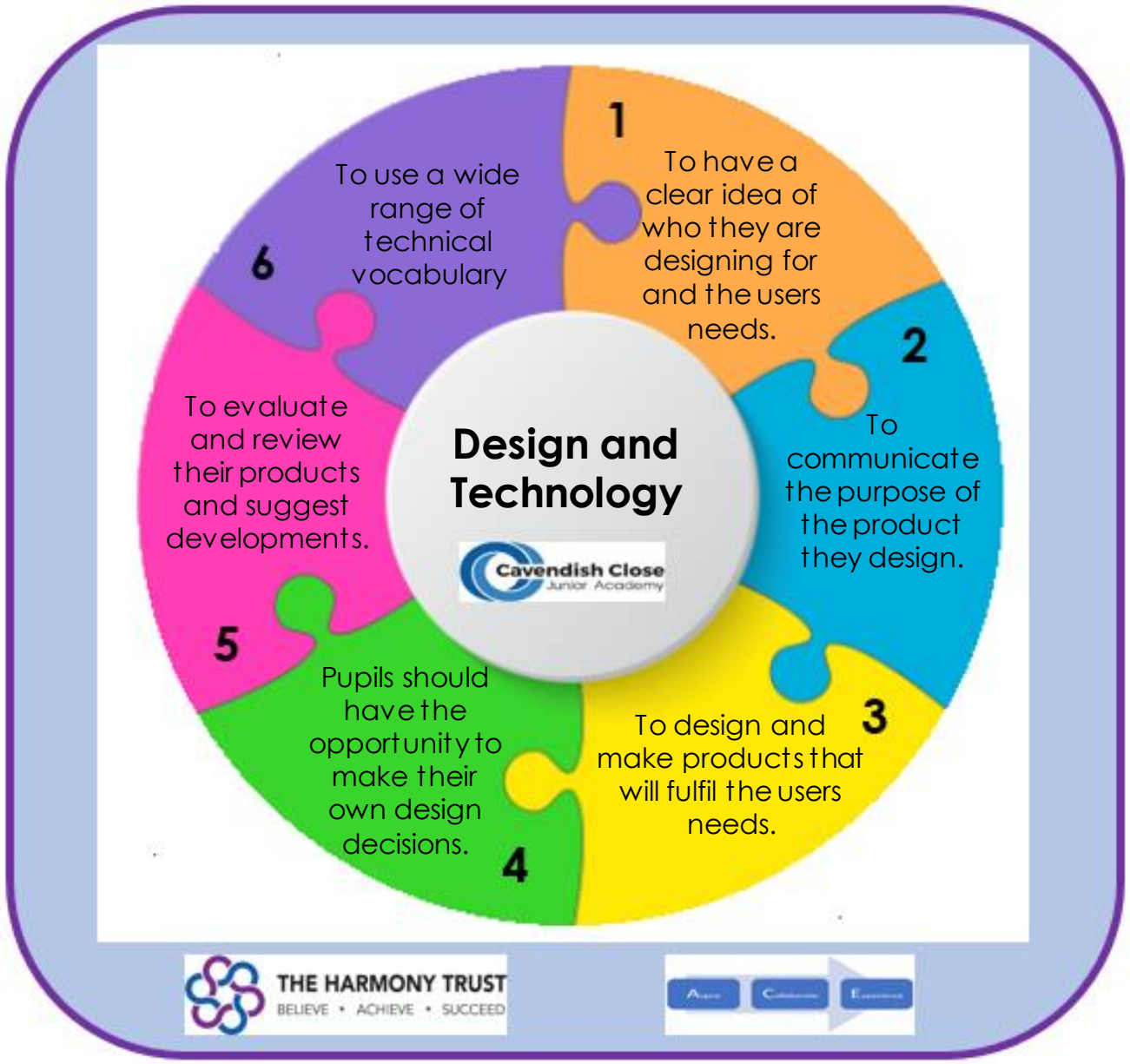
Subject Intent



Design & Technology Intent

At Cavendish Close Junior Academy, we aim to deliver a curriculum that helps children aspire, collaborate and experience a variety of opportunities. We want to help children develop as designers and creators through a range of learning experiences that are underpinned by our key intentions for learning in this subject:

1. It is our intention that pupils will be **user focused** designers. Considering the values, needs and preferences of their chosen specific target group.
2. It is our intention that all our children can clearly **communicate the purpose** of the products they design. Defining what function their product for fills.
3. It is our intention that all pupils will design and make **functional** products to effectively fulfil the users needs. We want them to have a **knowledge** of a range of techniques, skills, tools and materials. We want them to have experiences as part of a process, to realise actual designers use a range of technologies to achieve the desired outcome. They will complete lessons that are designed to expose them to a wide range of skills and processes.
4. It is our intention that all children will have opportunities to make individual **design decisions**. To be **innovative** and confident in the decisions they make, allowing them to be creative, technical and draw on knowledge from other subjects. We want children to develop their sense of innovation by taking part in engaging lessons that ignite their creativity.
5. It is our intention that all children will be able to **evaluate** and **reflect** on their designs. We want them to be able to say how their work compares to others and know their next steps in mastering skills and techniques.
6. It is our intention that all children will have a progressive, **technically challenging**, vocabulary to describe and explain their process.

Design & Technology Implementation

IMPLEMENTATION - How do we implement our design and technology curriculum?

1. Units of study that are a requirement of the national curriculum have been mapped out to ensure progression in skills takes place. This ensures that skills are revisited over the course of Key Stage 2.

2. Key knowledge, skills/techniques and understanding are identified at the start of each art unit of work. These link back to our key intentions, ensuring that all of the key intentions are covered at least once within each unit of work.

3. All of our DT lessons are designed to link to at least one of our art key intentions as well as meeting our ACE curriculum drivers.

4. Lessons are thoughtfully sequenced with opportunities for metacognition opportunities using quizzes and revision of learning. See MTP guidance frame.

5. DT skills are mapped out progressively within each year group ensuring that children make progress in their skill-set year on year.

6. Design and Technology projects are (where possible) linked to other foundation subjects to enable children to build on their prior knowledge.

Design & Technology Implementation

Cavendish Close Junior Academy

DT Coverage 2021-2022

	AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
YEAR 3		Textiles-2D & 3D Shapes			Pneumatics	Food Technology
YEAR 4			Electrical circuits. (circuits and switches)		Food Healthy and varied diet	Structures -Shell Structures
YEAR 5		Textiles		Food technology		Mechanical Systems Pulleys and gears.
YEAR 6		Food technology		Electrical systems Complex circuits and switches		Structures Frame structures

Design & Technology Implementation

Cavendish Close Junior Academy

Design & Technology

Year 3

Mechanical Systems- Pneumatic toys

Textiles- 2D & 3D shapes.

Healthy & varied diet- Farm to plate.

Year 4

Electrical Systems- simple circuits.

Shell Structures – survival boxes.

Healthy & varied diet.

Year 5

Food Celebrating culture and seasonality-chocolate

Mechanical Systems-Gears and Pulleys.

Textiles- Combining different fabric shapes

Year 6

Electrical systems- Complex circuits and switches

Healthy foods – Savoury treats

Structures and Frame structures.

Key Outcomes - Unit 1 Design and Technology.

Year 3

Textiles- 2D & 3D shapes

Design, make and evaluate a Christmas decoration for children for the Christmas season.

- To research and evaluate familiar Christmas decorations focusing on fastening and joining methods.
- To generate appropriate ideas using annotated sketches to communicate ideas.
- (Using success criteria to aid design)
- To practice and gain confidence with different sewing techniques (back stitch, over stitch and running stitch).
- To order the main stages of making.
- Select and use appropriate tools (with some accuracy) to cut and join materials to create a prototype.
- To evaluate their own products and ideas against the design criteria and user needs.

Technical knowledge and understanding

- Know how to strengthen, stiffen and reinforce existing fabrics.
- Understand how to securely join two pieces of fabric together.
- Understand the need for patterns and seam allowances.
- Know and use technical vocabulary relevant to the project.

Year 4

STEM- Young engineers

Design, make and evaluate a light source for children to use at night.

- To research and investigate a variety of switches (push-to-make, push-to-break, toggle switches**)**
- To investigate and analyse a range of existing battery-powered products.
- To gather information about the needs and wants of the user.
- To develop skills of circuit making and experiment with different materials and their properties.
- Generate, develop and communicate realistic ideas through annotated sketches and discussion
- To select and use tools and equipment to cut, shape, join and finish with some accuracy.
- To order the main stages of making.
- To evaluate their ideas against their design criteria and identify strengths and areas of improvement.

Technical knowledge and understanding

- Understand and use electrical systems in their products, such as series circuits incorporating switches, bulbs and buzzers.
- Apply their understanding of computing to program and control their products.
- Know and use technical vocabulary relevant to the project.

Year 5

Textiles

Design, make and evaluate an item of clothing for channel to exhibit in there winter catalogue.

- To investigate, analyse and evaluate a range of existing products which have been produced by combing fabric shapes.
- To disassemble a product and evaluate how the product has been constructed (joining methods, stiffening/strengthening, fastenings) and why.
- To develop and practice joining skills using different sewing techniques (stem stitch, chain stitch, lazy daisy stitch, satin stitch).
- Generate, develop and communicate through drawings, templates, mock-ups (and where appropriate computer-aided design) **based on the design criteria.**
- To produce a detailed list of equipment and fabrics.
- To formulate a step-by- step plan for making.
- To select from and use a range of tools and equipment to make a well finished and assembled product.
- To compare and evaluate their final product to the original design criteria and consider the views of others to improve their work.

Technical knowledge and understanding

- A 3-D textile product can be made from a combination of accurately made pattern pieces, fabric shapes and different fabrics.
- Fabrics can be strengthened, stiffened and reinforced where appropriate.

Year 6

Electrical systems Complex circuits and switches

Design, make and evaluate an item a savoury treat for a local business to use at a Christmas party.

- To use first and secondary sources to carry out research into existing savoury treats, considering dietary needs and seasonality.
- To research the most popular savoury treats currently available from some of the large supermarket.
- Generate innovative ideas through research and discussion to develop a design brief and criteria.
- To use annotated sketches and information to develop and communicate ideas.
- To develop skills of measuring out, cutting, shaping and combining ingredients (knead, beat, rub, mix) using the appropriate utensils **(could be done using by following a basic recipe)**
- To write a step-by-step recipe, including a list of ingredients, equipment and utensils.
- To make, decorate and present the food product appropriately for the intended user and purpose.
- To carry out a sensory evaluation of the final products (using tables, graphs, charts etc) and refer back to the design specification, suggesting improvements and taking into account the views of others.

Technical knowledge and understanding

- Know how to use utensils and equipment including heat sources to prepare and cook food.
- Understand about seasonality in relation to food products and the source of different food products.
- Know and use relevant technical and sensory vocabulary**.**

Key Outcomes - Unit 2 Design and Technology.

	Year 3		Year 4		Year 5		Year 6
Pneumatics. .	Design, make and evaluate a _____for_____. • Children investigate, analyse and evaluate familiar objects that use air to make them work. • To construct a simple pneumatic system. • To develop a design brief as a class within a context which is authentic and meaningful. • To generate a range of ideas using sketches and annotations. • To practice the correct and accurate use of measuring, marking out, cutting, joining and finishing skills and techniques. • To consider the main stages in making before assembling high quality products, drawing on the knowledge, understanding and skills • Using appropriate materials and equipment to produce a final product. • Evaluate the final products against the design criteria, suggesting improvements. **Technical knowledge and understanding** • Understand and use pneumatic mechanisms. • Know and use technical vocabulary relevant to the project.	Food technology- healthy and varied diet.	Design, make and evaluate a pizza for pizza hut to appeal to children. • To investigate a range of different pizzas and their ingredients. • To carry out a sensory evaluation of a variety of bought food products and their ingredients. • To generate and develop a design criteria (including appearance, taste, texture and aroma). • To practice and develop using a range of utensils techniques to prepare ingredients hygienically (including the bridge and claw technique, grating, chopping, slicing, mixing, kneading) • Use annotated sketches and appropriate information and communication technology (such as web-based recipes) to develop and communicate ideas. • To Plan the main stages of a recipe, listing ingredients, utensils and equipment. • To accurately make the final product. • To evaluate the the final product with reference to the design criteria and suggest strengths and areas of improvement. **Technical knowledge and understanding** • Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately.	Food technology	Design, make and evaluate a chocolate snack for children to sell to raise money for school. • To use first hand and secondary sources to carry out t research into existing chocolate products. • To carry out a sensory evaluations of a variety of existing chocolate food products and ingredients relating to the project (using tables/graphs/ charts to record results). • To develop a design brief and design specification. • To use annotated sketches and discussion to develop communicate their ideas. • To practice and develop using a range of utensils techniques to prepare ingredients hygienically (including the bridge and claw technique, grating, peeling, chopping, slicing, mixing, spreading, kneading and baking) • Ask children to record the steps, equipment, utensils and ingredients for making their chocolate product drawing on the knowledge, understanding and skills. • To evaluate their final product against the intended purpose and user reflecting on the design specification. Suggesting strengths and weaknesses of their product. **Technical knowledge and understanding** • Know how to use utensils and equipment including heat sources to prepare and cook food. • Understand about seasonality in relation to food products and the source of different food products. • Know and use relevant technical and sensory vocabulary.	Electrical systems –Complex circuits and switches.	Design, make and evaluate a _____for Shackleton to use on his journey to the arctic.. • To research and discuss a range of relevant products that respond to a change in environment. (automatic nightlights, security lighting, alarm systems) • To investigate a variety of electrical sensors (LDRs) and a range of switches to understand how they work. (push-to-make switches, push-to-break switches, toggle switches, micro switches and reed switches.) • To develop a design specification for a functional product. • To generate and communicate ideas through annotated sketches and pictorial representations of electrical circuits. • To develop and practice methods for making and securing electrical connections (wire strippers, twist tape, screw connections and connecting blocks) • To recap measuring, marking out, cutting and joining skills with construction materials. • To formulate a step-by-step plan to guide making, listing tools, equipment, materials and components. • To competently select and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product. • To evaluate and modify the working features of the product to match the initial design specification, suggesting areas of improvement. **Technical knowledge and understanding** • Understand and use electrical systems in their products. • Apply their understanding of computing to program, monitor and control their products. • Know and use technical vocabulary relevant to the project.

Key Outcomes - Unit 3 Design and Technology.

	Year 3		Year 4		Year 5		Year 6
Healthy and varied diet..	Design, make and evaluate a _____for children for the local tearooms. • To investigate a range of food products (sandwiches/wraps), linking to the principles of a varied and healthy diet using The eatwell plate. • To create a set of design criteria including taste and texture. • Use annotated sketches and appropriate information to communicate ideas. • Learn to select and use a range of utensils and use a range of techniques to prepare ingredients hygienically (the bridge and claw technique, grating, peeling, chopping, slicing, spreading). • To plan the main stages of a recipe, listing ingredients, utensils and equipment. • To use appropriate utensils and equipment to prepare and combine ingredients. • To carry out sensory evaluations the finished product. Record the evaluations using tables and simple graphs. • Evaluate final product with reference to the design criteria and the views of others. **Technical knowledge and understanding** • Know how to use appropriate equipment and utensils to prepare and combine food. • Know about a range of fresh and processed ingredients appropriate for their product, and whether they are grown, reared or caught. • Know and use relevant technical and sensory vocabulary appropriately.	Shell structures .	Design, make and evaluate a desk tidy for children for organisation at school. • To investigate a collection of different shell structures including reverse engineering products to identify the different parts. • To generate a collaborative design criteria, focussing on the needs of the user. • Generate and design appropriate ideas using CAD (to create nets). • To develop scoring, cutting and assembly techniques. • Order the main stages of making. • Use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy. • Use finishing techniques suitable for the product they are creating. • Test and evaluate their own products against design criteria and the intended user and purpose. **Technical knowledge and understanding** • Develop and use knowledge of how to construct strong, stiff shell structures. • Develop and use knowledge of nets of cubes and cuboids and, where appropriate, more complex 3D shapes. • Know and use technical vocabulary relevant to the project.	Mechanical Systems – Pulleys and Gears.	Design, make and evaluate a moving display for children to raise the profile of recycling. • To research and investigate existing everyday products that incorporate a gear or pulley system. • To generate innovative ideas by carrying out research including surveys, interviews and questionnaires and develop a design specification for their product, carefully considering the purpose and intended user for their product. • To communicate ideas through detailed, annotated drawings from different views and/or exploded diagrams. • To use construction kits to explore combinations of different sized gears Investigate the direction and speed of rotation focusing on how the size of the driver gear affects the speed of the follower gear. • To develop measuring, marking, cutting, shaping and joining skills, square section wood and card triangles. • Produce detailed step-by-step plans and lists of tools, equipment and materials needed (If appropriate allocate tasks within a team). • Make high quality display, applying knowledge, understanding and skills. Use a range of decorative finishing techniques to ensure a well finished final product that matches the intended user and purpose. • To evaluate the final product in use, comparing it to the original design specification. Critically evaluate the quality of the design, the manufacture, functionality, innovation shown and fitness for the intended user and purpose. **Technical knowledge and understanding** • Understand that mechanical and electrical systems have an input, process and an output. • Understand how gears and pulleys can be used to speed up, slow down or change the direction of movement. • Know and use technical vocabulary relevant to the project.	Structures and Frame structures	Design, make and evaluate a shelter for an animal for our school environment. • To investigate and make annotated drawings of a range permanent frame structures. • To carry out research into user needs and existing products and web-based resources. • Develop a simple design specification to guide the development of their ideas and products. • Generate, develop and model innovative ideas, through discussion, prototypes and annotated sketches. • Develop skills and techniques using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills to construct wooden frames, as appropriate. • To formulate a clear plan, including a step-by-step list of what needs to be done and lists of resources to be used. • Competently select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks. • Critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests. **Technical knowledge and understanding** • Understand how to strengthen, stiffen and reinforce 3-D frameworks. • Know and use technical vocabulary relevant to the project.

Design & Technology Implementation

Year 3
Engineer –Bombardier.
Chef
Fashion designer

Year 4
Electrical engineer
Chef
Product designer
(packaging)

Inventors, designers, engineers, chefs and manufacturers.

Year 5
Chef
Architect
Mechanical engineer.

Year 6
Electrical engineer
chef
Fashion Designer

Look for designers based near derby/Derbyshire.

Link CAD designers with Hannah with computing units.

Art and Design Implementation

Cavendish Close Junior Academy

Intention 1 - **It is our intention that pupils will be user focused designers. Considering the values, needs and preferences of their chosen specific target group.**			
Year 3	Year 4	Year 5	Year 6
Children will begin to generate realistic and appropriate ideas and with support create their own design criteria through discussion, focusing on the needs of the user. Children will begin to generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose.	Children will undertake research to understand the needs of the target audience. Children will start to generate realistic and appropriate ideas and with minimal support create their own design criteria through discussion with peers, focusing on the needs of the user.	Children will begin to investigate, analyse and evaluate a range of products to understand the needs of the target audience. Children will generate realistic and appropriate ideas and create their own design criteria though discussion with peers, focusing on the needs of the user.	Children will investigate, analyse and evaluate a range of products to understand the needs of the target audience. Children will generate and develop innovative ideas and share and clarify these through discussion.

Art and Design Implementation

Cavendish Close Junior Academy

Intention 2 - **It is our intention that all our children can clearly communicate the purpose of the products they design. Defining what function their product for fills.**

Year 3	Year 4	Year 5	Year 6
-Children will begin to use annotated sketches and basic prototypes to develop, model and communicate ideas. -They will use appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.	Children will generate, model and communicate realistic ideas through discussion and, as appropriate, use annotated sketches and exploded diagrams. Children will use appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.	Children will explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. Children will use words, annotated sketches and cross-sectional and exploded diagrams to communicate their ideas. They will develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost.	Children will use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost. Children will generate and develop innovative ideas and share and clarify these through discussion. Children will communicate ideas clearly through annotated sketches, pictorial representations, annotated sketches, cross-sectional and exploded diagrams.

Art and Design Implementation

Cavendish Close Junior Academy

Intention 3 -**It is our intention that all pupils will design and make functional products to effectively fulfil the users needs. We want them to have a knowledge of a range of techniques, skills, tools and materials. We want them to have experiences as part of a process, to realise actual designers use a range of technologies to achieve the desired outcome. They will complete lessons that are designed to expose them to a wide range of skills and processes.**			
Year 3	Year 4	Year 5	Year 6
-To practice and gain confidence with different sewing techniques (back stitch, over stitch and running stitch). -To practice the correct and accurate use of measuring, marking out, cutting, joining and finishing skills and techniques. -Learn to select and use a range of utensils and use a range of techniques to prepare ingredients hygienically (the bridge and claw technique, grating, peeling, chopping, slicing, spreading).	-Children will be able to accurately order the main stages of making, listing materials/ingredients, tools/utensils. - Children will be able to select from and use tools and equipment to cut, shape, join and finish with some accuracy. To develop skills of circuit making and experiment with different materials and their properties. -To practice and develop using a range of utensils techniques to prepare ingredients hygienically (including the bridge and claw technique, grating, chopping, slicing, mixing, kneading) -Use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy. -Generate and design appropriate ideas using CAD (to create nets).	-Children will be able to create step-by-step instructions/recipe, including a list of ingredients/materials, equipment/tools and utensils. If appropriate they will allocate tasks within a team. -To develop and practice joining skills using different sewing techniques (stem stitch, chain stitch, lazy daisy stitch, satin stitch). -To practice and develop using a range of utensils techniques to prepare ingredients hygienically (including the bridge and claw technique, grating, peeling, chopping, slicing, mixing, spreading, kneading and baking) -To develop measuring, marking, cutting, shaping and joining skills, square section wood and card triangles.	-Children will formulate a step-by-step plan to guide making. Producing detailed lists of equipment, components, utensils and fabrics relevant to their products -To develop skills of measuring out, cutting, shaping and combining ingredients (knead, beat, rub, mix) using the appropriate utensils -To develop and practice methods for making and securing electrical connections (wire strippers, twist tape, screw connections and connecting blocks) -Develop skills and techniques using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills to construct wooden frames, as appropriate.

Art and Design Implementation

Cavendish Close Junior Academy

Intention 4 -**It is our intention that all children will have opportunities to make individual design decisions. To be innovative and confident in the decisions they make, allowing them to be creative, technical and draw on knowledge from other subjects. We want children to develop their sense of innovation by taking part in engaging lessons that ignite their creativity.**

Year 3	Year 4	Year 5	Year 6
-Children will begin to develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas. -Generate and clarify ideas through classroom discussion. -Children investigate, analyse and evaluate familiar objects that use air to make them work.	-Children will start to develop a variety of ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas. -Generate and clarify ideas through discussion with peers and adults. -To investigate a collection of different shell structures including reverse engineering products to identify the different parts	-Children will begin to generate creative ideas independently after through research and discussion with peers and adults to develop a design brief and criteria for a design specification. -To generate innovative ideas by carrying out research including surveys, interviews and questionnaires and develop a design specification for their product, carefully considering the purpose and intended user for their product.	-Children will confidently generate a range of innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. -To investigate a variety of electrical sensors (LDRs) and a range of switches to understand how they work. (push-to-make switches, push-to-break switches, toggle switches, micro switches and reed switches.)

Art and Design Implementation

Intention 5 -**It is our intention that all children will be able to evaluate and reflect on their designs. We want them to be able to say how their work compares to others and know their next steps in mastering skills and techniques.**

Year 3	Year 4	Year 5	Year 6
Children will be able to evaluate their own products and ideas against criteria/user needs and begin to suggest improvements.	Children will be able to evaluate their own products and ideas against criteria and user needs, as they design and make. They will be able to suggest improvements and acknowledge aspects that have gone well during the project.	Children will be able to critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.	Children will be able to evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.

Art and Design Implementation

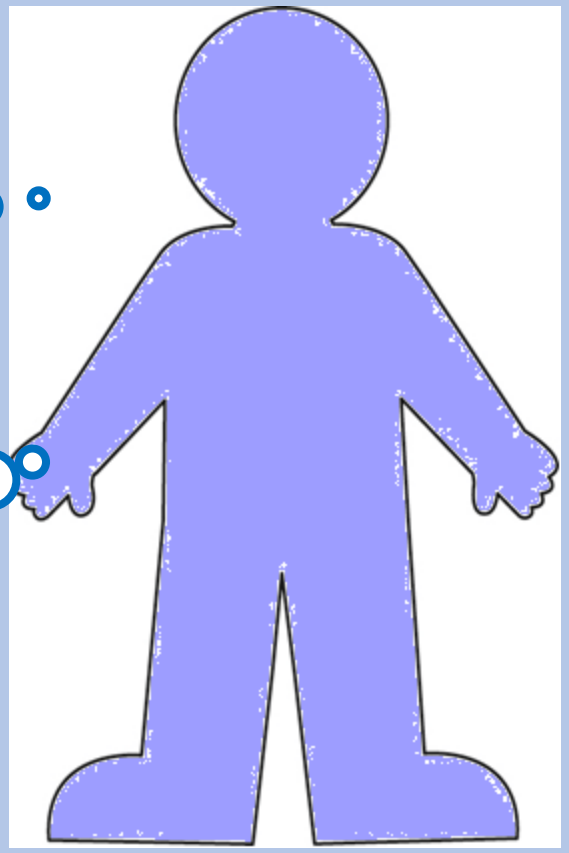
Intention 6 - **It is our intention that all children will have a progressive, technically challenging, vocabulary to describe and explain their process.**

Year 3	Year 4	Year 5	Year 6
Children will begin to know and use some technical vocabulary relevant to each project. (See separate vocabulary spines).	Children will know and begin to use technical vocabulary regularly in each project. (See separate vocabulary spines).	Children will know and use technical vocabulary regularly and appropriately during each project (See separate vocabulary spines).	Children will consistently use and apply technical vocabulary throughout each project. (See separate vocabulary spines).

Design and Technology Implementatio

Cavendish Close Junior Academy

A great year 3 **Designer** will:



User focussed.
Research, test and evaluate existing products and suggests improvements.

Communicate purpose.
Begin to use annotated sketches and basic prototypes to develop, model and communicate ideas.

Knowledge
Begin to select the appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy. Develop there ability to spread, cut (medium resistance foods) using a claw or fork grip.

Vocabulary.
Children will begin to know and use some technical vocabulary relevant to each project.

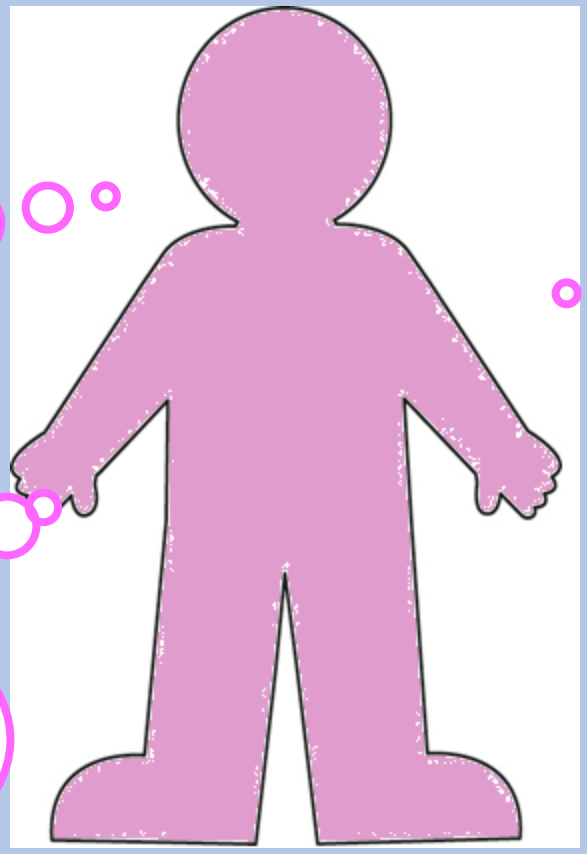
Evaluate
Be able to evaluate their own products and ideas against criteria/user needs and begin to suggest improvements.

Innovative
Develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas.

-------- Implementation

Cavendish Close Junior Academy

A great year 4 **Designer** will:



User focussed.
Children will undertake research to understand the needs of the target audience.

Communicate purpose.
Children will generate, model and communicate realistic ideas through discussion and, as appropriate, use annotated sketches and exploded diagrams.

Knowledge
Be able to select from and use tools/ equipment to cut, shape, join and finish with some accuracy. Children will be able to select from and use materials, fabric and components, including construction materials and electrical components according to their functional properties and aesthetic qualities.

Vocabulary.
Children will know and begin to use technical vocabulary regularly in each project.

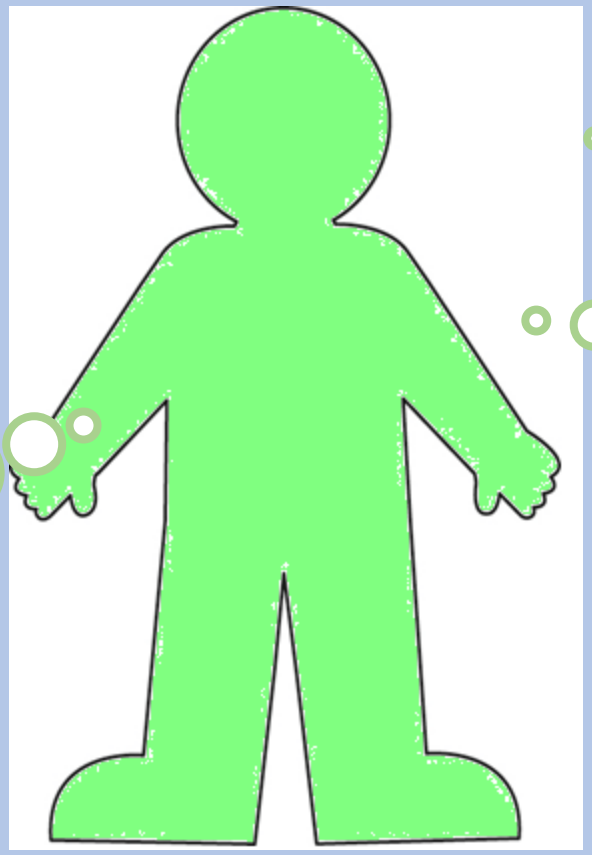
Evaluate
Children will be able to evaluate their own products and ideas against criteria and user needs, as they design and make. They will be able to suggest improvements and acknowledge aspects that have gone well during the project.

Innovative
Children will develop a variety of ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas.
Generate and clarify ideas through discussion with peers and adults.

-------- Implementation

Cavendish Close Junior Academy

A great year 5 **Designer** will:



Use focus
Children will begin to investigate, analyse and evaluate a range of products to understand the needs of the target audience.

Communicate Purpose.
Children will explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose.

Knowledge
Select from and use appropriate tools to accurately measure, mark out, cut, shape and join construction materials to make frameworks.
Will be able to knead, fold, rub and combine ingredients to form savoury dishes. Slice higher resistance foods using bridge or claw grip. Select and use appropriate utensils and equipment accurately to measure and combine ingredients.

Vocabulary
Children will know and use technical vocabulary regularly and appropriately during each project

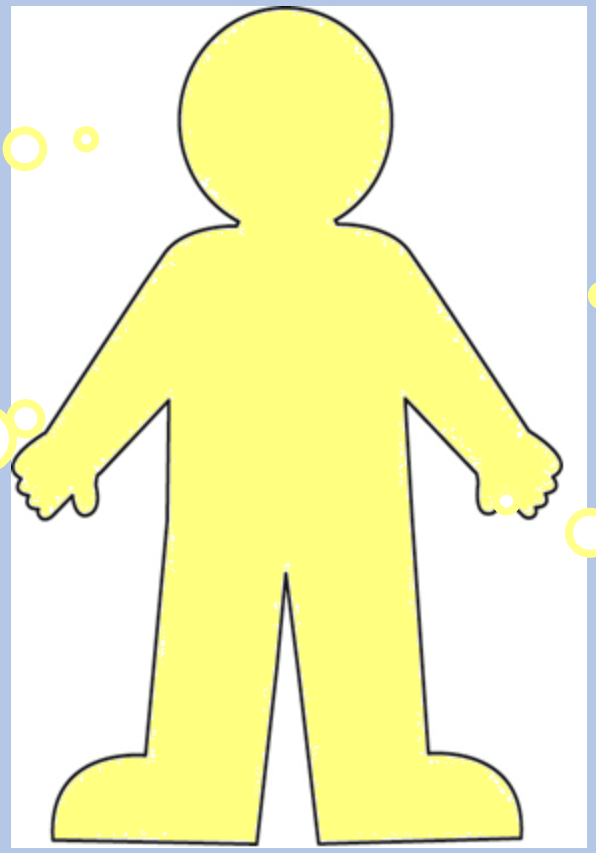
Evaluate
Children will be able to critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development.

Innovative
Begin to generate creative ideas independently after through research and discussion with peers and adults to develop a design brief and criteria for a design specification.

-------- Implementation

Cavendish Close Junior Academy

A great year 6 **Designer** will:



User focus.
Children will investigate, analyse and evaluate a range of products to understand the needs of the target audience.

Communicate purpose
Will use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost.

Knowledge
Be able to create step-by-step plans to guide making. Create detailed lists of equipment, components, utensils and fabrics relevant to their products. Competently select tools and accurately assemble materials, and securely connect electrical components to produce a reliable, functional product.
Select and use appropriate utensils accurately to measure and combine ingredients. They will make, decorate and present food products appropriately for the intended user and purpose.

Vocabulary
Consistently use and apply technical vocabulary throughout each project.

Evaluate
Evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.

Innovate
Be able to confidently generate a range of innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification.

Design and technology
Key Knowledge and Skills

Intention 1 - It is our intention that pupils will be **user focused** designers. Considering the values, needs and preferences of their chosen specific target group.

Children will begin to generate realistic and appropriate ideas and with support create their own design criteria through discussion, focusing on the needs of the user. Children will begin to generate and clarify ideas through discussion with peers and adults to develop design criteria including appearance, taste, texture and aroma for an appealing product for a particular user and purpose.	Children will undertake research to understand the needs of the target audience. Children will start to generate realistic and appropriate ideas and with minimal support create their own design criteria through discussion with peers, focusing on the needs of the user.	Children will begin to investigate, analyse and evaluate a range of products to understand the needs of the target audience. Children will generate realistic and appropriate ideas and create their own design criteria though discussion with peers, focusing on the needs of the user.	Children will investigate, analyse and evaluate a range of products to understand the needs of the target audience. Children will generate and develop innovative ideas and share and clarify these through discussion.

Intention 2 - It is our intention that all our children can clearly **communicate the purpose** of the products they design. Defining what function their product for fills.

-Children will begin to use annotated sketches and basic prototypes to develop, model and communicate ideas. -They will use appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.	Children will generate, model and communicate realistic ideas through discussion and, as appropriate, use annotated sketches and exploded diagrams. Children will use appropriate information and communication technology, such as web-based recipes, to develop and communicate ideas.	Children will explore a range of initial ideas, and make design decisions to develop a final product linked to user and purpose. Children will use words, annotated sketches and cross-sectional and exploded diagrams to communicate their ideas. They will develop a simple design specification to guide the development of their ideas and products, taking account of constraints including time, resources and cost.	Children will use research to develop a design specification for a functional product that responds automatically to changes in the environment. Take account of constraints including time, resources and cost. Children will generate and develop innovative ideas and share and clarify these through discussion. Children will communicate ideas clearly through annotated sketches, pictorial representations, annotated sketches, cross-sectional and exploded diagrams.

Design and technology - Key Knowledge and Skills

Intention 3-It is our intention that all pupils will design and make **functional** products to effectively fulfil the users needs. We want them to have a **knowledge** of a range of techniques, skills, tools and materials. We want them to have experiences as part of a process, to realise actual designers use a range of technologies to achieve the desired outcome. They will complete lessons that are designed to expose them to a wide range of skills and processes.

Year 3	Year 4	Year 5	Year 6
-To practice and gain confidence with different sewing techniques (back stitch, over stitch and running stitch). -To practice the correct and accurate use of measuring, marking out, cutting, joining and finishing skills and techniques. -Learn to select and use a range of utensils and use a range of techniques to prepare ingredients hygienically (the bridge and claw technique, grating, peeling, chopping, slicing, spreading).	-Children will be able to accurately order the main stages of making, listing materials/ingredients, tools/utensils. - Children will be able to select from and use tools and equipment to cut, shape, join and finish with some accuracy. To develop skills of circuit making and experiment with different materials and their properties. -To practice and develop using a range of utensils techniques to prepare ingredients hygienically (including the bridge and claw technique, grating, chopping, slicing, mixing, kneading) -Use appropriate tools to measure, mark out, cut, score, shape and assemble with some accuracy. -Generate and design appropriate ideas using CAD (to create nets).	--Children will be able to create step-by-step instructions/recipe, including a list of ingredients/materials, equipment/tools and utensils. If appropriate they will allocate tasks within a team. -To develop and practice joining skills using different sewing techniques (stem stitch, chain stitch, lazy daisy stitch, satin stitch). -To practice and develop using a range of utensils techniques to prepare ingredients hygienically (including the bridge and claw technique, grating, peeling, chopping, slicing, mixing, spreading, kneading and baking) -To develop measuring, marking, cutting, shaping and joining skills, square section wood and card triangles.	-Children will formulate a step-by-step plan to guide making. Producing detailed lists of equipment, components, utensils and fabrics relevant to their products -To develop skills of measuring out, cutting, shaping and combining ingredients (knead, beat, rub, mix) using the appropriate utensils -To develop and practice methods for making and securing electrical connections (wire strippers, twist tape, screw connections and connecting blocks) -Develop skills and techniques using junior hacksaws, G-clamps, bench hooks, square section wood, card triangles and hand drills to construct wooden frames, as appropriate.

Design and technology Key Knowledge and Skills			
Intention 4-It is our intention that all children will have opportunities to make individual **design decisions**. To be **innovative** and confident in the decisions they make, allowing them to be creative, technical and draw on knowledge from other subjects. We want children to develop their sense of innovation by taking part in engaging lessons that ignite their creativity.			
-Children will begin to develop ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas. -Generate and clarify ideas through classroom discussion. -Children investigate, analyse and evaluate familiar objects that use air to make them work.	Children will start to develop a variety of ideas through the analysis of existing products and use annotated sketches and prototypes to model and communicate ideas. -Generate and clarify ideas through discussion with peers and adults. -To investigate a collection of different shell structures including reverse engineering products to identify the different parts	-Children will begin to generate creative ideas independently after through research and discussion with peers and adults to develop a design brief and criteria for a design specification. -To generate innovative ideas by carrying out research including surveys, interviews and questionnaires and develop a design specification for their product, carefully considering the purpose and intended user for their product	Children will confidently generate a range of innovative ideas through research and discussion with peers and adults to develop a design brief and criteria for a design specification. -To investigate a variety of electrical sensors (LDRs) and a range of switches to understand how they work. (push-to-make switches, push-to-break switches, toggle switches, micro switches and reed switches.)
Intention 5 -It is our intention that all children will be able to **evaluate** and **reflect** on their designs. We want them to be able to say how their work compares to others and know their next steps in mastering skills and techniques.			
Children will be able to evaluate their own products and ideas against criteria/user needs and begin to suggest improvements.	Children will be able to evaluate their own products and ideas against criteria and user needs, as they design and make. They will be able to suggest improvements and acknowledge aspects that have gone well during the project.	Children will be able to critically evaluate their products against their design specification, intended user and purpose, identifying strengths and areas for development, and carrying out appropriate tests.	Children will be able to evaluate the final product with reference back to the design brief and design specification, taking into account the views of others when identifying improvements.
Intention 6 - It is our intention that all children will have a progressive, **technically challenging**, vocabulary to describe and explain their process.			
Children will begin to know and use some technical vocabulary relevant to each project. (See separate vocabulary spines).	Children will know and begin to use technical vocabulary regularly in each project. (See separate vocabulary spines).	Children will know and use technical vocabulary regularly and appropriately during each project (See separate vocabulary spines).	Children will consistently use and apply technical vocabulary throughout each project. (See separate vocabulary spines