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Cavendish Close Junior Academy

Design and Technology Intent and Implementation

At Cavendish Close Junior Academy, we aim to deliver a curriculum that helps children to **Aspire, Collaborate and Experience** a variety of opportunities.

Intent

1	To understand who they are designing for and what the users need.
2	To explain the purpose of the product they design.
3	To create products that meet the users' needs.
4	Pupils will be able to make their own design decisions.
5	To evaluate their products and suggest improvements.
6	To acquire technical skills for creating realistic prototypes.

Intent explanation

1	We intend for pupils to be user-focused designers, considering the values, needs, and preferences of their target group.
2	It is our intention that all our children can clearly communicate the purpose of their products and define the function they serve.
3	It is our intention for pupils to design products that solve the problems and satisfy the preferences of the people who will use them. The goal is to make products that are useful, effective, and relevant to users.
4	It is our intention to give all children the chance to make their own design decisions, be creative and confident, and apply knowledge from other subjects. We want them to develop innovation through engaging lessons that spark their creativity.
5	It is out intention that all children evaluate and reflect on their designs, compare their work to others, and understand the next steps to improve their skills and techniques.
6	It is our intention for all pupils to gain knowledge of various techniques, skills, tools, and materials, enabling them to choose the best methods and resources for their projects and create effective designs.

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ACE Curriculum Statement

"Design is not just what something looks like and feels like. Design is how it works." - Steve Jobs

At Cavendish Close Junior Academy, the study of Design and Technology allows our children to aspire to be innovators, creating products linked to a wide range of topics and disciplines.

During KS2, pupils will develop and experience key skills in cooking and nutrition, textiles and both mechanical and electrical systems.

Through exciting and engaging lessons, pupils work to fulfil a design brief. Working hard to produce functional, user focused products that meet a need and purpose.

Pupils at Cavendish Close delight in experiencing the design process. They use research to discover existing products, working collaboratively to identify areas of development. They then generate designs and visually communicate their own ideas, before practising skills and creating prototypes.
Pupils understand the importance of evaluating their products and adapting their designs to make improvements.

By the end of KS2, pupils will leave Cavendish Close as innovative, confident and functional designers with the practical skills to equip them to face our evolving technological world.

Through all of these, our children are able become ACE Designers.

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Implementation

Long term curriculum coverage

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
3		Textiles Skills: running, back, over stitches, cutting material, threading needles.		Pneumatics Key skills: Skills: joining materials, cutting materials, build a pneumatics system.		Food Technology. Key skills: The bridge and claw technique, grating, peeling, chopping, slicing, spreading
4			Electrical Circuits Skills: Connect components to make a circuit. Use a switch to control the circuit.	Shell Structures Key skills: joining materials, cutting materials.		Food Technology Key skills: Bridge and claw technique, grating, chopping, slicing, mixing)
5		Textiles (inc CAD) Key skills: Stitches to join materials (back, blanket, whip, stem, chain, lazy daisy), combining fabric shapes. Understanding nets		Food Technology Key skills: Skills: measure/weighing. Combine ingredients. Kneading dough. Cutting and baking.		Mechanical systems: cams Key skills: Assemble cams and followers correctly. Cut and shape materials accurately. Join components securely.
6		Food Technology Key skills: Weighing, mixing/combining, kneading/shaping, baking.			Electrical Systems Key skills: strengthen and reinforce structures, use a range of tools and equipment safely and accurately to cut, join and finish materials. Create electrical circuits.	Frame structures, CAD. Key skills: Understand basic CAD, reinforce weak areas for strength and stability. Join materials securely using appropriate techniques.

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Key Concepts

Research
Design
Make
Innovate
Construct

Skills progression

Skill	Year 3	Year 4	Year 5	Year 6
Research	Being curious and asking relevant questions to gather more details about the design challenge. Look at existing products or designs to understand how they work and what makes them effective. Gather information using pictures, the internet, and other products to find out more about the topic or similar products.	Beginning to ask specific questions that help gather information about user needs, materials, and design solutions. Looking at and comparing similar products to understand their features, strengths, and weaknesses. Taking notes, making sketches, and creating mind maps to organize findings and ideas. Undertake research to understand the needs of the target audience.	Begin to investigate, analyse and evaluate a range of products to understand the needs of the target audience. Formulating detailed questions that help gather useful information about the target audience, materials, and design solutions. Investigating the needs, preferences, and limitations of the target audience to ensure the design meets their requirements using interviews and questionnaires.	Further investigate, analyse and evaluate a range of products to understand the needs of the target audience. Pupils may reverse engineer products to understand how they work. Collecting information from different sources, like experts, surveys, and reviews, to understand user needs. Asking clear questions to get specific details about users, materials, and design ideas.

Design	Draw simple designs to explore different possibilities and begin to annotate them.	Generate multiple ideas and sketch them, considering user needs and the function of the product. Develop, model, and communicate practical ideas through discussion, using annotated sketches and exploded diagrams when appropriate.	Create detailed sketches and diagrams to explore design solutions. Communicate their ideas using words, annotated sketches, and cross-sectional and exploded diagrams.	Produce multiple design ideas, using sketches, models, and diagrams to explore and refine solutions. Express their ideas clearly using annotated sketches, drawings, cross-sectional views, and exploded diagrams.
Making	Create basic prototypes using simple tools and materials. Learn about different materials and their properties (e.g., paper, fabric, plastic) and how they can be used in designs.	Build basic prototypes and where possible refine them based on testing. Select appropriate materials based on their properties (e.g., strength, flexibility, appearance).	Build prototypes using suitable materials and techniques, refining them where possible. Understand the properties of a wider range of materials and tools and make informed decisions about which to use for the design.	Create high-quality prototypes, testing them and making adjustments based on performance and user feedback. Make informed decisions about materials, understanding their properties, cost, sustainability, and suitability for the design.
Evaluating.	Pupils will be able to suggest 1 – 2 improvements for their design.	Compare designs, discussing strengths and weaknesses, and suggest possible improvements.	Test prototypes, evaluate their success, and identify areas for improvement based on user feedback and functionality.	Evaluate the effectiveness of the final product, reflecting on the design process, comparing it to others, and suggesting improvements for future designs.

Technical knowledge/skills.	Will practice and gain confidence in stitching and adding detail. Practice accurate measuring, marking, cutting, joining, and finishing skills. Learn to use utensils and techniques to prepare ingredients hygienically (e.g., bridge and claw technique, grating, peeling, chopping, slicing, spreading).	Will be able to order the main stages of making, listing materials, tools, and utensils. Select and use tools to cut, shape, join, and finish with accuracy. Practice circuit making and explore different materials and their properties. Use utensils to prepare ingredients hygienically (e.g., bridge and claw technique, grating, chopping, slicing, mixing, kneading). Use tools to measure, mark, cut, score, shape, and assemble with accuracy. Generate and design ideas using CAD (e.g., creating nets).	Create step-by-step instructions or recipes, listing ingredients, materials, tools, and utensils, and may assign tasks within a team. Practice sewing techniques (e.g., stem stitch, chain stitch, lazy daisy stitch, satin stitch). Practice using utensils to prepare ingredients hygienically (e.g., bridge and claw technique, grating, peeling, chopping, slicing, mixing, spreading, kneading, and baking). Develop skills in measuring, marking, cutting, shaping, and joining materials like square-section wood and card triangles.	Create a step-by-step plan, including lists of equipment, materials, utensils, and fabrics needed for their products. Practice measuring, cutting, shaping, and combining ingredients (e.g., knead, beat, rub, mix) with the right utensils. Learn how to make and secure electrical connections using tools like wire strippers, twist tape, screws, and connecting blocks. Develop skills with tools like junior hacksaws, G-clamps, bench hooks, and hand drills to construct wooden frames.

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Key Lesson Outcomes

Autumn term 1

Year Group	Year 3	Year 4	Year 5	Year 6
Unit Title and description				
Crucial Curriculum Content				
Key Concepts				
Lesson outcomes	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6	1 2 3 4 5 6
Key Vocabulary				
ACE (Aspire, Collaborate, Experience) links				

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Autumn term 2

Year Group	Year 3 - Textiles	Year 4	Year 5 - Textiles	Year 6 - Food Technology
Unit Title and description	To design, make and evaluate 2D winter themed decoration.		**Textiles.** To design, make and evaluate an ornament for older children with a winter theme.	**Food.** Design, make and evaluate an item a savoury treat for a local business to use at a Christmas party.
Crucial Curriculum Content	Skills: Join parts securely, cut and shape components, Understand pivot points. Record research, design and evaluation in books.		Skills: Stitches to join materials (back, blanket, whip, stem, chain, lazy daisy) Understanding nets. Record research, design and evaluation in books.	Skills: Weighing, mixing/combining, kneading/shaping, baking. Record research, design and evaluation in books.
Key Concepts	Research Design Make Innovate		Research Design Make Innovate	Research Design Make Innovate
Lesson outcomes	1. Investigate and describe examples of fabric Christmas decorations, identifying materials and features. 2. Understand and explain simple joining methods. 3. Create a clear design criteria for their own decoration, considering size, shape, and appearance.		1. To investigate and analyse existing products made by combining fabric shapes. 2. To understand how it was made (joining methods, stiffening, fastenings) and why. 3. To create and use a design criteria to guide the design process for a winter decoration. 4. Develop and communicate ideas using drawings,	1. Use primary and secondary sources to research existing savoury treats, considering dietary needs and seasonality. 2. Generate creative ideas through research and discussion to develop a design brief and criteria. 3. Use annotated sketches and information to communicate ideas.

	4. Develop and share ideas using labelled drawings. 5. Learn and apply basic sewing skills to join fabric pieces securely. 6. Plan the making process by listing materials and equipment and ordering the steps. 7. Make their decoration following their plan and design criteria. 8. Evaluate their finished product against the design criteria and suggest improvements using feedback.		templates, mock-ups, and computer-aided design (if needed) based on design criteria. 5. Practice sewing skills with techniques to join materials 6. Create a detailed list of materials and equipment and plan the steps for making the product. 7. Compare and evaluate the final product against the design criteria, considering others' feedback to improve it.	4. Practice and develop skills in measuring, cutting, shaping, and combining ingredients (kneading, beating, rubbing, mixing) using the right utensils, possibly following a basic recipe. 5. Write a step-by-step recipe, including a list of ingredients, equipment, and utensils. 6. Make, decorate, and present the food product for the intended user and purpose. 7. Evaluate the final product using sensory methods and compare it to the design criteria, suggesting improvements based on feedback.
Key Vocabulary	Fabric, stitch, join, decoration, template, thread		Seam, hem, appliqué, stitch, prototype, fastening	Knead, dough, sift, glaze, prove, shaping.
ACE (Aspire, Collaborate, Experience) links	**Aspire**- Children will research the work of Heather Moore/ Orla Kiely **Collaborate** - Work in pairs or small groups to design evaluate Christmas decorations.		**Aspire:** Children will research the work of Cath Kidston/ Hannah Dodd **Collaborate:** They will collaborate to troubleshoot challenges and improve their final product	**Aspire:** Children will research the work of Mary Berry **Collaborate:** Children will work together to follow a recipe. **Experience:** Children have the opportunity to take part in a taste test.

	Experience- Handle and explore real examples of moving cards, pop-up books, and festive decorations.		**Experience:** Children will experience handling different fabrics and fastenings, practicing a variety of stitches	

Spring term 1

Year Group	**Year 3**	**Year 4- Electrical circuits**	**Year 5**	**Year 6**
Unit Title and description		To design make and evaluate a light source for a young child to use at night.		
Crucial Curriculum Content		Key Skill: Electrical circuits. Skills: Connect components to make a circuit. Use a switch to control the circuit. Record research, design and evaluation in books.		
Key Concepts		Research Design Make Innovate		
Lesson outcomes		1. Investigating and analysing existing battery-powered products. 2. Research different types of switches (push-to-make, push-to-break, toggle switches). 3. Gather information about user needs and wants.		

		4. Create and use a design criteria to guide the design process. 5. Develop the skills in making circuits and experiment with different materials and their properties. 6. Generate and communicate realistic ideas through sketches and discussion. 7. Select and use tools to cut, shape, join, and finish with accuracy to create a prototype. 8. Evaluate ideas against design criteria, identifying strengths and areas for improvement.		
Key Vocabulary		Circuit, conductor, insulator, switch, component, battery		
ACE (Aspire, Collaborate, Experience) links		**Aspire:** Children will research the work of brand White Rabbit England. **Collaborate:** Pupils will work in pairs to share ideas, give feedback on designs, and help each other troubleshoot circuits.		

		Experience: Pupils will experience handling electrical components, building circuits, and decorating their product.		

Spring term 2

Year Group	**Year 3-**	**Year 4**	**Year 5 – Food technology**	**Year 6**
Unit Title and description			To design, make and evaluate a savoury cracker for a local cafe.	
Crucial Curriculum Content			Skills: measure/weighing. Combine ingredients. Kneading dough. Cutting and baking. Record research, design and evaluation in books.	
Key Concepts			Research Design Make Innovate	
Lesson outcomes			1. Use first and secondary sources to carry out research into existing savoury cracker products. 2. To carry out a sensory evaluation of a variety of existing savoury food products and ingredients relating to the project.	

			3. Develop a design criteria base on the design brief. 4. Use annotated sketches and discussion to develop communicate their ideas. 5. Practice and develop the skills to use a range of utensils techniques to prepare ingredients hygienically (including the bridge and claw technique, grating, peeling, chopping, slicing, mixing, spreading, kneading and baking) 6. Record the steps, equipment, utensils and ingredients for making their chocolate product drawing on the knowledge, understanding and skills. 7. Evaluate their final product against the intended purpose and user reflecting on the design specification. 8. Suggesting strengths and weaknesses of their product.	
Key Vocabulary			Hygiene, Recipe, Knead, Bridge/claw grip, Combine	

ACE (Aspire, Collaborate, Experience) links			**Aspire:** Children will research the work of Paul Holywood **Experience:** A taste test of different savoury crackers. **Collaborate:** Work together to evaluate different products.	

Summer term 1

Year Group	**Year 3- Pneumatics**	**Year 4- Shell Structures**		**Year 6 Electrical Systems/gears and pulleys.**
Unit Title and description	To design, make and evaluate a moving toy for a young child.	To design, make and evaluate a structure to provide shelter for people in disaster areas.		To design make and evaluate a fairground ride with gears or pulleys.
Crucial Curriculum Content	Skills: joining materials, cutting materials, build a pneumatics system. Record research, design and evaluation in books.	Skills: joining materials, cutting materials, reinforce structures. Record research, design and evaluation in books.		Skills: strengthen and reinforce structures, use a range of tools and equipment safely and accurately to cut, join and finish materials. Create electrical circuits. Record research, design and evaluation in books.
Key Concepts	Research Design Make Innovate	Research Design Make Innovate		Research Design Make Innovate

Lesson outcomes	1. To explore and understand existing pneumatic toys and products and understand how air pressure creates movement. 2. To develop a design criteria for a moving pneumatic model 3. Generate ideas using sketches to communicate designs 4. To practice cutting, shaping, and joining materials to create airtight seals and safe connections. 5. To assemble simple pneumatic systems that move smoothly. 6. To create a list of materials and equipment and plan the steps for making the pneumatic model. 7. Choose and use appropriate tools to cut and join materials for a prototype. 8. Evaluate work and ideas based on design criteria and user needs.	1. To investigate a collection of different shell structures including reverse engineering products to identify the different parts. 2. Generate a collaborative design criteria, focussing on the needs of the user. 3. Generate and design appropriate ideas. They may use to create nets. 4. Practice and develop their scoring, cutting and assembly techniques. 5. Order the main stages of making as a class. 6. Use appropriate tools to measure, mark out, 7. cut, score, shape and assemble to make a prototype. 8. Test and evaluate their own products against design criteria and the intended user and purpose.	1 2 3 4 5 6	1. Children will research and discuss a range of relevant products that respond to a change in environment. 2. Children to investigate a variety of electrical sensors and a range of switches to understand how they work. 3. To develop a design specification for a functional product. 4. Children to generate and communicate ideas through annotated sketches and pictorial representations of electrical circuits. 5. To develop and practice methods for making and securing electrical connections. 6. Formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. 7. To competently select and accurately assemble materials, and securely connect electrical components to produce a

				reliable, functional product. 8. Evaluate and modify the working features of the product to match the initial design specification, suggesting areas of improvement.
Key Vocabulary	Syringe, tube, inflate, mechanism, pneumatic, link, seal.	Strength, stability, load, reinforce, material, prototype.		Gear, pulley, circuit, switch, input, output, force.
ACE (Aspire, Collaborate, Experience) links	**Aspire:** Children will research the work of Alfred Beach or George Stephenson **Collaborate:** Share ideas through sketches and diagrams showing input, output, and movement. **Experience:** Experiment with syringes and tubing to understand how air pressure creates movement.	**Aspire:** Children will research the work of Félix Candela. **Collaborate:** Share ideas through annotated sketches and nets. **Experience:** Test different ways to reinforce and strengthen structures.		**Aspire:** Children will research the work of James Dyson **Collaborate:** Work in pairs or small groups to design a fairground ride that meets agreed design criteria. **Experience:** Experiment with gears and pulleys to see how they change speed, direction, and force.

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Summer term 2

Year Group	Year 3- Food Technology	Year 4- Food Technology	Year 5- Mechanical Systems- Cams	Year 6- Shell Structures –CAD
Unit Title and description	Design, make and evaluate a Sandwich for children for the local tearooms.	To Design, make and evaluate a Greek style salad to be served at a party.	To design make and evaluate a moving toy for children.	Design, make and evaluate a shelter for pupils to watch animals from.
Crucial Curriculum Content	Skills: The bridge and claw technique, grating, peeling, chopping, slicing, spreading Record research, design and evaluation in books.	Skills: Bridge and claw technique, grating, chopping, slicing, mixing. Record research, design and evaluation in books.	Skills: Assemble cams and followers correctly. Cut and shape materials accurately. Join components securely. Record research, design and evaluation in books.	Skills: Understand basic CAD, reinforce weak areas for strength and stability. Join materials securely using appropriate techniques. Record research, design and evaluation in books.
Key Concepts	Research Design Make Innovate	Research Design Make Innovate	Research Design Make Innovate Construct	Research Design Make Innovate Construct
Lesson outcomes	1. To investigate a range of food products (sandwiches/wraps), linking to the principles of a varied and healthy diet using The Eatwell plate. 2. To create a set of design criteria including taste and texture. 3. Use annotated sketches and appropriate	1. To investigate a range of different Greek recipes and their ingredients. 2. Carry out a sensory evaluation of a variety of bought food products and their ingredients. 3. Generate and develop a design criteria. 4. Practice and develop using a range of utensils	1. To explore and analyse existing moving toys and understand how cams create movement. 2. To develop a design criteria for a moving toy. 3. Create and use a design criteria to guide the design process. 4. Generate ideas using annotated sketches and	1. To explore and analyse existing shelters and understand how shell structures provide strength and stability. 2. To develop a design criteria for a shelter 3. Create and use a design criteria to guide the design process.

	information to communicate ideas. 4. Select and use a range of utensils and use a range of techniques to prepare ingredients hygienically 5. Plan the main stages of a recipe, listing ingredients, utensils and equipment as a class. 6. Use appropriate utensils and equipment to prepare and combine ingredients. 7. Carry out sensory evaluations the finished product. Record the evaluations using tables and simple graphs. 8. Evaluate the final product with reference to the design criteria and the views of others.	techniques to prepare ingredients hygienically 5. Use annotated sketches and appropriate information and communication technology (such as web-based recipes) to develop and communicate ideas. 6. To Plan the main stages of a recipe, listing ingredients, utensils and equipment. 7. Accurately make the final product. 8. To evaluate the final product with reference to the design criteria and suggest strengths and areas of improvement.	diagrams showing how the cam will work. 5. To practice cutting, shaping, and joining materials to make a working cam mechanism. 6. To assemble cams, followers, and axles so they move smoothly. 7. To create a detailed list of materials and equipment and plan the steps for making the toy. 8. Choose and use appropriate tools to cut and join materials accurately. 9. Evaluate the finished product against design criteria and user needs, suggesting improvements.	4. Generate ideas using annotated sketches and CAD software to communicate designs clearly. 5. To practice creating nets and assembling shell structures accurately. 6. To use CAD tools to design a shelter digitally before making a prototype. 7. To create a detailed list of materials and equipment and plan the steps for making the shelter. 8. Choose and use appropriate tools to cut, join, and finish materials accurately. 9. Evaluate the finished product against design criteria and user needs, suggesting improvements. 10. Children will critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.

Key Vocabulary	Hygiene, grate, peel , chop, spread, taste	Hygiene, Grate, Peel, season, combine, bridge/claw grip	Cam, follower, rotation, mechanism axle, cam, input, output.	Structure , Strengthen, Material, g-clamp, Hacksaw, Accuracy
ACE (Aspire, Collaborate, Experience) links	**Aspire:** Children will research the work of Jamie Oliver. **Experience:** Different sandwich fillings. **Collaborate:** Work in groups to prepare sandwich.	**Aspire:** Children will research the work of Maria Elia **Collaborate:** Work together to prepare ingredients. **Experience:** Different flavours from different continents.	**Aspire:** Children will research the work of Leonardo da Vinci **Experience:** Practice cutting, shaping, and joining materials to make a working cam mechanism. **Collaborate:** Share ideas through annotated sketches and diagrams showing how the mechanism will work.	**Aspire:** Children will research the work Zaha Hadid **Experience:** Use CAD software to design a shelter digitally, applying accurate measurements and scaling. **Collaborate:** Give and receive constructive feedback during the design and evaluation stages.

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How each intention is met across units of work

Intention 1: To understand who they are designing for and what the users need.			
Year 3	**Year 4**	**Year 5**	**Year 6**
Children can identify who they are designing for (e.g., children, elderly, pets) and give simple examples of user needs (e.g., comfort, safety, ease of use).	Children can describe the user group in more detail and identify specific needs.	Children can carry out comprehensive research into their target audience. They can gather feedback through surveys, interviews, or observation to inform their designs.	Children can carry out comprehensive research into their target audience. They can gather feedback through surveys, interviews, or observation to inform their designs.

Intention 2: To explain the purpose of the product they design.			
Year 3	**Year 4**	**Year 5**	**Year 6**
Children can describe simply why they are designing a product.	Children can describe simply why they are designing a product and relate it to the users need.	Children can describe in some detail why they are designing a product and describe how their design will fulfil the users requirements.	Children can explain the purpose of their design in a clear and concise manner, connecting the design to user needs, the problem being solved.

Intention 3: To create products that meet the users' needs.			
Year 3	**Year 4**	**Year 5**	**Year 6**
Pupils will work collaboratively to create a design criteria to meet the needs of the user's research.	Pupils will create a collaborative design criteria based on their research adding specific details e.g size or colour.	Children will create a detailed design criteria based on their research adding specific details based on their research.	Children will create their own detailed design criteria based on their own research using primary and secondary sources.

Intention 4: Pupils will be able to make their own design decisions.			
Year 3	**Year 4**	**Year 5**	**Year 6**
Pupils will create two designs that meet the decided design criteria.	Pupils will create two designs that meet the decided design criteria. They will be able to verbalise their reasons for their designs.	Pupils will create two designs that meet the decided design criteria. They will be able to verbalise their reasons for their designs and relate them to the design brief.	Pupils will create two designs that meet the decided design criteria. They will be able to confidently verbalise their reasons for their designs and relate them to the design brief and how they meet the needs of the user.

Intention 5: To evaluate their products and suggest improvements.			
Year 3	**Year 4**	**Year 5**	**Year 6**
Pupils will evaluate their own work with the aid of questions. They may suggest improvements.	Pupils will evaluate their own work with the aid of questions to suggest improvements and successes.	Pupils will evaluate their own work with the aid of prompts to suggest improvements and successes. They will create a further adaptation design including their improvement suggestions.	Pupils will evaluate their own work with the aid of prompts to suggest improvements and successes. They will conduct peer assessment to aid their evaluation and verbalise constructive suggestions for their peers. They will create a further adaptation design including their improvement suggestions.

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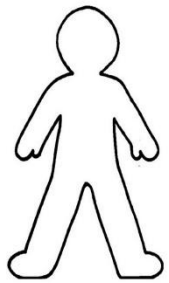
Intention 6: To acquire technical skills for creating realistic prototypes.			
Year 3	**Year 4**	**Year 5**	**Year 6**
Pupils will be taught technical skills relating to each unit. Pupils will be taught: Different stitches and sewing techniques. How to use a pneumatic element in a moving toy. How to spread, chop and assemble food.	Pupils will be taught technical skills relating to each unit. Pupils will be taught: How to strip and cut wire and create a simple circuit. How to make a string structure. How to chop, slice, mix and grate.	Pupils will be taught technical skills relating to each unit. Pupils will be taught: How to join different materials using more advanced sewing techniques. How to weigh, knead, shape, mix and combine ingredients. How to use CAD.	Pupils will be taught technical skills relating to each unit. Pupils will be taught: To safely use more advance cutting equipment (hacksaw, hand drill, bench hook, g-clamp). To create a complex circuit using a switch. To measure, weigh, shape and combine ingredients and follow a recipe. How to use CAD with more detail.

End Points/Impact

1. Children can identify who they are designing for and give simple examples of user needs (e.g., comfort, safety, ease of use).	**A great Designer in Year 3** 	4. Children can make basic design decisions (e.g., choosing colours, shapes, or materials) and explain why they think their choices will help the user.
2. Children can explain in simple terms why they are designing their product, and how it will help the users.		5. Children can look at their designs and say what they like about them, what could be better, and suggest one simple improvement.
3. Children can create a basic design or model that addresses a specific need, using simple materials.		6. Children can use basic tools to make a simple prototype from materials such as paper and cardboard.

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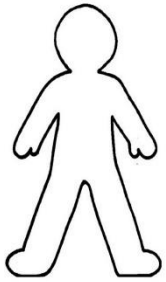
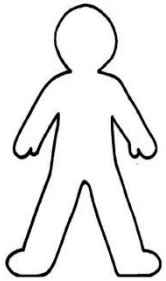
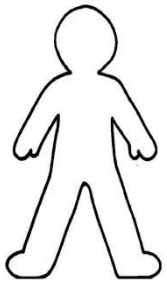
1. Children can describe the user group in more detail and identify specific needs.	**A great Designer in Year 4** 	4. Children are more confident in making design choices, considering the user's needs, the materials available, and the purpose of the product. They can explain why they've chosen certain features.
2. Children can explain the purpose of their product clearly, linking the design to the user needs they identified		5. Children can identify both strengths and weaknesses of their prototypes, and make practical suggestions for improvement, such as adjusting the size or adding more features based on their own test results.
3. Children can develop designs that address specific user needs and demonstrate a clear link between the user and the product's function.		6. Children can use a wider range of materials and basic tools to create prototypes that resemble their final product.

1. Children can conduct simple research (e.g., surveys, interviews, or observations) to better understand the user group and their specific needs.	**A great Designer in Year 5** 	4. Children are able to make thoughtful, user-centred design decisions based on more detailed reasoning, such as considering ergonomics, aesthetics, and functionality
2. Children can provide a detailed explanation of how their product solves a problem or fulfils a need for the user group.		5. Children can evaluate their prototypes and identify areas for improvement, and suggest practical, specific changes that will enhance the product.
3. Children are able to design products that clearly meet the identified user needs, incorporating user preferences and solving specific problems		6. Children can use more advanced tools (e.g., glue gun, saw, fabric scissors) and techniques (e.g., sewing, joining materials) to create prototypes that are more accurate to the final product.

1. Children can carry out comprehensive research into their target audience. They can gather feedback through surveys, interviews, or observation to inform their designs.	**A great Designer in Year 6** 	4. Children can confidently make design decisions based on in-depth user research and are able to justify these decisions with detailed reasoning.
2. Children can explain the purpose of their product in a clear and concise manner, connecting the design to user needs, the problem being solved.		5. Children can critically evaluate their prototypes based on user testing, analysing both practical and emotional aspects and suggest a range of improvements.
3. Children can design and create sophisticated products that meet detailed user needs, considering aspects such as usability, durability, accessibility, and functionality		6. Children can use a range of advanced tools and techniques to create quality prototypes. They can build prototypes that are realistic and functional, with attention to detail.

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National Curriculum for KS2

Key stage 2

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

Key stage 1

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

Key stage 2

- understand and apply the principles of a healthy and varied diet
- 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.

National Curriculum for KS1

Subject content

Key stage 1

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

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What the subject looks like at Cavendish Close

1. Each unit will begin with the design brief. Children will discuss it as a class to fully understand what the intended user needs. Children will then research products that are already on the market considering their positives/negatives, materials and assembly techniques.

2. Children will then conduct research into the intended user (e.g older children) and conduct surveys, questionnaires etc to then create a design criteria. For LKS2 teachers may create example intended users for children to base their ideas off. UKS2 should begin to conduct their own research of their intended user with the support of teachers.

3. Once the design criteria are set, children will create 2 designs to meet the criteria. They will consider, colour, shape, size, material (material may not be the same that their prototype will be constructed of but needs to be considered in their design for its properties). They must also consider the joining method they will use e.g back stitch. Children may need to conduct research on different joining methods (e.g year 5 researched different methods of joining fabric to aid their design decisions).

4. Children will then undertake a skills practice – tbc by teacher depending on the needs of class- to allow them to practice the skills they will need to create their prototype (photos to be taken and record in pupils books, they should be given time to reflect on which skill they will go on to use). During this session children will also create a single page spread on an influential designer linked to their topic (e.g year 5 textiles studied Cath Kidston). Alongside this where applicable (UPKS2) children should consider the order they will follow to create their prototype. In LKS2, this can be done as a class.

5. Children will now construct their prototype using the methods they have practiced. They will then complete an evaluation of their prototype against the original design brief/criteria. This may also include taste tests and peer evaluation depending on the unit and the year group.