Design and Technology Long Term Plan

Within the National Curriculum, Design and Technology covers a number of areas, including: Developing, Planning and Communicating Ideas, Working with tools, equipment, materials and components to make quality products, Evaluating processes and products, Cooking and nutrition, the use of Textiles, Electrical and Mechanical Components, Stiff and flexible sheet materials, and mouldable materials. The national curriculum for design 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*
- *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*
- *understand and apply the principles of nutrition and learn how to cook.*

Throughout the year, in the main, children's learning is organised through the PYP, allowing for knowledge and skills to be embedded within a meaningful context. Regular opportunities are given throughout the week, term and year to allow recall of subject knowledge, allowing children to build on and use their understanding in order to make progress during their time at COPA.

Art and Design	EYFS		Year 1	Year 2
	N: Return to and build on their previous learning, refining ideas and developing their ability to represent them. **R: Explore, use and refine a variety of artistic effects to express their ideas and feelings.** **Return to and build on their previous learning, refining ideas and developing their ability to represent them.** **Create collaboratively, sharing ideas, resources and skills.**	**Autumn 1** **How We Express Ourselves**	**Area: Use of Materials, Working with Tools, Developing and Planning** **Coverage/Progression:** **Can they cut materials using scissors?** **Can they describe the materials using different words?** **Is their work tidy?** **Can they think of some of their own ideas?** **Can they explain what they want to do?** **Can they use pictures and words to plan?** **Can they explain what they are making?** **Can they explain which tools they are using?**	**Area: Cooking and Nutrition** **Coverage/Progression:** **Pupils should be taught to use the basic principles of a healthy and varied diet to prepare dishes** **Pupils should be taught to understand where food comes from.**

		Autumn 2 **Who We Are**	**Area: Use of Materials, Working with Tools, Developing and Planning** **Coverage/Progression:** **Can they cut materials using scissors?** **Can they describe the materials using different words?** **Is their work tidy?** **Can they think of some of their own ideas?** **Can they explain what they want to do?** **Can they use pictures and words to plan?** **Can they explain what they are making?** **Can they explain which tools they are using?**	**Area: Cooking and Nutrition** **Coverage/Progression:** **Pupils should be taught to use the basic principles of a healthy and varied diet to prepare dishes** **Pupils should be taught to understand where food comes from.**
		Spring 1 **Sharing The Planet**	**Area: Use of Materials, Working with Tools, Developing and Planning** **Coverage/Progression:** **Can they cut materials using scissors?** **Can they describe the materials using different words?** **Is their work tidy?** **Can they think of some of their own ideas?** **Can they explain what they want to do?** **Can they use pictures and words to plan?** **Can they explain what they are making?** **Can they explain which tools they are using?**	**Area: Developing, Planning and Communicating Ideas; Use of Materials** **Coverage/Progression:** **Can they choose the best tools and materials?** **Can they give a reason why these are best?** **Pupils should be taught to understand where food comes from.** **Can they measure materials to use in a model or structure?** **Can they join material in different ways?** **Can they use joining, folding or rolling to make it stronger?** **Can they develop their own ideas from initial starting points?** **Can they consider how to improve their construction?** **Can they make sensible choices as to which material to use for their constructions?**

		Spring 2 **Where We Are In Place And Time**	**Area: Use of Materials, Working with Tools, Developing and Planning, Construction, Evaluation Processes and Products** **Coverage/Progression:** **Can they cut materials using scissors?** **Can they describe the materials using different words?** **Is their work tidy?** **Can they think of some of their own ideas?** **Can they explain what they want to do?** **Can they use pictures and words to plan?** **Can they explain what they are making?** **Can they explain which tools they are using?** **Can they talk with others about how they want to construct their product?** **Can they select appropriate resources and tools for building projects?** **Can they make simple plans before making objects, e.g. drawings, arranging pieces of construction before building?** **Can they describe how something works?** **Can they talk about their own work and things that other people have done?**	**Area: Developing, Planning and Communicating Ideas; Working with tools, equipment, materials and components to make quality products; Textiles; Use of Materials** **Coverage/Progression:** **Can they think of ideas and plan what to do next?** **Can they describe their design by using pictures, diagrams, models and words?** **Can they join things (materials/ components) together in different ways?** **Evaluating processes and products** **Can they explain what went well with their work?** **If they did it again, can they explain what they would improve?** **Can they measure materials to use in a model or structure?** **Can they join material in different ways?** **Can they use joining, folding or rolling to make it stronger?** **Can they develop their own ideas from initial starting points?** **Can they consider how to improve their construction?**
		Summer 1 **How The World Work**	**Area: Use of Materials, Working with Tools, Developing and Planning, Cooking and Nutrition, Textiles** **Coverage/Progression:** **Can they cut materials using scissors?** **Can they describe the materials using different words?** **Is their work tidy?** **Can they think of some of their own ideas?** **Can they explain what they want to do?** **Can they use pictures and words to plan?** **Can they explain what they are making?**	**Area: Cooking and Nutrition** **Coverage/Progression:** **Can they describe the properties of the ingredients they are using?** **Can they explain what it means to be hygienic?** **Are they hygienic in the kitchen?** **Pupils should be taught to use the basic principles of a healthy and varied diet to prepare dishes** **Pupils should be taught to understand where food comes from.**

			Can they explain which tools they are using? **Can they cut food safely?** **Can they describe the texture of foods?** **Do they wash their hands and make sure that surfaces are clean?** **Can they think of interesting ways of decorating food they have made, e.g. cakes?** **Can they describe how different textiles feel?** **Can they make a product from textiles by glueing?**	**Can they measure textile?** **Can they join textiles together to make something?** **Can they cut textiles?** **Can they explain why they chose a certain textile?** **Can they develop their own ideas from initial starting points?** **Can they consider how to improve their construction?**
		Summer 2 **How We Organise Ourselves**	**Area: Use of Materials, Working with Tools, Developing and Planning, Use of Materials, Mechanisms** **Coverage/Progression:** **Can they cut materials using scissors?** **Can they describe the materials using different words?** **Is their work tidy?** **Can they think of some of their own ideas?** **Can they explain what they want to do?** **Can they use pictures and words to plan?** **Can they explain what they are making?** **Can they explain which tools they are using?** **Can they make a product that moves?** **Can they say why they have chosen moving parts?** **Can they make a structure/model using different materials?** **Can they make their model stronger if it needs to be?**	**Area: Mechanisms and Construction** **Coverage/Progression:** **Can they join materials together as part of a moving product?** **Can they add some kind of design to their product?** **Can they make sensible choices as to which material to use for their constructions?**

Design and Technology	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Autumn 1 **How We Express**	**Area: Stiff and flexible sheet materials**	**Area: Cooking and nutrition** **Coverage/Progression:**	**Area:** Developing, Planning and Communicating Ideas	**Area: Stiff and flexible sheet materials**

Ourselves	**Coverage/Progression:** **Do they use the most appropriate materials?** **Can they work accurately to make cuts and holes?** **Can they join materials?** **Area: Mouldable materials** **Coverage/Progression:** **Do they select the most appropriate materials?** **Can they use a range of techniques to shape and mould?** **Do they use finishing techniques?**	- Do they know what to do to be hygienic and safe? - Have they thought what they can do to present their product in an interesting way?	**Coverage/Progression:** **Can they explain how their product will appeal to the audience?** **Can they use a range of tools and equipment expertly?** **Do they persevere through different stages of the making process?** **Do they think what the user would want when choosing textiles?** **How have they made their product attractive and strong?** **Can they make up a prototype first?** **Can they use a range of joining techniques?**	**Coverage/Progression:** • Can they justify why they selected specific materials? • How have they ensured that their work is precise and accurate? • Can they hide joints so as to improve the look at their product? • Can they use a range of information to inform their design? • Can they use market research to inform plans? • Can they work within constraints? • Can they follow and refine their plan if necessary? • Can they justify their plan to someone else? • Do they consider culture and society in their designs?
Autumn 2 **Who We Are**	**Area: Stiff and flexible sheet materials** **Coverage/Progression:** **Do they use the most appropriate materials?** **Can they work accurately to make cuts and holes?** **Can they join materials?** **Area: Cooking and nutrition** **Coverage/Progression:** **Can they choose the right ingredients for a product?**	**Area:**Developing, Planning and Communicating Ideas **Coverage/Progression:** **Have they thought of how they will check if their design is successful?** **Can they begin to explain how they can improve their original design?** **Can they evaluate their product, thinking of both appearance and the way it works?** **Do they take time to consider how they could have made their idea better?**	**Area:** Evaluating processes and products **Coverage/Progression:** **Can they explain why their finished product is going to be of good quality?** **Can they explain how their product will appeal to the audience?** **Can they use a range of tools and equipment expertly?** **Do they persevere through different stages of the making process?**	**Area: Stiff and flexible sheet materials** **Coverage/Progression:** • Can they justify why they selected specific materials? • How have they ensured that their work is precise and accurate? • Can they hide joints so as to improve the look at their product? • Can they use a range of information to inform their design? • Can they use market research to inform plans?

	Can they use equipment safely? **Can they make sure that their product looks attractive?** **Can they describe how their combined ingredients come together?** **Can they set out to grow plants such as cress and herbs from the seed with the intention of using them** **Area: Working with tools, equipment, materials and components to make quality products.** **Coverage/Progression:** **Can they use equipment and tools accurately?**			• Can they work within constraints? • Can they follow and refine their plan if necessary? • Can they justify their plan to someone else? • Do they consider culture and society in their designs?
Spring 1 **Sharing The Planet**	**Area: Textiles** **Coverage/Progression:** **Can they join textiles of different types in different ways?** **Can they choose textiles both for their appearance and also qualities?**	**Area:Evaluating processes and products** **Coverage/Progression:** **Have they thought of how they will check if their design is successful?** **Can they begin to explain how they can improve their original design?** **Can they evaluate their product, thinking of both appearance and the way it works?** **Do they take time to consider how they could have made their idea better?**	**Area:** Evaluating processes and products **Coverage/Progression: Equipment, materials and components to make quality products.** **Can they come up with a range of ideas after they have collected information?** **Do they take a user's view into account when designing?** **Can they produce a detailed step by-step plan?** **Can they suggest some alternative plans and say what the good points and drawbacks are about each?** **Can they explain why their finished**	**Area: Textiles** **Coverage/Progression:** • Have they thought about how their product could be sold? • Have they given considered thought about what would improve their product even more? • Can they justify why the chosen material was the best for the task? • Can they justify design in relation to the audience?

			product is going to be of good quality? **Can they come up with a range of ideas after they have collected information?** **Do they take a user's view into account when designing?** **Can they produce a detailed step by-step plan?** **Can they suggest some alternative plans and say what the good points and drawbacks are about each?** **Can they explain why their finished product is going to be of good quality?**	
Spring 2 **Where We Are In Place And Time**	**Area: Mouldable materials** **Coverage/Progression:** **Do they select the most appropriate materials?** **Can they use a range of techniques to shape and mould?** **Do they use finishing techniques?**	**Mosaics** **Area: Developing, planning and communicating ideas** **Coverage/Progression:** - Have they thought of how they will check if their design is successful? - Can they begin to explain how they can improve their original design? - Can they evaluate their product, thinking of both appearance and the way it works? - Do they take time to consider how they could have made their idea better? **Area: Working with tools, equipment, materials and**	**Area:** Evaluating processes and products **Coverage/Progression:** **Do they keep checking that their design is the best it can be?** **Do they check whether anything could be improved?** **Can they evaluate appearance and function against the original criteria?** **Are their measurements accurate enough to ensure that everything is precise?** **How have they ensured that their product is strong and fit for purpose?**	**Area: Textiles** **Coverage/Progression:** • Have they thought about how their product could be sold? • Have they given considered thought about what would improve their product even more? • Can they justify why the chosen material was the best for the task? • Can they justify design in relation to the audience?

		components to make quality products **Coverage/Progression:** - Can they tell if their finished product is going to be good quality? - Are they conscious of the need to produce something that will be liked by others? - Can they show a good level of expertise when using a range of tools and equipment? - Do they work at their product even though their original idea might not have worked? **Area: Evaluating processes and products** **Coverage/Progression:** - Have they thought of how they will check if their design is successful? - Can they begin to explain how they can improve their original design? - Can they evaluate their product, thinking of both appearance and the way it works? - Do they take time to consider how they could have made their idea better?		
Summer 1 **How The World Works**	**Area: Developing, Planning and Communicating Ideas** **Coverage/Progression:**	**Time Machines** **Area: Developing, planning and communicating ideas** **Coverage/Progression:**	**Area:** Cooking and nutrition **Coverage/Progression:** **Can they describe what they do to**	**Area: Cooking and nutrition** **Coverage/Progression:**

	Can they show that their design meets a range of requirements? **Can they put together a step by step plan which shows the order and also what equipment and tools they need?** **Can they describe their design using an accurately labelled sketch and words?** **How realistic is their plan?** **Area: Evaluating processes and products** **Coverage/Progression:** **Can they explain what they changed which made their design even better?**	- Have they thought of how they will check if their design is successful? - Can they begin to explain how they can improve their original design? - Can they evaluate their product, thinking of both appearance and the way it works? - Do they take time to consider how they could have made their idea better? **Area: Working with tools, equipment, materials and components to make quality products** **Coverage/Progression:** - Can they tell if their finished product is going to be good quality? - Are they conscious of the need to produce something that will be liked by others? - Can they show a good level of expertise when using a range of tools and equipment? - Do they work at their product even though their original idea might not have worked? **Area: Evaluating processes and products** **Coverage/Progression:** - Have they thought of how they will check if their	**be both hygienic and safe?** **How have they presented their product well?**	• Can they explain how their product should be stored with reasons? • Can they set out to grow their own products with a view to making a salad, taking account of time required to grow different foods?

		design is successful? - Can they begin to explain how they can improve their original design? - Can they evaluate their product, thinking of both appearance and the way it works? - Do they take time to consider how they could have made their idea better? **Area: Electrical and mechanical components** **Coverage/Progression:** - Can they add things to their circuits? - How have they altered their product after checking it? - Are they confident about trying out new and different ideas? **Area: Stiff and flexible sheet materials** **Coverage/Progression:** - Can they measure carefully so as to make sure they have not made mistakes? - How have they attempted to make their product strong? **Area: Cooking and nutrition** **Coverage/Progression:** - Do they know what to do to be hygienic and safe? - Have they thought what they can do to present their product in an interesting		

		way?		
Summer 2 **How We Organise Ourselves**	**Area: Electrical and Mechanical Components** **Coverage/Progression:** **Do they select the most appropriate tools and techniques to use for a given task?** **Can they make a product which uses both electrical and mechanical components?** **Can they use a simple circuit?** **Can they use a number of components?** **Area: Working with tools, equipment, materials and components to make quality products.** **Coverage/Progression:** **Can they use equipment and tools accurately?**	**Area: Textiles** **Coverage/Progression:** - Do they think what the user would want when choosing textiles? - Have they thought about how to make their product strong? - Can they devise a template? - Can they explain how to join things in a different way?	**Area:** Electrical and Mechanical Components **Coverage/Progression:** **Can they incorporate a switch into their product?** **Can they refine their product after testing it?** **Can they incorporate hydraulics and pneumatics?** **Are they motivated enough to refine and further improve their product using mouldable materials?**	**Area: Electrical and mechanical components** **Coverage/Progression:** • Can they use different kinds of circuit in their product? • Can they think of ways in which adding a circuit would improve their product?