Design Technology Progression Document

National Curriculum Expectations

Purpose Of Study: Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.

Aims:The national curriculum for design and technology aims to ensure that all pupils: develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world. To build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users critique, evaluate and test their ideas and products and the work of others to understand and apply the principles of nutrition and learn how to cook.

Attainment Targets: By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study.

Key stage 1
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.
When designing and making, pupils should be taught to:

- 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
- 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
- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria
- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms in their products.

Key Stage 2
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:

- 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
- select from and use a wider range of tools and equipment to perform practical tasks 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
- 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.

Progression of Knowledge – Design Technology

	EYFS		Key Stage 1		Lower Key Stage 2		Upper Key Stage 2	
	The development of children's artistic and cultural awareness supports their imagination and creativity. It is important that children have regular opportunities to engage with the arts, enabling them to explore and play with a wide range of media and materials. The quality and variety of what children see, hear and participate in is crucial for developing their understanding, self-expression, vocabulary and ability to communicate through the arts. The frequency, repetition and depth of their experiences are fundamental to their progress in interpreting and appreciating what they hear, respond to and observe		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 and school, gardens and playgrounds, the local community, industry and the wider environment].		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].			
	FS1	FS2	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
	Planning and Generating Ideas							
Substantive Knowledge	Use their imagination as they consider what they can do	Develop their own ideas and then decide which materials to use to express them.	Know how to draw on their own experience to help generate ideas and research conducted on design criteria.	Know how to generate design ideas by drawing on their own and other people's experiences.	Explain how existing products have been designed, made, what materials have been used and how they have been successful. Start to annotate these to support ideas.	Explain how existing products have been designed, made, what materials have been used and how they have been successful. Know how to sketch and annotate these to support analysis.	Know how to use research and develop their own design criteria to inform the design of innovative, functional, appealing products.	Know how to use research and develop their own design criteria to inform the design of innovative, functional, appealing products that are fit for user and purpose.

Disciplinary Knowledge	**Show an enjoyment of construction and food through provision.** **Experiment with different materials, tools and techniques including scissors and cutlery.**	**Show an enjoyment of construction and cooking through provision.** **Safely explore a variety of materials, tools and techniques including scissors and cutlery.** **Explore how things work.** Work purposefully to create and construct using different media.	**Introduce a DT book.** **Enjoy different products within different areas of DT.** Experiment with different materials. Name some different tools used in construction, cooking and sewing. .	**Develop a DT book as a place to record ideas.** **List what they enjoy products within different areas of DT.** Look at different source materials. Generate ideas through exploration of materials. Name some different tools and techniques used in construction, cooking and sewing. . that they have used.	**Continue to use DT books to record ideas.** **Enjoy reviewing different products and reasoning why they enjoy it.** Explore how ideas develop through different medias. Generate ideas through research of a product. Name more techniques and tools that they have used in construction, cooking and sewing.	**Continue to develop DT books to record individual responses to their learning.** **Enjoy looking at different products and reasons why they enjoy it and give alternative opinions.** Explore how ideas develop through different medias and give an opinion. Generate ideas through research of a product independently. Name more techniques and tools that they have used in construction, cooking and sewing. . and express a preference.	**Continue to use DT books to record and reflect on their learning.** **Enjoy looking at different products. Also giving reasons why they enjoy it and give alternative opinions, looking at how they can inspire making.** Explore how ideas develop through different medias, giving an opinion and preference. Develop ideas through experimentation and questioning about products. Generate ideas through research of a product independently, using IT.	**Continue to use a DT book to record and reflect on their learning showing clear improvements through planning.** **Enjoy looking at different products. Also giving reasons why they enjoy it and give alternative opinions, suggest improvements, looking at how they can inspire making.** Explore how ideas develop through different medias, giving an opinion and preference, and discussing the creator's intention. Develop ideas through experimentation and questioning about products. Generate ideas through research of a product independently, using IT.
Vocabulary	**Idea, cut, hold, eat, think, make.**	**Idea, cut, hold, eat, think, make, join**	**Idea, think, make, plan.**	**Idea, think, make, plan.**	**Idea, think, make, plan, research, tools.**	**Idea, think, make, plan, research, tools.**	**Idea, think, make, plan, research, tools, inspire, reason.**	**Idea, think, make, plan, research, tools, inspire, reason.**

Construction and Making								
Substantive Knowledge	**Construction materials can be grouped (blocks, lego etc.)** **Glue can be used to stick things down.** **Ideas can be expressed through construction.**	**Natural materials can be found in nature.** **Materials can be joined together.**	**Glue and sellotape can be used to strengthen a structure.** **Levers, wheels and axles make something work.** **A ruler is used to measure.**	**Glue, sellotape can be used to strengthen a structure.** **A wheel causes movement.** **An axle helps wheels rotate.** **A lever can lift things.**	**Different shapes provide strength.** **Hot glue can join things together.** **A bulb, a battery and wires make a circuit.** **A motor can make things move.**	**Hot glue can be used to join and reinforce structures.** **A bulb, a battery and wires make a circuit which can be used in construction.** **A motor can make things move and be used to improve a product.**	**A pulley is a simple machine which is useful for lifting things.** **A cam mechanism moves in a rotary movement.** **Complex structures require more technique.**	**How a pulley system works and the considerations that goes into making them.** **Understand that 2 different sized pulleys can combine.** **A framework is a layer to support the structure in construction.**
Disciplinary Knowledge	**Use blocks and other materials including lego to build and stack.** **Use different methods to join materials including glue.** Make imaginative structures. Experiment with different construction materials including natural resources. Make use of props and materials when role playing.	**Use different materials including natural resources to build for a purpose.** **Use different methods to join materials including glue.** Make imaginative structures and explain ideas behind them. Experiment with design and construct to understand how best to build something. Select the right resources to help them construct.	**Begin to build structures, explaining how they joined the materials.** **Explore mechanisms to use in construction.** **Explore how to use equipment such as scissors.** Create a recognisable structure. Know how to make their design using appropriate materials, tools and techniques. With help measure, mark out, cut and	**Build structures, exploring how they can be made stronger, stiffer and more stable.** **Explore and use mechanisms to use in construction.** **Explore how to use equipment such as scissors** Create a recognisable structure. Select appropriate tools, materials and techniques; use correct vocabulary to name and describe them.	**Build more complex structures exploring how they can be made stable.** **Explore mechanical systems in their products** **Explore a wider range of tools, materials and equipment to perform practical tasks.** Create a recognisable structure for a purpose. Measure, mark out, cut, score and assemble components with more accuracy. ' Work safely and accurately with a	**Apply knowledge and understanding of how to strengthen, stiffen and reinforce structures to create a product.** **Explore mechanical and electrical systems in their products.** **Explore a wider range of tools, materials and equipment to perform practical tasks.** Create a recognisable structure for a purpose. Know how to measure, mark out,	**Apply knowledge and understanding of how to strengthen, stiffen and reinforce structures to make more complex structures.** **Understand and use mechanical and electrical systems in their products.** **Choose from a wider range of tools, materials and equipment to perform practical tasks.** Create a recognisable	**Know how to build, reinforce, stiffen and strengthen a 3D framework and more complex structures.** **Know how to construct products using permanent joining techniques.** **Understand and use mechanical and electrical systems in their products.** **Choose from a wider range of tools, materials and equipment to perform practical tasks.**

			shape a range of materials.	With help measure, cut and score with some accuracy. Know how to assemble, join and combine materials in order to make a product.	range of simple tools and equipment.	cut and shape a range of materials, using appropriate tools, equipment and techniques. Know how to measure, join and combine materials and components accurately in temporary and permanent ways. Use a glue gun with close supervision (one to one)	structure for a purpose which relates to an established product. Measure and mark out more accurately. With growing confidence cut and join with accuracy to ensure a good-quality finish to the product. Use different tools and equipment safely and accurately.	Create a recognisable structure for a purpose which relates to an established product. Know how to measure and mark out more accurately. Confidently cut and join with accuracy to ensure a precise, quality finish to the product Use different tools and equipment safely and accurately.
Vocabulary	**Build, stick, join, make, scissors, cut, glue, paint, construct, bigger, smaller, taller, shorter.**	**Build, stick, construct, join, make, scissors, cut, glue, paint, bigger, smaller, taller, shorter.**	**Build, stick, join, make, scissors, cut, glue, paint, lever.**	**Build, stick, join, make, scissors, cut, glue, paint, lever.**	**Build, stick, join, make, scissors, cut, glue, paint, pulley, rotate, mechanical, stronger.**	**Build, stick, join, make, scissors, cut, glue, paint, pulley, rotate, mechanical, stronger.**	**Build, stick, join, make, scissors, cut, glue, paint, pulley, rotate, mechanical, electrical, reinforce.**	**Build, stick, join, make, scissors, cut, glue, paint, pulley, rotate, mechanical, electrical, reinforce.**
Textiles								
Substantive Knowledge	**There are different materials.**	**Materials can be joined together.** **There are different textures.**	**Sewing can be used to join materials.** **Thread goes through the eye of the needle for sewing.** **Decoration can increase the quality of a product.**	**A running stitch is a sewing stitch made by passing the needle in and out repeatedly.** **A template is used to plan a shape.**	**A template can be used to cut the shape of a product.** **An overstitch wraps around the edge of the material.**	**An invisible stitch can create a neater finish.** **Links can be attached using a connector. Templates help create the recognisable shape in a product.**	**Pins can hold materials in place.** **The blanket stitch is a stitch used to reinforce the edge of thick materials. Rulers and tape measures can be used to measure materials.**	**How to choose the correct stitch for a specific purpose.** **Pins hold a template and materials in place when cutting.**

Disciplinary Knowledge	**Explore crafting using different materials.** **Use fine motor skills to thread different objects (larger holes).** Play with different toys that have been sewn.	**Explore using different materials and glue.** **Use fine motor skills to thread through smaller holes.** Play with different toys that have been sewn. Think about own clothing and how it looks.	**Learn how to join two pieces of material together.** **Decorate pieces of material.** Use a needle and thread on paper. Create a product using sewing techniques.	**Learn how to join two pieces of material together.** **Decorate pieces of material with different media.** **Start to cut out shapes using a template on materials with support.** Start to develop confidence in using a running stitch. Create a product using sewing techniques.	**Understand how to join two pieces of materials together.** **Think carefully about the decorations used on material.** **Cut out shapes using a template on materials with some support.** Use a running stitch or an over stitch independently. Create a recognisable product using sewing techniques.	**Understand how to join two pieces of materials together in different ways.** **Think carefully about the different types of decoration on material.** **Cut out shapes using a template on materials with little support.** Use a running stitch or an over stitch independently. Create a recognisable product using multiple sewing techniques.	**Know which techniques to use to join pieces of materials together.** **Use particular designs to enhance the quality of my product.** **Use pins to hold materials in place and cut out shapes.** Understand which type of stitch (including the blanket stitch) would best suit the purpose of the product. Make a quality product using sewing techniques.	**Know which techniques to use to join pieces of materials together.** **Use particular designs to enhance the quality of my product.** **Use pins to hold materials in place and cut out specific shapes.** Understand which type of stitch (including the blanket stitch) would best suit the purpose of the product and use it independently. Make a quality product using sewing techniques.
Vocabulary	**Fabric, thread, string**	**Fabric, thread, string, clothes**	**Material, sew, stitch, needle, thread.**	**Material, sew, stitch, needle, thread.**	**Material, sew, stitch, needle, thread, running stitch, over stitch, pattern.**	**Material, sew, stitch, needle, thread, running stitch, over stitch, pattern** .	**Material, sew, stitch, needle, thread, running stitch, over stitch, blanket stitch, pattern.**	**Material, sew, stitch, needle, thread, running stitch, over stitch, blanket stitch, pattern.**
Food Technology								
Substantive Knowledge	**A knife and fork can be used to eat food.**	**Knives can cut food and forks can pick it up.**	**Ingredients are needed to complete a recipe.**	**Know that all food comes from plants or animals.**	**A balanced diet is eating a wide variety**	**Different foods grow in different**	**Food is grown, reared and caught in the UK, Europe**	**Peas, potatoes and strawberries**

	Foods have different tastes and textures.	**There are healthy and unhealthy foods.**	**Foods can be grouped.**	**There are 5 food groups: fats, fruit and vegetables, protein, carbohydrates and dairy.** **Knives are used to cut, slice and chop food (for preparation).**	**of foods in the right proportion.** **Some foods need cooking before eating.** **Heat sources should not be touched.**	**seasons and in different places.** **There are different ways to cook food.** **Scales are used for weighing food.**	**and the wider world.** **A processed food is any food that has been altered in some way during preparation.** **Foods can be classed as sweet or savoury.**	**can be grown in the UK.** **Bananas and coffee are grown in Europe and the wider world.** **Different foods are stored in different ways.** **The difference between sweet foods (tastes more of sugar) and savoury (taste more of salt).**
Disciplinary Knowledge	**Develop fine motor skills of grabbing cutlery and food.** **Taste a variety of foods from different food groups.** **Develop sensory skills when working with food,** Express a preference in food, Begin to get into the habit of washing hands before eating.	**Can safely hold cutlery and food.** **Taste a variety of foods from different food groups.** **Use sensory skills when working with food,** Express a preference in food, Begin to work hygienically when handling food or eating by washing hands with soap.	**Explore common food sources (e.g. from plants or animals).** **Prepare simple dishes safely and hygienically with support.** Know that everyone should eat at least five portions of fruit and vegetables every day. Start to understand how to name and sort foods into the five groups.	**Develop understanding of where different foods come from.(fruit and vegetables are grown).** **Demonstrate how to prepare simple dishes safely and hygienically, without using a heat source, with support.** Start to name and sort foods into the five groups. Recognise the need for a variety of food in a diet. Know and demonstrate how to use techniques	**Begin to understand that food is grown, reared and caught in the UK, Europe and the wider world.** **Know how a healthy diet is made up from a variety and balance of different food and drink.** **Understand how to prepare and cook a variety of dishes, hygienically, including experience of using a heat source with support.** Begin to understand how to use a range of techniques such as peeling, chopping, slicing, grating, mixing,	**Begin to understand that food is grown, reared and caught in the UK, Europe and the wider world.** **Know how a healthy diet is made up from a variety and balance of different food and drink and exercise.** **Understand how to prepare and cook a variety of dishes, hygienically, including experience of using a heat source with some support.** Know how to use a range of techniques	**Understand that food is grown, reared and caught in the UK, Europe and the wider world.** **Know how food is processed into ingredients that can be eaten or used in cooking.** **Know how to hygienically prepare and cook a variety of predominantly savoury dishes including the use of different heat sources with support.**	**Understand that food is grown, reared and caught in the UK, Europe and the wider world with specific examples.** **Know and explain how food is processed into ingredients that can be eaten or used in cooking.** **Know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including the use of different heat sources.**

				such as cutting, peeling and grating.	spreading, kneading and baking. Begin to know that to be active and healthy, food and drink are needed to provide energy for the body.	such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Know how to measure and weigh ingredients appropriately.	Demonstrate increasing confidence in how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Know how to appropriate tools and equipment, weighing and measuring with scales.	Know and demonstrate how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking. Know how to use appropriate tools and equipment, weighing and measuring with scales.
Vocabulary	**Food, healthy, clean, wash, grow, plants, meat, vegetables, cook, mix, eat, like, don't like.**	**Food, healthy, clean, wash, grow, plants, meat, vegetables, cook, mix, eat, like, don't like, because**	**Food, healthy, clean, wash, grow, plants, meat, vegetables, cook, mix, equipment.**	**Food, healthy, clean, wash, grow, plants, meat, vegetables, cook, mix, equipment.**	**Food, healthy, clean, wash, grow, plants, meat, vegetables, cook, mix, equipment, peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.**	**Food, healthy, clean, wash, grow, plants, meat, vegetables, cook, mix, equipment, peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.**	**Food, healthy, clean, wash, grow, plants, meat, vegetables, cook, mix, equipment, peeling, chopping, slicing, grating, mixing, spreading, kneading, baking, measuring, weighing.**	**Food, healthy, clean, wash, grow, plants, meat, vegetables, cook, mix, equipment, peeling, chopping, slicing, grating, mixing, spreading, kneading, baking, measuring, weighing.**
				Evaluating				
Substantive Knowledge	**Can comment what they like and dislike about creation with support.**	**Can link creations to prior learning.**	**Comment what they like and dislike about their own creation and how they would improve it.**	**Comment what they like and dislike about their own creation and how they would improve it. Relating their ideas to what they have learnt.**	**Explain with reasons what they like and dislike about their own creation and how they would improve it. Relating their ideas to what they have learnt.**	**Explain with reasons what they like and dislike about their own creation and how they would improve it. Relating their ideas to what they have learnt about a specific product.**	**Explain with reasons they like and dislike about their own creation and how they would improve it. Comparing their creation to another creation and relating their**	**Independently explain with reasons they like and dislike about their own creation and how they would improve it. Independently compare their**

							ideas to what they have learnt.	**creation to another creation and relate their ideas to what they have learnt.**
Disciplinary Knowledge	**Share their creations.** Give meaning to some of their own creations,	**Share their creations, explaining the processes they have used.** Give meaning to their own creations. Recognise techniques and tools used to create other creations. Develop own ideas and think about how best to do something.	**Learn about different existing products and designs.** **Respond to research into a product with my own final piece.** **Evaluate my work with what I like about my work and what I would change.** Describing the differences and similarities between different techniques. Give an opinion on a product. Work and discuss in groups.	**Learn about different existing products and designs.** **Respond to a product with my own final piece and link to the original design.** **Evaluate my work with what I like, dislike and what I would change about my work.** Describing the differences and similarities between different practices and techniques. Give an opinion on a product. Work independently and in groups. Express preference.	**Investigate and analyse a range of existing products and how they have helped shape the world.** **Respond to a product with my own final piece and identify clear links to the original product.** **Evaluate my work, explaining what I like and why, what I would change about my work and why, and what I have learnt.** Enjoy discussing my own and others' work, expressing thoughts and feelings, and using knowledge and understanding of techniques. Describing the differences and similarities between different practices and techniques. Work independently and in groups.	**Investigate and analyse a range of existing products and how they have helped shape the world.** **Respond to a product with my own final piece and identify clear links to the original product.** **Evaluate my work, explaining what I like and why, what I would change about my work and why, and what I have learnt in relation to the original product.** Discuss and review my own and others' work, expressing thoughts and feelings, and identify modifications/ changes and see how they can be developed further. Describing the differences and similarities between	**Investigate and analyse a range of existing products, key events and how they have helped shape the world.** **Start to compare a product to my own design independently.** **Respond to a product with my own final piece and identify clear links to the original product.** **Evaluate my work, explaining what I have learnt, what I like and why, what I would change about my work and why, and compare my own work to the original product.** Recognise products and begin to place them in key movements or historical events.	**Investigate and analyse a range of existing products, key events and how they have helped shape the world.** **Compare a product independently, reflecting on previous knowledge.** **Respond to a product with my own final piece and identify clear links to the original product.** **Evaluate my work, in detail, independently. Explaining the processes of work, what I have learnt, what I like and why, what I would change about my work and why, and compare my own work to the original product.** Recognise products and begin to place

					Express preference in style of product	different practices and techniques. Work independently and in groups. Express preference in style of product with reasoning.	Discuss and review own and others work, expressing thoughts and feelings, and identify modifications/ changes and see how they can be developed further Explore a range of great creators, architects and designers in history Compare the style of different styles and approaches.	them in key movements or historical events. Discuss and review my own and others' work, expressing thoughts and feelings, and identify modifications/ changes and see how they can be developed further. Explore a range of great creators, architects and designers in history Ask questions about technique, idea and outcome.
Vocabulary	**Think, like, don't like, made, cooked, built**	**Think, like, don't like, made, cooked, built**	**Evaluate, think, like, dislike.**	**Evaluate, think, like, dislike, change**	**Evaluate, think, like, dislike, change, same, different, improve, product**	**Evaluate, think, like, dislike, change, same, different, improve, product**	**Evaluate, think, like, dislike, change, same, different, improve, product**	**Evaluate, think, like, dislike, change, same, different, improve, product. Questions: why? how?**