St. Lawrence Primary School: D.T. Skills Progression

Children to develop a love and appreciation of designing, making and evaluating through the development of associated skills: to discover their own strengths so that 'they can soar on wings like eagles'.

Introduction

The aim of this document is to guide and support teachers when planning D.T. lessons.

The products that children design, make and evaluate should solve a real-life problem/perform a purpose in their daily life.

The following planning and assessment framework should be followed by all teachers during each unit:

(There are some cross-curricular links.)

1. **Designing**
2. **Making**
3. **Evaluating**

All classes are to follow the same teaching sequence in order to make progression clear and maintain continuity between year groups. All work children complete can be stored in named wallets and then stuck into topic books once the full unit has been completed, to ensure that the work is kept together to further reflect the progression of skills.

Session/Day/Week	*Task
1/2/3 Designing	Spend time understanding the area they shall be working on. (Questioning, drafting, redrafting, exploring ideas…) Begin to make plans and consider the skills that shall be required including Health and Safety needs. Draw, label, annotate /make notes (written, scribed, videoed…). Children will need access to the tools and materials to help them in making judgements for their design. For Example: Coping saws are available so curves and circles are achievable in wood…
3/4/5 Making	Children are to create their designed product, ensuring they are using tools and equipment safely. Children to make a brief note of changes/ modifications of how they are making a product as they make it to use as an aide memoire for the final evaluation. For Example: Turn the paper as you cut the shape out;
5/6 Evaluating	Children are to write, video, have scribed a full evaluation of their design, following the recommended areas for discussion within each year group. Children are to explain any modifications in detail that they made as they were making their product (their making notes will aide). In light of the production and final product, children are to explain how they could/ would make improvements. Opportunities for peer evaluation too.

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***Each task can take as many sessions as the teacher feels is required. It may be a D.T. Day, D.T. Week or spread out over a half term (variables and constraints may determine). Upon completion, final pieces of work are to be photographed and included within the evaluation, along with any images of the process of making the products (which can be taken by the children).**

Skills Progression

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Mechanisms Y1- Sliders and levers Y2- Winding mechanisms Y3- Pneumatic systems Y4- Mechanisms Y5- Cams Y6- Vehicles	**Designing** ✓ Understand how mechanisms can be used in different ways [for example, wheels and axles, joints that allow movement]. ✓ Identify simple levers and sliders in moving books/products and explain how they work. ✓ Make drawings of simple products to show how they work. ✓ Develop their design ideas through talking and modelling.	**Designing** ✓ Talk about how winding mechanisms are made and how they work. ✓ Make labelled drawings that show how the mechanisms work. ✓ Talk about what their design has to do to work well.	**Designing** ✓ Know a range of products that have a simple pneumatic system. ✓ Explain how simple pneumatic systems work using appropriate vocabulary. ✓ Discuss how products have been made, and how models replicate real-life features. ✓ Work together on an appropriate idea generated through mind mapping and discussion of the constraints. ✓ Plan the stages of their work and record these at the end of the project in a storyboard.	**Designing** ✓ Recognise products that contain linkage type mechanisms and describe how they work and the movement produced. ✓ Be able to explain why a particular mechanism has been used and the way it works for the intended purpose. ✓ Identify the audience and purpose for their product. ✓ Illustrate alternative ideas for their product using drawings and models and make choices between them. ✓ Produce an outline plan that identifies the main stages in making their books, and list the tools, materials and processes needed.	**Designing** ✓ Identify the cam within a mechanism and explain how it changes movement. ✓ Use a construction kit to model a cam mechanism. ✓ Recognise the role of a cam and its follower in a mechanism and how cams produce movement. ✓ Show that their knowledge of cams and their movement is reflected in their designs.	**Designing** ✓ Identify products which incorporate a pulley and drive belt and are driven by a motor or are computer controlled. ✓ Identify control systems in everyday life and name the key elements of a system. ✓ Describe accurately how toy vehicles work using appropriate vocabulary. ✓ Identify component parts and their functions. ✓ Make clear and accurate drawings of toy vehicles.
	Making ✓ Try out their ideas using construction kits	**Making** ✓ Construct a winding	**Making** ✓ Construct effective pneumatic systems.	**Making** ✓ Understand and use mechanical systems in	**Making** ✓ To be able to make a prototype to test out	**Making** ✓ Model their design using temporary fixings.

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	to make simple levers. ✓ With some adult support, assemble strips of card to make simple sliders and lever mechanisms. ✓ Choose and use a given technique to make a simple slider or lever mechanism and incorporate it into a product linked with the theme. ✓ Use tools safely. ✓ Use appropriate vocabulary to describe mechanisms.	mechanism that works and has a straight axle. ✓ Understand techniques for making winding mechanisms from construction materials. ✓ Select appropriate tools and materials and name them. ✓ Use tools accurately and safely.	✓ Know of techniques for fixing components. ✓ Investigate ways of using their pneumatic systems with other materials to control movement. ✓ Be familiar with techniques for making simple pneumatic systems. ✓ Work safely and accurately with a range of simple hand tools.	their products [for example, gears, pulleys, cams, levers and linkages]. ✓ Be able to use technical vocabulary to describe the properties of materials and mechanisms e.g. lever, linkage, pivot. ✓ Cut and shape materials and components with some precision, to enable their mechanism examples to work. ✓ Choose suitable techniques to construct products. ✓ Strengthen materials using suitable techniques. ✓ Produce a range of different mechanisms.	their design ideas. ✓ Produce step-by-step plans for making their design which include the materials and tools needed. ✓ Measure accurately when marking out and drilling a hole in a wooden wheel. ✓ Use sharp tools correctly to ensure safety.	✓ Connect an electric motor in a circuit to make it work in various ways. ✓ Use a belt and pulley system to produce a variety of types of rotation e.g. reverse, faster, slower. ✓ Use construction kit components to model their ideas for parts of a product they would like to make. ✓ Use construction kits to make working models and to investigate movement.
	Evaluating ✓ Evaluate strengths and weaknesses of their product.	**Evaluating** ✓ Talk about their finished products in relation to their design criteria.	**Evaluating** ✓ Know how to evaluate their product as a team and suggest improvements.	**Evaluating** ✓ Identify what is and what is not working well in their products and what makes a quality finish.	**Evaluating** ✓ Draw up an evaluation to be carried out by others.	**Evaluating** ✓ Evaluate the effectiveness of their design and can adjust it to improve efficiency or effectiveness. ✓ Work together to discuss and evaluate ideas. ✓ Evaluate their vehicle according to the design criteria and suggest improvements.
Product Design Y1- Model and	**Designing** ✓ Recognise the simple features of a type of building or equipment.	**Designing** ✓ Talk about the different examples of	**Designing** ✓ Understand that boxes are a type of packaging, and that	**Designing** ✓ Identify the features of commercially available lights which	**Designing** ✓ Recognise and identify a wide range of musical instruments.	**Designing** ✓ Understand that there are many different types of

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construct Y2- Textiles Y3- Packaging Y4- Electronic products Y5- Musical instruments Y6- Structures and buildings	✓ Recognise and name mathematical shapes eg square, rectangle, triangle, circle in the context of buildings and equipment. ✓ Show through simple drawings, the main features of a building or type of equipment, with a sense of proportion. ✓ Investigate how materials and components have been used and assembled. Use construction kits to help develop their ideas. ✓ Use the correct names of the construction kit components. ✓	✓ textile product, describing how they have been made. ✓ Make clear, labelled drawings of the products. ✓ Talk about what their product needs to do to work well. ✓ Adapt a given template and model their ideas using paper.	packaging serves a variety of purposes. ✓ Evaluate a range of packaging already available for the product. ✓ Consider design needs and show their design ideas using graphical representation. ✓ Begin to recognise the use and importance of modelling as part of the design and make process.	make them suitable for a specific purpose and user. ✓ Be able to describe how the lights works. ✓ Know some simple principles about the safe use of electricity. ✓ Understand the dangers of mains electricity. ✓ Use ICT to acquire information about a range of lights. ✓ Be able to describe how a light and switches work. ✓ Make a drawing with labels which show the key features of a product that has not yet been made. ✓ Discuss and finalise their design. ✓ Develop working prototypes of their design solution. ✓ Diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage).	✓ Understand that different types of sounds can be made using different techniques e.g. shaking, scraping, hitting and plucking. ✓ Understand the basic concept of how each instrument works, the sound it produces and investigate what the instruments are used for. ✓ Use a variety of information sources E.g. books, CD-ROM and the Internet to research the instruments. ✓ Identify the different parts, materials used, and methods of assembly used in the instruments. ✓ Consider design needs and show their design ideas using annotated diagrams and use appropriate ICT for designing and/or presenting ideas.	shelters/buildings built for a variety of purposes. ✓ Identify which parts support and strengthen simple structures. ✓ Make models of their shelter/building ideas. ✓ Produce several clear design ideas, including step-by-step lists of what needs to be done and lists of resources to be used.
	Making ✓ Build structures, exploring how they can be made stronger, stiffer and more stable.	Making ✓ Know how to use a template for marking out identical pieces of	Making ✓ Understand that 3D structures can be constructed from nets.	Making ✓ Be able to make a bulb light up in a both series and parallel circuits.	Making ✓ Assemble materials in temporary ways. Understand how different	Making ✓ Recognise that under certain circumstances structures can fail when loaded (they will be familiar

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	✓ Cut materials safely using tools provided. ✓ Demonstrate a range of joining techniques (such as gluing, hinges or combining materials to strengthen). ✓ Demonstrate a range of cutting and shaping techniques (such as tearing, cutting, folding and curling). ✓ Begin to understand how they can make their product more stable/withstand greater loads.	fabric/material. ✓ Measure and mark out to the nearest centimetre. ✓ Join textiles using running stitch. ✓ Discuss the advantages and disadvantages of different joining techniques. ✓ Colour and decorate textiles using several techniques (such as dyeing, adding sequins or printing). ✓ Use appropriate vocabulary to describe materials, components and processes.	✓ Identify parts of a net and can explain how it was assembled, including the need for tabs. ✓ Measure and mark out to the nearest millimetre. ✓ Cut materials accurately and safely by selecting appropriate tools. ✓ Select appropriate joining techniques from those already learnt (e.g. gluing, hinges). ✓ Select an appropriate font style and size.	✓ Be able to make their own switch and know how to place it in a circuit to control the bulb. ✓ Name the simple electrical components being used. ✓ Understand what the safety implications are for bulbs and batteries. ✓ Understand and use safe practices.	✓ materials can be reinforced for specific purposes. ✓ Produce a quality musical instrument that will produce a series of controllable sounds when played. ✓ Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding).	with common techniques for reinforcing and strengthening structures and will incorporate some of these in their models). ✓ Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding). ✓ Work as part of a team. ✓ Make suggestions for alternative methods of construction if necessary.
	Evaluating ✓ Talk about their finished product saying what they have done well, what they are particularly pleased with, and which parts might have been done better. ✓ Evaluate the finished product for strength and stability.	Evaluating ✓ Talk about their finished product in relation to how well it works, the quality of the joining/sewing techniques and how well it fulfils the design criteria.	Evaluating ✓ Evaluate your packaging against your design criteria. ✓ Consider the views of others to improve your work.	Evaluating ✓ Evaluate their light against the original design criteria and identify some modifications to the light that they have made, including safety of the product.	Evaluating ✓ Evaluate their own work and that of others, suggesting future improvements.	Evaluating ✓ Evaluate their own and other children's shelters/buildings identifying what is and what is not working, including appearance.
Cooking Y1- Fruit Y2- Vegetables	Design ✓ Carry out simple tasting of fruits e.g. preference tests and record results. ✓ Suggest appropriate	Design ✓ Carry out simple tasting of vegetables e.g. preference tests and record results.	Design ✓ Understand what a 'Healthy Snack' could be. Evaluate current 'Healthy Snacks'	Designing ✓ Understand and apply the principles of a healthy and varied diet. Take an active part	Designing ✓ Understand and apply the principles of a healthy and varied diet. Be able to name and	Designing ✓ Understand and apply the principles of a healthy and varied diet. Understand that there are different food

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Y3- Healthy snacks Y4- Main meals Y5- Baking Y6- Menus	fruit for a product based on their tasting experiences. ✓ Select and use appropriate equipment and ingredients to achieve the shapes and sensory properties required for their product.	✓ Suggest appropriate vegetables for a product based on their tasting experiences. ✓ Select and use appropriate equipment and ingredients to achieve the shapes and sensory properties required for their product.	✓ recording their opinions on a table commenting on taste, appearance, smell and texture. ✓ Identify that different 'Snacks' are created for different needs, religions, occasions and purposes. ✓ Identify the different food groups in the 'balanced plate'. ✓ Put commonly eaten foods in their correct food groups. ✓ Use their knowledge from their research to choose ingredients for the snack e.g. most people preferred brown bread, so I chose this for my design.	✓ in research to find out what healthy main ready meals are available currently.	✓ identify the origin of several bread products. Talk about the contribution that bread ✓ can make to a healthy diet. Demonstrate through recording sheets ✓ understanding of how different bread products can be classified. Use a wide sensory vocabulary to describe ✓ bread products. Use ICT for ✓ researching. Use investigations to select appropriate ✓ ingredients for the final product. Plan order of work with list of ingredients and ✓ equipment.	groups and a healthy balanced diet consists of ✓ foods from all of these groups. Discuss and investigate menus which consist of ✓ Starter, Main and Dessert. Design a menu which includes foods from all of the food groups, ✓ using ingredients that are in season and are suitable for your client. Use ICT and recipe books to investigate different recipes and ✓ decide on a recipe best for your products. Cost your meals per ✓ portion.
	Making ✓ Cut, peel or grate ingredients safely and hygienically. ✓ Name and demonstrate appropriate use of simple tools in preparing fruit. ✓ Know that fruit is an important part of a healthy diet. ✓ Know where different	**Making** Cut, peel and grate ingredients ✓ safely and hygienically. Name and demonstrate appropriate use ✓ of simple tools in preparing vegetables (peelers, knives etc). Know that vegetables are	**Making** Have a sound ✓ understanding of appropriate terms used in food preparation and food products. Prepare ingredients hygienically using appropriate utensils ✓ e.g. washing hands, keeping long hair tied back, wearing an apron. Identify which foods	**Making** Prepare ingredients hygienically using ✓ appropriate utensils (e.g. washing hands, keeping long hair tied back, wearing an apron). ✓ Measure ingredients to the nearest gram accurately. ✓ Follow a recipe to produce a main meal, making appropriate modifications. Assemble or cook ingredients (controlling	**Making** 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. Understand the importance of correct storage and handling of ingredients ✓ (using knowledge of micro-organisms).	**Making** 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. Work as part of a group to create and refine recipes, ✓ including ingredients, methods, cooking times and temperatures.

	fruits come from and how they grow e.g. in the ground, on a tree.	✓ an important part of a healthy diet. ✓ Know where different vegetables come from and how they grow e.g. in the ground, on a tree.	✓ should be kept in a fridge and why some foods are high risk. ✓ Measure ingredients to the nearest gram accurately. ✓ Follow a recipe to produce a snack, making appropriate modifications.	✓ the temperature of the oven or hob, if appropriate). ✓ Understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed.	✓ Follow instructions to conduct fair tests involving yeast. ✓ Demonstrate accurate, effective and appropriate use of equipment, using safe and hygienic working practices. ✓ Understand that the properties and quantities of ingredients will affect the final product. ✓ Follow safe procedures for food safety and hygiene.	✓ Understand the importance of correct storage and handling of ingredients (using knowledge of micro-organisms). ✓ Measure ingredients out accurately and calculate ratios of ingredients to scale up or down from a recipe.
	Evaluating ✓ Talk about their finished product, and record through pictures and words how it looks and tastes and how well it matches their original ideas and chosen target group.	**Evaluating** ✓ Talk about their finished product, and record through diagrams and words how it looks and tastes and how well it matches their original ideas and chosen target group.	**Evaluating** ✓ Show that they have worked safely and hygienically in their preparation and finishing to ensure a quality product. ✓ Evaluate their own and other children's snacks against their original design criteria and taste, appearance, smell and texture.	**Evaluating** ✓ Evaluate your food product according to appearance, taste, texture. ✓ Consider other people's opinions through conducting questionnaires, food tasting etc. ✓ Decide what is good about your finished product and what you could do to improve it.	**Evaluating** ✓ Evaluate the bread product, considering their design specification and using a wide range of sensory vocabulary.	**Evaluating** ✓ Use a wide range of sensory vocabulary to evaluate and compare your own and others' food products for: appearance, taste, texture, smell, cost per portion, suitability to client/character. ✓ Think about what could have been done in your groups to create better finished products (more co-operation, following instructions/recipes more carefully).

Assessment of Progress

	Mechanisms				Product Design				Cooking			
	Designing	Making	Evaluating	Summary	Designing	Making	Evaluating	Summary	Designing	Making	Evaluating	Summary
Pupil A	3	2	2	2								

Pupil B												
Pupil C												

3= Exceeding expectations: Pupils who are exceeding the expectations will typically be providing evidence of achievement which consistently extends their learning beyond the confines of the task.

They are working in ways which show deeper understanding and mastery and which are above the norm for their peer group.

2= Meeting expectations: Pupils who are meeting the expectations in full will typically be providing consistent evidence of achievement which shows that they have understood and confidently achieved the assessment criteria. They are working at a level which is appropriate for their peer group.

1= Not yet meeting expectations: Pupils who have yet to meet the expectations in full will typically be providing evidence of achievement which is consistently less resolved and confident than their peer group. *Reviewed June 2023*