



# *Curriculum skills and knowledge document*

Rationale: 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. The children should develop detailed knowledge, understanding and creative skills needed to engage in design and making.

Intent:	Implementation:	Impact:
The children will develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.	They will 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.	Children have the knowledge and skills to make realistic step by step plans, reflect on designs and review final products.

	Early Learning Goal	Y1		Y2		Y3	
Key concepts							
		Knowledge	skills	knowledge	skills	knowledge	skills
Design	CM2 I can talk/draw about what I am going to make.	I know how to make a simple design before I start to make.	I can draw and label a basic diagram.	I know why it is important to design my model before building.	I can plan which materials and equipment to use.  I can use existing products to help me design my own product.	I know that designs need to meet a range of purposes and criteria.	I can share ideas through words, labels and sketches fit for a purpose.
Make	CM3, CM1, CM2, FM2 I can create a picture with a purpose in mind.	I know that materials can be combined to make something.	I can use cutting tools safely.  With some adult support, I can select appropriate materials to make a product.	I know about a range of tools and materials I can select from when making a product.	I can measure and mark out with some help.  I can cut, assemble, join and combine materials to create a product.	I know which tools to use for a specific purpose and explain my choices.	I can cut, shape and score with a degree pf accuracy.
Evaluate	CM2 LAU2 I can talk about what I have made. I can select materials and tools appropriately.	With guidance, I know how to explore and evaluate existing products.	I can state what I like and dislike about my product.	I know different ways in which I can make improvements to my products.	I can evaluate why my product was/wasn't successful.  I can alter my design after testing.	I know how to say if a product is successful and fits the purpose.	I can suggest improvements to a product, taking the views of others into account.



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## DESIGN TECHNOLOGY

Food	I can talk about food that I like and don't like. I can try new foods from new cultures. I know that some foods are healthy, and some are unhealthy.	I know that food comes from a plant or an animal.  I know which foods are fruits.  I know why people should eat five portions of fruit or vegetables a day.	I can prepare a healthy fruit salad.  I can cut and chop ingredients.	I know the components of a healthy meal based on the principles of the Eat Well Plate.  I know that food can be farmed, grown or caught.	I can plan a healthy meal using the Eatwell Plate.  I can follow a simple recipe.	I know that food comes from regions of the UK and other countries of the world.  I know about the process that food goes through to preserve it.	I can measure and weigh ingredients to the nearest gram and millilitre.
Mechanisms	I can show an interest of how things work exploring wheels, pulling and pushing.	I know what a wheel, axle and chassis are.	I can make a wheel and axle mechanism.	I know how a simple mechanism can make things move.	I can make moving parts on a product.	I know about wheels, axles and chassis, and how they work in conjunction to allow a vehicle to move.	I can design and build a model with moving joints.  I can plan and design a simple moving vehicle.
Structures	I can explore how things stack and can be connected.	I know how using a butt joint and gusset can make a frame.	I can join wood using a butt joint and gusset.	I know that a structure can be strengthened in different ways.	I can cut and join materials to create a product.	I know about different bridge designs and why these were used.	I can research, design and make a strong bridge using construction materials and newspaper.
Electricity						I know how to make a bulb light, using a switch.	I can make a bulb light when a switch is closed (Iron Man's eyes).
Textiles	I can use different materials for role play imagination.  I can explore different objects and materials in the water area- floating and sinking	I know how to use a running stitch on a template.	I can sew along a template.	I know how to sew using holes as a guide.	I can use simple sewing techniques on card.  I can use a card loom to weave fabric and wool.		
Health and safety	I can move objects safely and judge the risk.  I understand the importance of hand washing before eating.	I know how to use tools safely.  I know the importance of washing my hands before preparing food.	I can follow instructions for using tools and equipment safely.	I know the importance of cleanliness when preparing food.	I can use a range of tools safely under adult supervision.	I know safety rules when using sources of heat to prepare food.	I can explain how to keep myself safe around heat sources.
Tools and materials	I can use one handled tools with some accuracy.	I know how to use a vice to hold a piece of wood safely while I cut it.	I can use scissors safely.	I know about the properties of different materials.  I know a variety of tools I can choose from.	I can use my knowledge of the properties of materials when designing and making a product.	I know the correct terminology for tools and construction techniques.	I can explain what each tool is used for.

		Y4		Y5		Y6	
Key concepts		Knowledge	skills	knowledge	skills	knowledge	skills



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Design		I know how a design can be modified and improved.  I know that I can use a range of existing products to help me design my own.	I can create a labelled diagram, considering all the elements I need to combine.  I can test out ideas by using a prototype.	I know how to use technology to help me research as part of the design process.	I can make and follow a set of detailed instructions when making my product.  I can use research to inform and develop detailed design criteria to inform the design of innovative, functional and appealing products.	I know that effective design occurs in stages and needs to be reviewed and modified.  I know that products have specific functions and need to be designed with this in mind.	I can use my knowledge of a broad range of existing products to help generate ideas.  I can create sketches, annotate diagrams, make prototypes, evaluate designs and make changes.
Make		I know an alternative way for fixing something if the first attempt is not successful.	I can measure and mark out to the nearest cm and mm.	I know about the properties of a range of materials and use this knowledge when making.	I can select and combine from a range of materials and components using appropriate techniques.	I know that there are a range of different tools and that they are suitable for different purposes.	I can select from a range of tools and use them safely and with precision.
Evaluate		I know how to evaluate a product by identifying what has been successful and suggesting areas for improvements.		I know how to evaluate a product effectively and identify improvements that could be made.	Following evaluation, I can make improvements to my products.	I know how to identify positives and negatives in my design and those of others.	I can critically evaluate the quality of design, manufacture and fitness for purpose of products.  I can create designs and prototypes and change my designs after testing.
Food		I know about the types of food/cuisine that come from Italy and/or Mexico.	I can use a range of cooking techniques such as mashing, whisking, crushing, grating, cutting, kneading and baking.	I know about cuisine from Brazil.	I can follow a detailed recipe and write my own for someone else to follow.  I can use a range of cooking techniques, such as griddling, grilling, frying and boiling.	I know about the types of food available to families weekly during rationing.  I know about the importance of balanced diets and about the nutrient content of different foods.	I can plan, create and prepare a menu or dish using food types available during rationing.  I can cut, prepare, cook and serve food in different ways depending on the food type or task.
Mechanisms		I know how pulleys, cranks and levers work.	I can use pulleys, cranks and levers.	I understand how cams and gears work to create movement.	I can use cams and gears in my models.	I know how a shadduf worked in Ancient Egypt.  I know how a range of mechanical systems work, including wheels, axes, chassis, pulleys and cogs.	I can use pulleys and cogs to create a shadduf (Egyptian Irrigation System).
Structures		I know about the structure of a Roman villa.	I can work in a group to design and make a Roman villa and hypocaust.	I know about different methods of strengthening structures.	I can make a Victorian bedroom with furniture.	I know about the different types of designs used for air raid shelters in WW2.	I can make my own strong and rigid air raid shelter using a



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		I understand what a hypocaust is.	I can make a working volcano.				range of different materials.  I can test the strength of my design appropriately.
Electricity				I know how to create a circuit to make a device work, e.g., bulb, motor etc.	I can use an electrical circuit to make something work on my model.	I understand how renewable sources can be used to reduce our carbon footprint.	I can use electrical systems (including renewable sources) to power my model.
Textiles		I know about different weaving techniques used in Mexico.	I can use different weaving techniques to create god's eyes and dreamcatchers.	I understand the importance of spinning and weaving in Viking culture.	I can use different weaving techniques to make decorative and practical products.	I know the types of designs created by Tibetans to make Kalachakra/Mandala.	I can research, design and make Kalachakra/Mandala.
Health and safety		I know that some household products are hazardous and can cause me harm.	I can identify hazardous symbols on household products and school equipment.	I know the dangers of electricity.	I know a range of ways to ensure good food hygiene when preparing food, e.g., washing hands, cleaning surfaces and separate chopping boards.	I know the types of hazards which can occur using the tools available in school.	I can create posters identifying possible dangers in school.  I can use tools safely in different environments.
Tools and materials		I know the different functions of a variety of tools and which materials they are most suited for.	I can select appropriate tools to use for a variety of purposes.	I know the names and uses of a variety of tools.	I can select the appropriate tools and equipment for a task based on their function.	I know the functions of different types of tools.	I can select and use a variety of different tools for different purposes.
Computer Programming			I can use technology to control a part of my model.		I can program my model to move using appropriate computing software.		I can alter variables in my program.