



Compassion, Hope, Reverence, Wisdom

Skills Map for STEAM (Science, Technology, Engineering, Art & Music)

Design Technology & Engineering

'We create, we design, we make, we evaluate in order to live life in all its fullness.'

Early Years

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
<ul style="list-style-type: none">• To make observations about the features of objects.• To use their senses to explore and describe objects.• To think of some ideas of their own.• To be able to plan how best to approach a task.	<ul style="list-style-type: none">• To explain what they are making.• To select appropriate resources and tools.• To explain which tools, they are using and why.• To be able to use tools safely.• To be able to use tools to manipulate materials.	<ul style="list-style-type: none">• To be able to identify success and next steps.• To be able to change their strategy as needed.



Year 1

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
<ul style="list-style-type: none"> To identify the key features of an existing product. To think so some ideas of their own. To be able to plan an outcome through pictures with labels. To explain their ideas orally. 	<ul style="list-style-type: none"> To explain what they are making. To select appropriate resources and tools. To explain which tools, they are using and why. To be able to use tools safely. 	<ul style="list-style-type: none"> To describe how their product works. To identify success and next steps.

Choose from: Areas of Study

Mechanisms	Construction and Use of Materials
<ul style="list-style-type: none"> To make a product which moves. To cut materials with scissors To describe the materials using different words. To explain why they have chosen moving parts. 	<ul style="list-style-type: none"> To arrange pieces of the construction before building To make a structure/model using different materials.

Year 2

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
<ul style="list-style-type: none"> To generate ideas through comparing existing products. To plan an innovative product To be able to choose the most appropriate tools and materials and explain their choices. To describe their design by using pictures, diagrams and words. 	<ul style="list-style-type: none"> To join materials/components together in different ways. To measure materials to use in a model or structure. To use joining, folding or rolling to make it stronger. 	<ul style="list-style-type: none"> To assess how well their product works. To explain what they would improve, if they did it again.

Choose from: Areas of Study

Textiles	Mechanisms	Construction
<ul style="list-style-type: none"> To measure an amount of a textile. To join textiles together to make a product, using techniques such as stitching. To be able to cut textiles accurately. To explain why they chose a certain textile. 	<ul style="list-style-type: none"> To join materials together as part of a moving product. To explain how different parts move. 	<ul style="list-style-type: none"> To make sensible choices of which material to use for their construction. To make their structure stronger, stiffer or more stable.



Year 3

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
<ul style="list-style-type: none"> To plan their design, using accurate diagrams and labels. To plan equipment/tools needed and give reasons why. To order the main stages of making their product. To identify a design criteria and establish a purpose/audience for their product. To understand how realistic their plan is e.g. tools, equipment, materials, components. 	<ul style="list-style-type: none"> To be able to use equipment and tools accurately and safely. To select the most appropriate materials, tools and techniques to use. To be able to manipulate materials using a range of tools and equipment. To be able to measure, cut and assemble with increasing accuracy. 	<ul style="list-style-type: none"> To start to think about their ideas as they make progress and be willing to make changes if this helps them to improve their work. To assess how well their product works in relation to the purpose. To explain how they could change their design to make it better.

Choose from: Areas of Study

Textiles	Mechanisms	Constructions
<ul style="list-style-type: none"> To join textiles of different types in a different way. To choose textiles both for their appearance and also qualities. To begin to use a range of simple stitches. 	<ul style="list-style-type: none"> To make a product which uses mechanical components. To use a range of components e.g. levers, linkages and pneumatic systems. 	<ul style="list-style-type: none"> To join materials effectively to build a product. To use a range of techniques to shape and mould materials. To use finishing techniques e.g. sanding, varnishing, glazing etc.

Year 4

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
<ul style="list-style-type: none"> To create a final design for their product based on initial ideas and revisions, based on existing ideas. To create a detailed plan considering their target audience, design criteria and intended purpose. 	<ul style="list-style-type: none"> To use equipment and tools with increased accuracy and safety. To select the most effective materials, tools and techniques to use. To manipulate materials effectively using a range of tools and equipment. To be able to measure, cut and assemble accurately. 	<ul style="list-style-type: none"> To think about their ideas as they progress and make changes to improve their work. To assess how well their product works in relation to the design criteria and the intended purpose. To explain how they could improve their design and how their improvement would affect the original outcome.

Choose from: Areas of Study

Textiles	Mechanisms	Construction
<ul style="list-style-type: none"> To consider which materials are fit for purpose and join them To devise a template or pattern for their product. 	<ul style="list-style-type: none"> To use a simple circuit and add components to it. To make a product which uses both electrical and mechanical components. 	<ul style="list-style-type: none"> To measure accurately to build effective structures. To use a range of techniques to shape and mould. To experiment with a range of techniques to increase stability in a structure. To use finishing techniques, showing an awareness of audiences.



Year 5

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
<ul style="list-style-type: none"> To survey their target audience and use this to generate ideas. To take user's view into account when designing. To produce a detailed step-by-step plan for their design method. To suggest alternate designs and compare the benefits and drawbacks to inform design process and outcome. 	<ul style="list-style-type: none"> To choose appropriate tools and materials to ensure that the final product will appeal to the audience. To use a range of tools and equipment with good accuracy and effectiveness, within established safety parameters. 	<ul style="list-style-type: none"> To continuously check that their design is effective and fit for purpose. To assess how well their product works in relation to the design criteria and the intended purpose and suggest improvements. To evaluate appearance and function against the original design criteria.

Choose from: Areas of Study

Textiles	Mechanisms	Constructions
<ul style="list-style-type: none"> To consider the audience when choosing textiles. To make up a prototype first. To use a range of joining techniques. To devise a template or pattern for their product. 	<ul style="list-style-type: none"> To refine their product after testing it. To incorporate hydraulics and pneumatics. 	<ul style="list-style-type: none"> To measure accurately enough to ensure precision. To demonstrate that their product is strong and fit for purpose. To be motivated to refine and further improve their product.

Year 6

Developing, planning and communicating ideas	Working with tools, equipment, materials and components to make quality products	Evaluating processes and products
<ul style="list-style-type: none"> To use a range of information to inform design To use market research to inform plans. To work within constraints. To justify their plan to someone else. To consider culture and society in their designs. To consider the use of the product when selecting materials. To think about how their product would be marketed through packaging and advertising. 	<ul style="list-style-type: none"> To choose appropriate tools and materials to ensure that the final product will appeal to the audience. To use a range of tools and equipment with good accuracy and effectiveness, within established safety parameters. 	<ul style="list-style-type: none"> To be able to effectively test and evaluate their final product. To evaluate that the product is fit for purpose. To understand what would improve it. To reflect upon what different resources would have improved the product. To reflect if they would have needed more or different information to make it even better. To evaluate if their product meets all design criteria.

Choose from: Areas of Study

Textiles	Mechanisms	Construction
<ul style="list-style-type: none"> To consider the audience when choosing textiles. To make up a prototype first To use a range of joining techniques. 	<ul style="list-style-type: none"> To use different kinds of circuits in their product to improve it. To incorporate a switch into their product. To refine their product after testing. To incorporate hydraulics and pneumatics. 	<ul style="list-style-type: none"> To measure accurately enough to ensure precision. To demonstrate that their product is strong and fit for purpose. To be motivated to refine and further improve their product.