Jennett's Park – Design Technology

Intent

At our school we want pupils to be actively interested in using design and technology to develop the skills to identify problems and design solutions and products to solve them. They will have an increasing knowledge and understanding of the inventions, designers and engineers that have had a positive impact on our world. We want to encourage real life application of disciplines such as maths, science, engineering, computing and art within problem solving areas as well as an ability to evaluate products and further develop them.

Educating for Wisdom, Knowledge and Skills	To help grow resourceful, resilient and reflective children who are equipped with the skills, knowledge and tenacity empower themselves, their learning throughout their lives.
Educating for Hope and Aspiration	To inspire and enrich lives beyond current opportunities and experiences in order to open minds to the potential their future holds
Educating for Community and Living Well Together	To be a multi-cultural, inclusive community of individuals loved by God who feel valued and involved where we create qualities of character to enable people to flourish.
Educating for Dignity and Respect	That children might know how much that they are loved and valued by so that they might show dignity and respect for themselves and others by carefully and safely thinking through their actions.

Implementation

Clear and comprehensive scheme of work in line with the National Curriculum. The Design Technology National Curriculum and EYFS is planned for and covered in full within the EYFS, KS1 and KS2 school curriculum. Whilst the EYFS and National Curriculum forms the foundation of our curriculum, we make sure that children learn additional skills, knowledge and understanding and enhance our curriculum as and when necessary.

- Delivery of design and technology projects with a clear structure. Each year group will undertake a construction topic, a textile topic and a food/drink topic.
- Delivery showing clear following of the design process where each project fill follow: research, design, make and evaluate.
- Each year group has a garden plot and takes ownership and responsibility for cultivating the relevant crops.
- A range of skills will be taught ensuring that children are aware of health and safety issues related to the tasks undertaken
- Clear and appropriate cross curricular links to underpin learning in multi areas across the curriculum giving the children opportunities to learn life skills and apply skills to 'hands on' situations in a purposeful context.
- Cross curricular project booklets. Children will undertake design tasks and use skills from across the curriculum to fully explore the design process evaluating work ensuring that it is of the highest possible quality. These project boobs will be thoroughly marked and assessed against the curriculum objective. Children are also asked to self-evaluate their work.
- Design Technology focussed displays in every classroom alongside celebrating the outstanding three dimensional creations on display throughout the school. These displays celebrate exceptional practice and exemplify terminology and vocabulary used.

- Independent learning: In design technology children may well be asked to solve problems and develop their learning independently. This allows the children to have ownership over their curriculum and lead their own learning in Design Technology.
- Collaborative learning: In design and technology children may well be asked to work as part of a team learning to support and help one another towards a challenging, yet rewarding goal.

Impact

- Children will have clear enjoyment and confidence in design and technology that they will then apply to other areas of the curriculum.
- Children will ultimately know more, remember more and understand more about Design Technology, demonstrating this knowledge when using tools or skills in other areas of the curriculum and in opportunities out of school.
- The large majority of children will achieve age related expectations in Design Technology.
- As designers children will develop skills and attributes they can use beyond school and into adulthood.

Implementation – Whole School Design Technology Long term Plans

Exploring Art and Design – Being Imaginative and Expressive - EYFS						
	Autumn 1	**Autumn 2**	**Spring 1**	**Spring 2**	**Summer 1**	**Summer 2**
Nursery	Uses everyday materials to represent their world Creates drawings to accompany rhymes/stories.	Creates drawings to accompany rhymes/stories. Plays alongside other children engaged in same theme.	Represents own world. Creates sound and movement. Uses movement and sound to express ideas and feelings.	Begins to make believe. Experiments and creates movement in response to music, stories and ideas. Creates sounds and drawings to accompany stories. Uses available resources to create props.	Begins to make believe using sounds. Creates rhythmic sounds and movement. Notices what others do and mirrors. Uses available resources to create props to support play.	Experiments and creates movement in response to music and stories. Sings to self and makes up songs. Creates sound movement drawings to accompany stories. Engages in imaginative play based on own ideas.

Reception	Use imagination to take on different roles in the role play areas. Build stories around small world and construction equipment.	Capture experiences through art, music and dance. Perform songs, rhymes, poems and stories aloud.	Initiates new combination of movement and gestures to respond to feelings, ideas and experiences. Plays cooperatively as part of a group to create, develop and act out an imaginary idea or narrative.	Chooses particular movements, instruments, sounds, colours and materials for own imaginative purposes. Uses combinations of art forms, e.g. moving and singing, making and dramatic play, drawing and talking. Responds imaginatively to art works and objects.	Chooses particular movements, instruments, sounds, colours and materials for own imaginative purposes. Plays cooperatively as part of a group to create, develop and act out an imaginary idea or narrative. Adapts and recount familiar narratives and stories in play.	Adapts and recount familiar narratives and stories in play. Invent own narratives and stories. Work imaginatively with peers and teacher. Perform songs, rhymes, poems and stories aloud. Try to move in time with music.

Year 1						
KS1 Objectives	**Term 1**	**Term 2**	**Term 3**	**Term 4**	**Term 5**	**Term 6**
Topic focus	**Traditional Fairy tales**	**Seasonal Ornaments**	**Toys**	**Transport**	**Pirates**	**Animals and Artic**
Design • design purposeful, functional, appealing products for themselves and others. • generate, develop, model and communicate their ideas through talking, drawing templates, and where appropriate information and communicate technology	To draw and design a house for the 3 Little Pigs. To test different materials to see which would be the strongest for a house and share their findings with others.	To design and make seasonal trinkets using clay. To experiment with different clay techniques- pinching, rolling, mark making, joining.	To design and make finger puppets using simple joining of material techniques- sewing.	To design and make our own vehicles using joining techniques and moving parts.		
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	To select the most appropriate materials/resource for a house for the Three Little Pigs. To select appropriate tools (scissors, tape) to build our houses with.	To make a weather station and rain gauge to help us measure the weather.	To select the most appropriate materials/resources needed to create our clay tea sets. To select a range of materials to make our finger puppets from e.g. felt, fabric, googly eyes etc.	To select the correct tools to help us cut materials and assemble our toy vehicles.		

Evaluate • explore and evaluate a range of existing products • evaluate their ideas and products against design criteria	To test our houses are strong enough by testing whether they are blown down with a hairdryer. To evaluate our products by thinking about what we would change and keep the same about our house if we were to build it again.	To discuss how we would change our weather stations if we made them again to make them more reliable	To share our final products with others in our Toy museum and reflect upon what we would differently in our Toy museum if we were to run this again.	To test our vehicles in a race and use this to evaluate how well our vehicles move.		
Technical knowledge • 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.		To understand how the different parts of a weather station and rain gauge work.		To understand how to use axles to help our vehicles move.		
Cooking and nutrition • use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from.	To create a healthy fruit salad for Hansel and Gretel.				International week	

Year 2						
KS1 Objectives	**Term 1**	**Term 2**	**Term 3**	**Term 4**	**Term 5**	**Term 6**
Topic focus	**The Great Fire of London**		**Castles**		**Under the sea**	
<u>Design</u> 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 **<u>Make</u>** 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 **<u>Evaluate</u>** Explore and evaluate a range of existing products Evaluate their ideas and products against design criteria **<u>Technical knowledge</u>** Build structures, exploring how they can be made stronger, stiffer and more stable	Look at designs of Tudor Houses compared to current home designs. Design, build, make and evaluate a Tudor Houses– Using DT techniques – cutting, joining shaping, on Cardboard challenge day. Select materials, and develop ideas throughout the day. Make Tudor bread using measuring, mixing and a variety of tools to make marks.		Look at, design and make castles with moving parts such as a winding mechanism and pulleys.		Designing and making under the sea pictures with moving parts such as levers and pivots.	

Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.			

Year 3						
KS2 Objectives	**Term 1**	**Term 2**	**Term 3**	**Term 4**	**Term 5**	**Term 6**
Topic focus	**The Stone Age**		**Vikings**		**Under the canopy**	
<u>Design</u> • 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 **<u>Make</u>** • 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	Look at designs of Stone Age Homes – compared to current home designs. Grand designs – look at famous architects.		Design, make and evaluate- use cross sectional and exploded diagrams as well as building prototypes of Vikings boats and shields. Peer assessment to be used to evaluate designs and finished product. Make Viking cakes, cover seasonality linked to Viking life and culture.		Design, make and evaluate a shelter for the playground. Investigate shelters – bus shelters/SHP shelter/ yurts and consider others in public spaces. Look at what their purposes are, investigate appropriate materials to make them with – incorporate lighting.	

their functional properties and aesthetic qualities **<u>Evaluate</u>** • 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 **<u>Technical knowledge</u>** • 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. **<u>Cooking and nutrition</u>** • 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.			

Year 4						
KS2 Objectives	**Term 1**	**Term 2**	**Term 3**	**Term 4**	**Term 5**	**Term 6**
Topic focus	**Race to the Frozen North**		**Ancient Rome**		**Ancient Greece**	
<u>Design</u> • 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 **<u>Make</u>** • 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	Look at maps of the world and identify the land masses, thinking about the climate of each continent. Creating a 3D map of the world, showing desert, rainforest, tundra, etc and tracking routes of famous explorers		Design, make and evaluate- use cross sectional and exploded diagrams. Building and erupting volcanoes Peers to evaluate designs and finished product.		Design, make and evaluate- use cross sectional and exploded diagrams as well as building prototypes of Greek shields. Peers to evaluate designs and finished product. Make clay owls.	

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. **<u>Cooking and nutrition</u>** • 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.			

Year 5						
KS2 Objectives	**Term 1**	**Term 2**	**Term 3**	**Term 4**	**Term 5**	**Term 6**
Topic focus	**Out of this world?**		**Kintsugi**		**Ancient Egyptians**	
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	**What is the most effective design for a space shuttle?** Children, on cardboard challenge day, need to design a space shuttle that can travel 4 metres, and stay in the air for 8 seconds **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, prototypes, **Evaluate** • investigate and analyse a range of existing products • evaluate their ideas and products against their own design criteria		What is Kintsugi? Kintsugi is the Japanese art of putting broken pottery pieces back together with gold — built on the idea that in embracing flaws and imperfections, you can create an even stronger, more beautiful piece of art. Children will decorate a plate that they will then break and repair in the style of Kintsugi **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-sections **Make**		**How can we improve on the Shaduf?** Children need to create a shaduf that not only has a lever, but can pivot, as well as retrieve 150ml of water. **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 **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	and consider the views of others to improve their work **Technical knowledge** • apply their understanding of how to strengthen, stiffen and reinforce more complex structures	• 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 electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]	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] **Cooking** Make Egyptian bread, using a recipe found in an ancient Egyptian tomb • Understand and apply the principles of a healthy and varied diet

incorporating switches, bulbs, buzzers and motors] • apply their understanding of computing to program, monitor and control them **Cooking and nutrition** • 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.		**Cooking** Cook using World War Two recipes, which featured rationing and seasonal/ home grown products, to provide nutrition and comfort to soldiers: • A cake • Trench stew • 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.	• 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. Usually cook a recipe from another country for international week: • Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. **Data handling project** Children write and evaluate algorithms and programs using selection and repetition to use micro:bit as a temperature recorder, an automatic warning system and a digital assistant. apply their understanding of computing to program, monitor and control their products

Year 6						
KS2 Objectives	**Term 1**	**Term 2**	**Term 3**	**Term 4**	**Term 5**	**Term 6**
Topic focus	**Where were the Mayans ?**	**Where is the best location for a villain's lair ?**	**Digital Quizzes**			
<u>Design</u> • 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 **<u>Make</u>** • 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	**Focus** – Cutting, fixing, joining accurately **Evaluate** – structure support and stability Technical Knowledge apply their understanding of how to strengthen, stiffen and reinforce more complex structures **Design and Make**– During cardboard challenge day children will measure, cut, fix and join cardboard of different shapes and sizes to create a Mayan temple. They will then evaluate this.	**Focus** – Moving parts **Evaluate** – Range of celebration cards with varying features **Design and Make**– Christmas card featuring a pop up lever			**Focus** – generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design **Evaluate** – investigate and analyse a range of existing products **Design and Make**–	**Focus** – generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design **Evaluate** – Range of current market for leavers gifts **Design and Make**– leavers gift for the school-using drilling 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					understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages] Make fairground moving toys. Start this term and feed into next – Science cross curriculum link with electrical circuits focus on switches.	cutting skills. As well as including moving parts.

incorporating switches, bulbs, buzzers and motors] • apply their understanding of computing to program, monitor and control them **<u>Cooking and nutrition</u>** • 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.						