Knowledge and Skills Progression Map : Design and Technology

EYFS		
Developing, planning and communicating ideas	**Working with tools, equipment, materials and components to make quality products**	**Evaluating processes and products**
• Can they make observations about the features of objects? • Can they use their senses to explore and describe objects? • Can they think of some ideas of their own? • Can they plan how best to approach a task	• Can they explain what they are making? • Can they select appropriate resources and tools? • Can they explain which tools are they using and why? • Can they use tools safely? • Can they use tools to manipulate materials?	• Can they identify success and next steps? • Can they change their strategy as needed?

Growing	**Cooking**	**Nutrition**	**Enjoying Food**
• Do they understand the life cycle of plants and animals? • Do they understand that all food comes from plants or animals? • Can they describe how food makes the journey from farm to fork? • Do they understand what plants need to grow	• Are they aware that ingredients are available from a range of sources (shops, markets, grown at home)? • Can they select and use appropriate tools needed for a recipe? • Can they use tools effectively and safely? • Can they identify and use the appropriate ingredients for a recipe? • Can they complete basic hygiene tasks? (e.g. wash hands)	• Do they understand that food is a basic requirement of life? • Do they understand that we need food to grow, be active and maintain health? • Can they sort a selection of foods into healthy and unhealthy groups? • Can they identify and talk about a range of fruits and vegetables?	• Can they talk about foods they like and dislike with reasons? • Can they discuss the food that they eat during special occasions or cultural celebrations? (e.g. birthday, Eid, etc.) • Are they willing to try new foods?

Year 1			
Designing		**Making**	
Understanding contexts, users and purposes	Generating, developing, modelling and communicating ideas	Planning	Practical skills and techniques
• work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment • state what products they are designing and making • say whether their products are for themselves or other users • describe what their products are for • say how their products will work • say how they will make their products suitable for their intended users • use simple design criteria to help develop their ideas	• generate ideas by drawing on their own experiences • use knowledge of existing products to help come up with ideas • develop and communicate ideas by talking and drawing • model ideas by exploring materials, components and construction kits and by making templates and mock ups • use information and communication technology, where appropriate, to develop and communicate their ideas	• plan by suggesting what to do next • select from a range of tools and equipment, explaining their choices • select from a range of materials and components according to their characteristics	• follow procedures for safety and hygiene • use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components • measure, mark out, cut and shape materials and components • assemble, join and combine materials and components • use finishing techniques, including those from art and design
Evaluating		**Technical Knowledge**	**Cooking and Nutrition**
Own ideas and products	Existing products	Making products work	Where food comes from Food preparation, cooking and nutrition
• talk about their design ideas and what they are making • make simple judgements about their products and ideas against design criteria • suggest how their products could be improved	• what products are • who products are for • what products are for • how products work • how products are used • where products might be used • what materials products are made from • what they like and dislike about products	• about the simple working characteristics of materials and components • about the movement of simple mechanisms such as levers, sliders, wheels and axles • how freestanding structures can be made stronger, stiffer and more stable	• that all food comes from plants or animals • that food has to be farmed, grown elsewhere (e.g. home) or caught • how to name and sort foods into the five groups in The Eat well plate • that everyone should eat at least five portions of fruit and vegetables every day

		• that a 3-D textiles product can be assembled from two identical fabric shapes • that food ingredients should be combined according to their sensory characteristics • the correct technical vocabulary for the projects they are undertaking	• how to prepare simple dishes safely and hygienically, without using a heat source • how to use techniques such as cutting, peeling and grating

Year 2			
Designing		**Making**	
Understanding contexts, users and purposes	Generating, developing, modelling and communicating ideas	Planning	Practical skills and techniques
• work confidently within a range of contexts, such as imaginary, story-based, home, school, gardens, playgrounds, local community, industry and the wider environment • state what products they are designing and making • say whether their products are for themselves or other users • describe what their products are for • say how their products will work • say how they will make their products suitable for their intended users • use simple design criteria to help develop their ideas	• generate ideas by drawing on their own experiences • use knowledge of existing products to help come up with ideas • develop and communicate ideas by talking and drawing • model ideas by exploring materials, components and construction kits and by making templates and mock ups • use information and communication technology, where appropriate, to develop and communicate their ideas	• plan by suggesting what to do next • select from a range of tools and equipment, explaining their choices • select from a range of materials and components according to their characteristics	• follow procedures for safety and hygiene • use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components • measure, mark out, cut and shape materials and components • assemble, join and combine materials and components • use finishing techniques, including those from art and design
Evaluating		**Technical Knowledge**	**Cooking and Nutrition**
Own ideas and products	Existing products	Making products work	Where food comes from Food preparation, cooking and nutrition
• talk about their design ideas and what they are making • make simple judgements about their products and ideas against design criteria • suggest how their products could be improved	• what products are • who products are for • what products are for • how products work • how products are used • where products might be used • what materials products are made from • what they like and dislike about products	• about the simple working characteristics of materials and components • about the movement of simple mechanisms such as levers, sliders, wheels and axles • how freestanding structures can be made stronger, stiffer and more stable	• that all food comes from plants or animals • that food has to be farmed, grown elsewhere (e.g. home) or caught • how to name and sort foods into the five groups in The Eat well plate • that everyone should eat at least five portions of fruit and vegetables every day

		• that a 3-D textiles product can be assembled from two identical fabric shapes • that food ingredients should be combined according to their sensory characteristics • the correct technical vocabulary for the projects they are undertaking	• how to prepare simple dishes safely and hygienically, without using a heat source • how to use techniques such as cutting, peeling and grating

Year 3			
Designing		**Making**	
Understanding contexts, users and purposes	Generating, developing, modelling and communicating ideas	Planning	Practical skills and techniques
• work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work • gather information about the needs and wants of particular individuals and groups • develop their own design criteria and use these to inform their ideas	• share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces • share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • use computer-aided design to develop and communicate their ideas • generate realistic ideas, focusing on the needs of the user • make design decisions that take account of the availability of resources	• select tools and equipment suitable for the task • explain their choice of tools and equipment in relation to the skills and techniques they will be • using • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities • order the main stages of making	• follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components • measure, mark out, cut and shape materials and components with some accuracy • assemble, join and combine materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some accuracy
Evaluating		**Technical Knowledge**	**Cooking and Nutrition**
Own ideas and products	Existing products	Making products work	Where food comes from Food preparation, cooking and nutrition
• identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work	• how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work	• how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work	• how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • how to use a range of techniques such as peeling, chopping, slicing,

• refer to their design criteria as they design and make • use their design criteria to evaluate their completed products	• how well products achieve their purposes • how well products meet user needs and wants • who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused	• that materials have both functional properties and aesthetic qualities • that materials can be combined and mixed to create more useful characteristics • that mechanical and electrical systems have an input, process and output • the correct technical vocabulary for the projects they are undertaking • how mechanical systems such as levers and linkages or pneumatic systems create movement • how simple electrical circuits and components can be used to create functional products • how to program a computer to control their products • how to make strong, stiff shell structures • that a single fabric shape can be used to make a 3D textiles product • that food ingredients can be fresh, pre-cooked and processed	grating, mixing, spreading, kneading and baking • that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eat well plate • that to be active and healthy, food and drink are needed to provide energy for the body

Year 4			
Designing		**Making**	
Understanding contexts, users and purposes	Generating, developing, modelling and communicating ideas	Planning	Practical skills and techniques
• work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work • gather information about the needs and wants of particular individuals and groups • develop their own design criteria and use these to inform their ideas	• share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces • share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas • use computer-aided design to develop and communicate their ideas • generate realistic ideas, focusing on the needs of the user • make design decisions that take account of the availability of resources	• select tools and equipment suitable for the task • explain their choice of tools and equipment in relation to the skills and techniques they will be • using • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities • order the main stages of making	• follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components • measure, mark out, cut and shape materials and components with some accuracy • assemble, join and combine materials and components with some accuracy • apply a range of finishing techniques, including those from art and design, with some accuracy
Evaluating		**Technical Knowledge**	**Cooking and Nutrition**
Own ideas and products	Existing products	Making products work	Where food comes from Food preparation, cooking and nutrition
• identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work	• how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work	• how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work	• how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source • how to use a range of techniques such as peeling, chopping, slicing,

• refer to their design criteria as they design and make • use their design criteria to evaluate their completed products	• how well products achieve their purposes • how well products meet user needs and wants • who designed and made the products • where products were designed and made • when products were designed and made • whether products can be recycled or reused	• that materials have both functional properties and aesthetic qualities • that materials can be combined and mixed to create more useful characteristics • that mechanical and electrical systems have an input, process and output • the correct technical vocabulary for the projects they are undertaking • how mechanical systems such as levers and linkages or pneumatic systems create movement • how simple electrical circuits and components can be used to create functional products • how to program a computer to control their products • how to make strong, stiff shell structures • that a single fabric shape can be used to make a 3D textiles product • that food ingredients can be fresh, pre-cooked and processed	grating, mixing, spreading, kneading and baking • that a healthy diet is made up from a variety and balance of different food and drink, as depicted in The eat well plate • that to be active and healthy, food and drink are needed to provide energy for the body

Year 5			
Designing		**Making**	
Understanding contexts, users and purposes	Generating, developing, modelling and communicating ideas	Planning	Practical skills and techniques
• work confidently within a range of contexts, such as the home, school, leisure, culture, • enterprise, industry and the wider environment • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work • carry out research, using surveys, interviews, questionnaires and web-based resources • identify the needs, wants, preferences and values of particular individuals and groups • develop a simple design specification to guide their thinking	• share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and • communicate their ideas • use computer-aided design to develop and communicate their ideas • generate innovative ideas, drawing on research • make design decisions, taking account of constraints such as time, resources and cost	• select tools and equipment suitable for the task • explain their choice of tools and equipment in relation to the skills and techniques they will be using • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities • produce appropriate lists of tools, equipment and materials that they need • formulate step-by-step plans as a guide to making	• follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials • and kits, textiles, food ingredients, mechanical components and electrical components • accurately measure, mark out, cut and shape materials and components • accurately assemble, join and combine materials and components • accurately apply a range of finishing techniques, including those from art and design • use techniques that involve a number of steps • demonstrate resourcefulness when tackling practical problems
Evaluating		**Technical Knowledge**	**Cooking and Nutrition**
Own ideas and products	Existing products	Making products work	Where food comes from Food preparation, cooking and nutrition
• identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work	• how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work	• how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work	• that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world • that seasons may affect the food available

• critically evaluate the quality of the design, manufacture and fitness for purpose of their • products as they design and make • evaluate their ideas and products against their original design specification	• how well products achieve their purposes • how well products meet user needs and wants • how much products cost to make • how innovative products are • how sustainable the materials in products are • what impact products have beyond their intended purpose	• that materials have both functional properties and aesthetic qualities • that materials can be combined and mixed to create more useful characteristics • that mechanical and electrical systems have an input, process and output • the correct technical vocabulary for the projects they are undertaking • how mechanical systems such as cams or pulleys or gears create movement • how more complex electrical circuits and components can be used to create functional products • how to program a computer to monitor changes in the environment and control their products • how to reinforce and strengthen a 3D framework • that a 3D textiles product can be made from a combination of fabric shapes • that a recipe can be adapted by adding or substituting one or more ingredients	• how food is processed into ingredients that can be eaten or used in cooking

Year 6			
Designing		**Making**	
Understanding contexts, users and purposes	Generating, developing, modelling and communicating ideas	Planning	Practical skills and techniques
• work confidently within a range of contexts, such as the home, school, leisure, culture, • enterprise, industry and the wider environment • describe the purpose of their products • indicate the design features of their products that will appeal to intended users • explain how particular parts of their products work • carry out research, using surveys, interviews, questionnaires and web-based resources • identify the needs, wants, preferences and values of particular individuals and groups • develop a simple design specification to guide their thinking	• share and clarify ideas through discussion • model their ideas using prototypes and pattern pieces • use annotated sketches, cross-sectional drawings and exploded diagrams to develop and • communicate their ideas • use computer-aided design to develop and communicate their ideas • generate innovative ideas, drawing on research • make design decisions, taking account of constraints such as time, resources and cost	• select tools and equipment suitable for the task • explain their choice of tools and equipment in relation to the skills and techniques they will be using • select materials and components suitable for the task • explain their choice of materials and components according to functional properties and aesthetic qualities • produce appropriate lists of tools, equipment and materials that they need • formulate step-by-step plans as a guide to making	• follow procedures for safety and hygiene • use a wider range of materials and components than KS1, including construction materials • and kits, textiles, food ingredients, mechanical components and electrical components • accurately measure, mark out, cut and shape materials and components • accurately assemble, join and combine materials and components • accurately apply a range of finishing techniques, including those from art and design • use techniques that involve a number of steps • demonstrate resourcefulness when tackling practical problems
Evaluating		**Technical Knowledge**	**Cooking and Nutrition**
Own ideas and products	Existing products	Making products work	Where food comes from Food preparation, cooking and nutrition
• identify the strengths and areas for development in their ideas and products • consider the views of others, including intended users, to improve their work	• how well products have been designed • how well products have been made • why materials have been chosen • what methods of construction have been used • how well products work	• how to use learning from science to help design and make products that work • how to use learning from mathematics to help design and make products that work	• that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world • that seasons may affect the food available

• critically evaluate the quality of the design, manufacture and fitness for purpose of their • products as they design and make • evaluate their ideas and products against their original design specification	• how well products achieve their purposes • how well products meet user needs and wants • how much products cost to make • how innovative products are • how sustainable the materials in products are • what impact products have beyond their intended purpose	• that materials have both functional properties and aesthetic qualities • that materials can be combined and mixed to create more useful characteristics • that mechanical and electrical systems have an input, process and output • the correct technical vocabulary for the projects they are undertaking • how mechanical systems such as cams or pulleys or gears create movement • how more complex electrical circuits and components can be used to create functional products • how to program a computer to monitor changes in the environment and control their products • how to reinforce and strengthen a 3D framework • that a 3D textiles product can be made from a combination of fabric shapes • that a recipe can be adapted by adding or substituting one or more ingredients	• how food is processed into ingredients that can be eaten or used in cooking • that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world • that seasons may affect the food available • how food is processed into ingredients that can be eaten or used in cooking