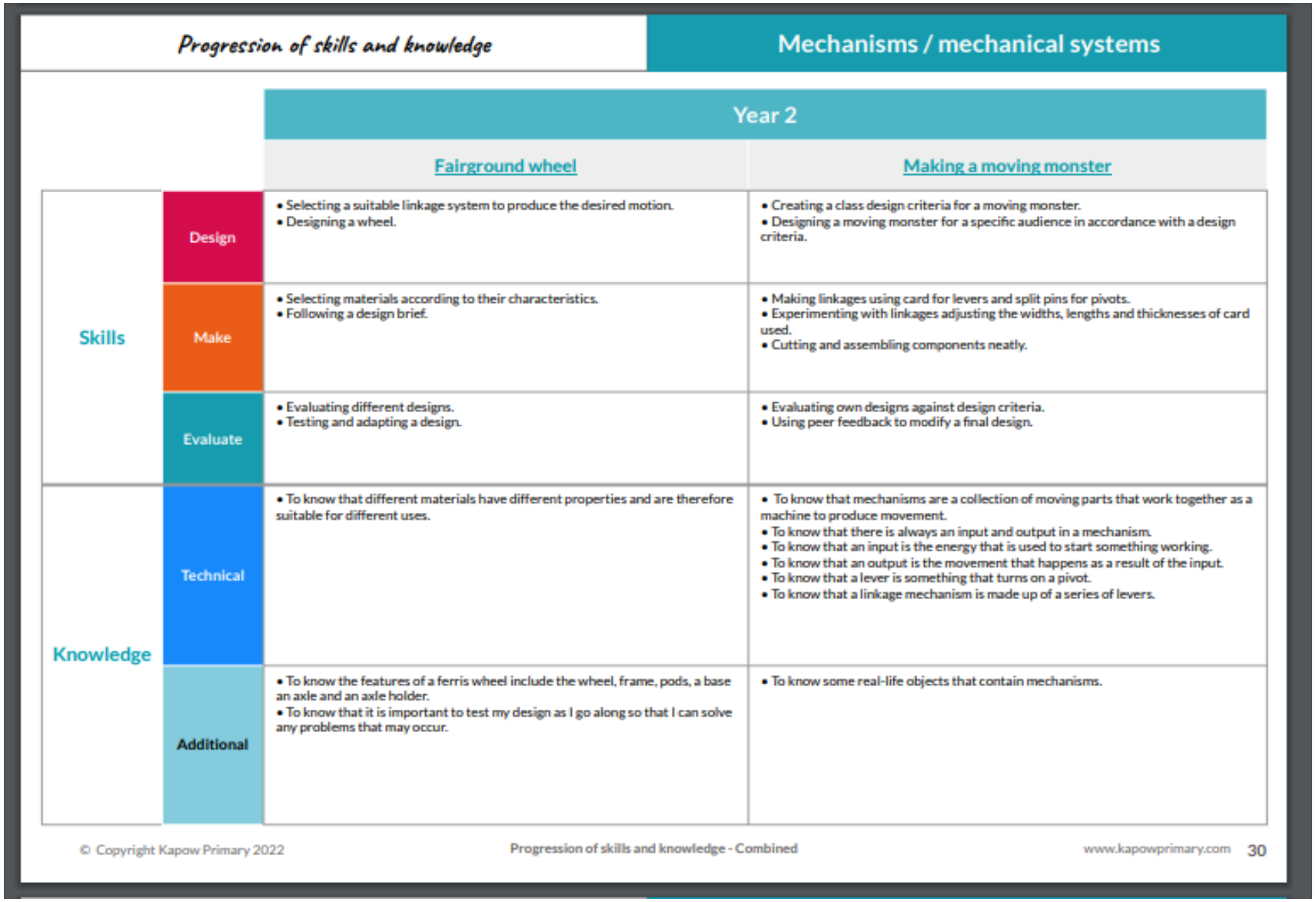
Year 1 and Year 2



Progression of skills and knowledge — **Structures**

		Year 1 — Constructing a windmill	Year 2 — Baby bear's chair
Skills	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.
	Make	• Making stable structures from card, tape and glue. • Learning how to turn 2D nets into 3D structures. • Following instructions to cut and assemble the supporting structure of a windmill. • 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.
	Evaluate	• 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.
Knowledge	Technical	• To understand that the shape of materials can be changed to improve the strength and stiffness of structures. • To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses). • To understand that axles are used in structures and mechanisms to make parts turn in a circle. • To begin to understand that different structures are used for different purposes. • To know that a structure is something that has been made and put together.	• To know that shapes and structures with wide, flat bases or legs are the most stable. • To understand that the shape of a structure affects its strength. • To know that materials can be manipulated to improve strength and stiffness. • To know that a structure is something which has been formed or made from parts. • To know that a 'stable' structure is one which is firmly fixed and unlikely to change or move. • To know that a 'strong' structure is one which does not break easily. • To know that a 'stiff' structure or material is one which does not bend easily.
	Additional	• To know that a client is the person I am designing for. • To know that design criteria is a list of points to ensure the product meets the clients needs and wants. • To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity. • To know that windmill turbines use wind to turn and make the machines inside work. • To know that a windmill is a structure with sails that are moved by the wind. • To know the three main parts of a windmill are the turbine, axle and structure.	• To know that natural structures are those found in nature. • To know that man-made structures are those made by people.

Cooking and nutrition	Year 1	Textiles	Year 1
	Fruit and vegetables		Puppets
Design	• Designing smoothie carton packaging by-hand or on ICT software.		• Using a template to create a design for a puppet.
Make	• Chopping fruit and vegetables safely to make a smoothie. • Identifying if a food is a fruit or a vegetable. • Learning where and how fruits and vegetables grow.		• Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing the steps taken during construction.
Evaluate	• Tasting and evaluating different food combinations. • Describing appearance, smell and taste. • Suggesting information to be included on packaging.		• Reflecting on a finished product, explaining likes and dislikes.
wledge	• Understanding the difference between fruits and vegetables. • To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber). • To know that a blender is a machine which mixes ingredients together into a smooth liquid. • To know that a fruit has seeds and a vegetable does not. • To know that fruits grow on trees or vines. • To know that vegetables can grow either above or below ground. • To know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber).		• To know that 'joining technique' means connecting two pieces of material together. • To know that there are various temporary methods of joining fabric by using staples, glue or pins. • To understand that different techniques for joining materials can be used for different purposes. • To understand that a template (or fabric pattern) is used to cut out the same shape multiple times. • To know that drawing a design idea is useful to see how an idea will look.



Progression of skills and knowledge

Mechanisms / mechanical systems

		Year 2	
		Fairground wheel	Making a moving monster
Skills	Design	• Selecting a suitable linkage system to produce the desired motion. • Designing a wheel.	• Creating a class design criteria for a moving monster. • Designing a moving monster for a specific audience in accordance with a design criteria.
	Make	• 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.
	Evaluate	• Evaluating different designs. • Testing and adapting a design.	• Evaluating own designs against design criteria. • Using peer feedback to modify a final design.
Knowledge	Technical	• To know that different materials have different properties and are therefore suitable for different uses.	• To know that mechanisms are a collection of moving parts that work together as a machine to produce movement. • To know that there is always an input and output in a mechanism. • To know that an input is the energy that is used to start something working. • To know that an output is the movement that happens as a result of the input. • To know that a lever is something that turns on a pivot. • To know that a linkage mechanism is made up of a series of levers.
	Additional	• To know the features of a ferris wheel include the wheel, frame, pods, a base an axle and an axle holder. • To know that it is important to test my design as I go along so that I can solve any problems that may occur.	• To know some real-life objects that contain mechanisms.

Year 3 and Year 4

Progression of skills and knowledge		Structures	
		Year 3	Year 4
		Constructing a castle	Pavilions
Skills	Design	• Designing a castle with key features to appeal to a specific person/purpose. • Drawing and labelling a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials needed and colours. • Designing and/or decorating a castle tower on CAD software.	• Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect. • Building frame structures designed to support weight.
	Make	• 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. • Creating a design in accordance with a plan. • Learning to create different textural effects with materials.
	Evaluate	• 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.
Knowledge	Technical	• To understand that wide and flat based objects are more stable. • To understand the importance of strength and stiffness in structures.	• To understand what a frame structure is. • To know that a 'free-standing' structure is one which can stand on its own.
	Additional	• To know the following features of a castle: flags, towers, battlements, turrets, curtain walls, moat, drawbridge and gatehouse - and their purpose. • To know that a façade is the front of a structure. • To understand that a castle needed to be strong and stable to withstand enemy attack. • To know that a paper net is a flat 2D shape that can become a 3D shape once assembled. • To know that a design specification is a list of success criteria for a product.	• To know that a pavilion is a a decorative building or structure for leisure activities. • To know that cladding can be applied to structures for different effects. • To know that aesthetics are how a product looks. • To know that a product's function means its purpose. • To understand that the target audience means the person or group of people a product is designed for. • To know that architects consider light, shadow and patterns when designing.

Digital world (KS2 only)

Year 3

Electronic charm

Design	• Problem solving by suggesting potential features on a Micro: bit and justifying my ideas • Developing design ideas for a technology pouch • Drawing and manipulating 2D shapes, using computer-aided design, to produce a point of sale badge
Make	• Using a template when cutting and assembling the pouch • Following a list of design requirements • Selecting and using the appropriate tools and equipment for cutting, joining, shaping and decorating a foam pouch • Applying functional features such as using foam to create soft buttons
Evaluate	• Analysing and evaluating an existing product • Identifying the key features of a pouch
Technical	• To understand that in programming a 'loop' is code that repeats something again and again until stopped • To know that a Micro bit is a pocket-sized, codeable computer • Writing a program to control (button press) and/or monitor (sense light) that will initiate a flashing LED algorithm
Additional	•To know what the 'Digital Revolution' is and features of some of the products that have evolved as a result •To know that in Design and technology the term 'smart' means a programmed product •To know the difference between analogue and digital technologies • To understand what is meant by 'point of sale display' • To know that CAD stands for Computer-aided design

Cooking and nutrition

Year 3

Eating seasonally

• Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish.
• Knowing how to prepare themselves and a work space to cook safely in, learning the basic rules to avoid food contamination. • Following the instructions within a recipe.
• 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.
• To know that not all fruits and vegetables can be grown in the UK. • To know that climate affects food growth. • To know that vegetables and fruit grow in certain seasons. • To know that cooking instructions are known as a 'recipe'. • To know that imported food is food which has been brought into the country. • To know that exported food is food which has been sent to another country.. • To understand that imported foods travel from far away and this can negatively impact the environment. • To know that each fruit and vegetable gives us nutritional benefits because they contain vitamins, minerals and fibre. • To understand that vitamins, minerals and fibre are important for energy, growth and maintaining health. • To know safety rules for using, storing and cleaning a knife safely. • To know that similar coloured fruits and vegetables often have similar nutritional benefits.

Electrical systems (KS2 only)

		Year 4
		Torches
Skills	Design	• Designing a torch, giving consideration to the target audience and creating both design and success criteria focusing on features of individual design ideas.
	Make	• 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.
	Evaluate	• Evaluating electrical products. • Testing and evaluating the success of a final product.
Knowledge	Technical	• To understand that electrical conductors are materials which electricity can pass through. • To understand that electrical insulators are materials which electricity cannot pass through. • To know that a battery contains stored electricity that can be used to power products. • To know that an electrical circuit must be complete for electricity to flow. • To know that a switch can be used to complete and break an electrical circuit.
	Additional	• To know the features of a torch: case, contacts, batteries, switch, reflector, lamp, lens. • To know facts from the history and invention of the electric light bulb(s) - by Sir Joseph Swan and Thomas Edison.

Mechanisms / mechanical systems

Year 4
Making a slingshot car
• 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.
• Measuring, marking, cutting and assembling with increasing accuracy. • Making a model based on a chosen design.
• Evaluating the speed of a final product based on: the effect of shape on speed and the accuracy of workmanship on performance.
• To understand that all moving things have kinetic energy. • To understand that kinetic energy is the energy that something (object/person) has by being in motion. • To know that air resistance is the level of drag on an object as it is forced through the air. • To understand that the shape of a moving object will affect how it moves due to air resistance.
• To understand that products change and evolve over time. • To know that aesthetics means how an object or product looks in design and technology. • To know that a template is a stencil you can use to help you draw the same shape accurately. • To know that a birds-eye view means a view from a high angle (as if a bird in flight). • To know that graphics are images which are designed to explain or advertise something. •To know that it is important to assess and evaluate design ideas and models against a list of design criteria.

Year 5

Electrical systems (KS2 only)

Year 5

Doodlers

- 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.

- 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.

- 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.

- To know that series circuits only have one direction for the electricity to flow.
- To know when there is a break in a series circuit, all components turn off.
- To know that an electric motor converts electrical energy into rotational movement, causing the motor's axle to spin.
- To know a motorised product is one which uses a motor to function.

- To know that product analysis is critiquing the strengths and weaknesses of a product.
- To know that 'configuration' means how the parts of a product are arranged.

Mechanisms / mechanical systems

Year 5

Making a pop up book

- 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.

- 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.

- Evaluating the work of others and receiving feedback on own work.
- Suggesting points for improvement.

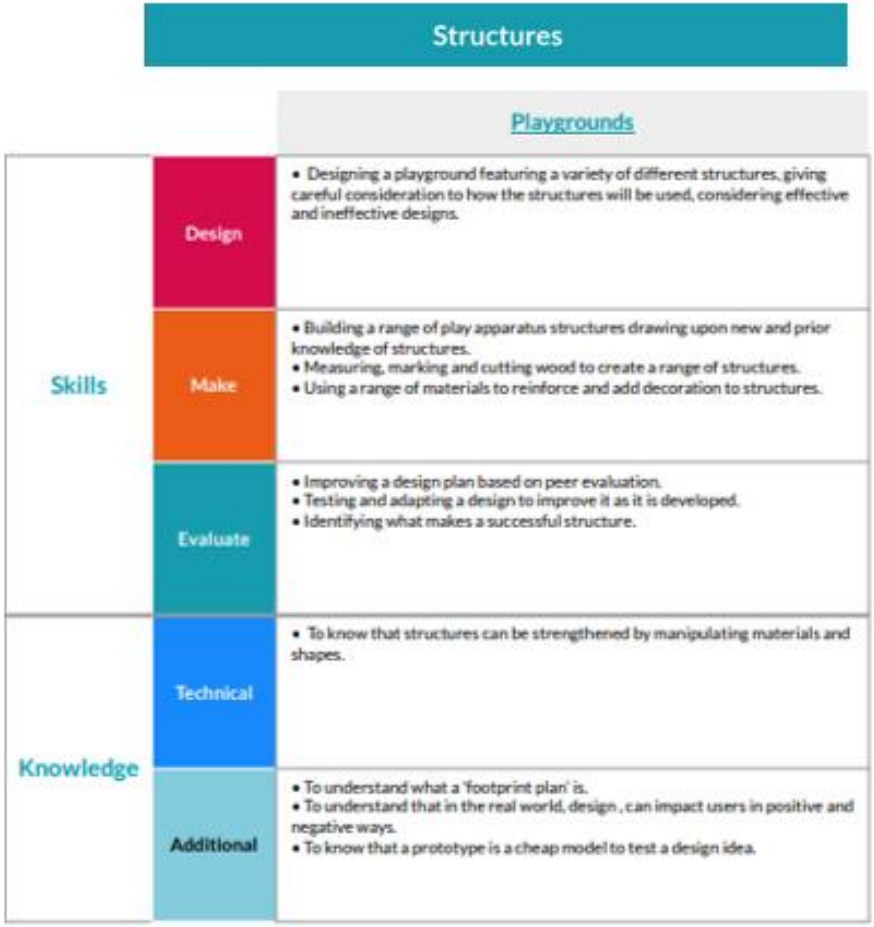
- To know that mechanisms control movement.
- To understand that mechanisms can be used to change one kind of motion into another.
- To understand how to use sliders, pivots and folds to create paper-based mechanisms.

- To know that a design brief is a description of what I am going to design and make.
- To know that designers often want to hide mechanisms to make a product more aesthetically pleasing.

Cooking and nutrition

		What could be healthier?
Skills	Design	• 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.
	Make	• 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.
	Evaluate	• Identifying the nutritional differences between different products and recipes. • Identifying and describing healthy benefits of food groups.
Knowledge		• To understand where meat comes from - learning that beef is from cattle and how beef is reared and processed, including key welfare issues. • To know that I can adapt a recipe to make it healthier by substituting ingredients. • To know that I can use a nutritional calculator to see how healthy a food option is. • To understand that 'cross-contamination' means bacteria and germs have been passed onto ready-to-eat foods and it happens when these foods mix with raw meat or unclean objects.

Year 6



Structures		Playgrounds
Skills	Design	• Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs.
	Make	• 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.
	Evaluate	• 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.
Knowledge	Technical	• To know that structures can be strengthened by manipulating materials and shapes.
	Additional	• To understand what a 'footprint plan' is. • To understand that in the real world, design , can impact users in positive and negative ways. • To know that a prototype is a cheap model to test a design idea.

Digital world (KS2 only)	Year 6
	Navigating the world
	• Writing a design brief from information 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, using CAD • Changing the properties of, or combine one or more 3D objects, using CAD
	• 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
	• 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
	• To know that accelerometers can detect movement • To understand that sensors can be useful in products as they mean the product can function without human input
	• To know that designers write design briefs and develop design criteria to enable them to fulfil a client's request • To know that 'multifunctional' means an object or product has more than one function • To know that magnetometers are devices that measure the Earth's magnetic field to determine which direction you are facing

Textiles

Waistcoats

- Designing a waistcoat in accordance to a specification linked to set of design criteria.
- Annotating designs, to explain their decisions.

- 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.
- 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.

- Reflecting on their work continually throughout the design, make and evaluate process.

- To understand that it is important to design clothing with the client/ target customer in mind.
- To know that using a template (or clothing pattern) helps to accurately mark out a design on fabric.
- To understand the importance of consistently sized stitches.