Kellington Primary School
Our School – Our Future

The STAR
MULTI ACADEMY TRUST

DESIGN TECHNOLOGY: CURRICULUM CONTENT AND PROGRESSION FRAMEWORK

Topics/Themes/Texts: (To be decided by individual schools)	**The key things we want children to know/be able to do**
Sunflowers	
Encourage and model the skills involved in planning, improving and evaluating their work. ***Opportunities in provision and planning:*** ● Construction- building blocks/ lego/ recycling /duplo/ ● Crafts- use simple materials and make it into something new (box modelling/ painting/ outdoor nature) ● Range of mark making, craft, changeable etc. resources available ● Malleable tuff trays ● Cooking/ Baking (weighing out the ingredients, reading instructions, discussing what is happening and what they think might happen, measuring looks, use of different equipment) **Link to Mathematics ELGs -Use everyday language to talk about weight and measuring** ● Encourage children to plan their creation, make and then evaluate/ reflect ● Design Food (biscuits/ healthy meal) ***Links to potential themes :*** ● **Space-** building rockets, robots, moon sand ● **Autumn/ woods/ bears/ G**	**Design** - Select appropriate resources and materials to use. - Construct with a purpose in mind. - Represent their own ideas, thoughts and feelings. **Make** - Use a variety of natural and man-made resources. - Master reasonable scissor control effectively and safely to cut and use techniques (paper in one hand, scissors in the other). - Use malleable materials (e.g. play dough) and construction (e.g. Lego and blocks) safely with increasing control. **Evaluate** - Adapt work when necessary. **Technical knowledge** - Look at different attachment methods e.g. paper clips, glue, tape. - Select tools and techniques needed to shape, assemble and join materials being used. **Cooking and nutrition** - Talk about ways to keep healthy and safe. **Relevant ELGS:**

• **ruffalo-** crafts from natural resources, colours of autumn, season changing art, building tractors, hedgehog houses • **Christmas**- baubles, Christmas cards, nativity scenes, costumes • **Castles**- build castles out of materials • **Fairy Tales-** houses of 3 pigs (materials)/ 3 bears/ Princesses, Scenery, baking gingerbread men, • **Celebrations-** new year and Chinese new year decorations, Diwali lamps, birthday cakes, wedding decorations • **Spring-** Farm enclosures, spring flowers, bug houses • **Superheroes-** 3D buildings/ city landscape, masks and capes • **Seaside-** sand pictures • **Healthy Me**- design a healthy meal/ sandwich/ pack up • **Pirates-** treasure chests, telescopes, pirate ships (waterproof materials/ float or sink/ races across water) • **Dinosaurs**- making fossils and bones, mark out actual size of dinosaurs and compare to us	***Physical development (Moving and Handling):*** • To handle equipment and tools effectively, including pencils for writing ***Expressive Arts and Design (Exploring and using media and materials):*** • To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function ***Expressive Arts and Design (Being Imaginative):*** • To use what they have learnt about media and materials in original ways, thinking about uses and purposes. • They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories

Daffodils

Topics/Themes/Texts: (To be decided by individual schools)	**The key things we want children to know/be able to do**
Encourage and model the skills involved in planning, improving and evaluating their work. ***Opportunities in provision and planning:*** • Construction- building blocks/ lego/ recycling /duplo/ • Crafts- use simple materials and make it into something new (box modelling/ painting/ outdoor nature) • Range of mark making, craft, changeable etc. resources available • Malleable tuff trays	**Reception** **Design** - Select appropriate resources and materials to use. - Construct with a purpose in mind. - Represent their own ideas, thoughts and feelings. **Make** - Use a variety of natural and man-made resources.

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- Cooking/ Baking (weighing out the ingredients, reading instructions, discussing what is happening and what they think might happen, measuring looks, use of different equipment)

Link to Mathematics ELGs -Use everyday language to talk about weight and measuring

- Encourage children to plan their creation, make and then evaluate/ reflect
- Design Food (biscuits/ healthy meal)

Links to potential themes :

- **Space-** building rockets, robots, moon sand
- **Autumn/ woods/ bears/ Gruffalo-** crafts from natural resources, colours of autumn, season changing art, building tractors, hedgehog houses
- **Christmas**- baubles, Christmas cards, nativity scenes, costumes
- **Castles**- build castles out of materials
- **Fairy Tales-** houses of 3 pigs (materials)/ 3 bears/ Princesses, Scenery, baking gingerbread men,
- **Celebrations-** new year and Chinese new year decorations, Diwali lamps, birthday cakes, wedding decorations
- **Spring-** Farm enclosures, spring flowers, bug houses
- **Superheroes-** 3D buildings/ city landscape, masks and capes
- **Seaside-** sand pictures
- **Healthy Me**- design a healthy meal/ sandwich/ pack up
- **Pirates-** treasure chests, telescopes, pirate ships (waterproof materials/ float or sink/ races across water)
- **Dinosaurs**- making fossils and bones, mark out actual size of dinosaurs and compare to us

Year 1

Cycle 1

Textiles - To make a Christmas Decoration (linked to science Materials)

Design -

Explore different decorations - bring in from home, look at examples

- Master reasonable scissor control effectively and safely to cut and use techniques (paper in one hand, scissors in the other).
- Use malleable materials (e.g. play dough) and construction (e.g. Lego and blocks) safely with increasing control.

Evaluate

- Adapt work when necessary.

Technical knowledge

- Look at different attachment methods e.g. paper clips, glue, tape.
- Select tools and techniques needed to shape, assemble and join materials being used.

Relevant ELGS:

Physical development (Moving and Handling):

- To handle equipment and tools effectively, including pencils for writing

Expressive Arts and Design (Exploring and using media and materials):

- To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function

Expressive Arts and Design (Being Imaginative):

- To use what they have learnt about media and materials in original ways, thinking about uses and purposes.
- They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role play and stories

Year 1

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Discuss what they like and don't like. Design a bauble share and develop their ideas Practise cutting skills/ threading needle/sewing (**running stitch**) **Make** - Show the children step by step instructions for making the bauble- talk about what would happen if it was done in a different order. Encourage confidence when making the baubles (metacognition) Remind of safety rules throughout. Show the children how to stuff the bauble and that this then needs to be sealed so it doesn't come back out. **Evaluate** - Talk to the children about what this means and that everyone that designers do this to improve their work. Return to the design criteria to see if it has been successful for its purpose. What would they do differently next time? Decorate the class christmas tree with the baubles. **Moving Dinosaurs or Bears (linked to English)** **Design** - Look at books with moving parts - What is the purpose of them? Explain that they are going to be making moving dinosaurs/bears Look at sliding, wheel, lever and pivot mechanisms. Which dinosaurs/bears would they suit? **Make -** To design and make a dinosaur/bear for an author who is writing a book about dinosaurs (link to English) **Evaluate -** What has worked well - What hasn't? What would you change? **Cooking and nutrition** 'Healthy Me' (PSHE Jigsaw unit)) Animals including humans - science To make a fruit salad **CYCLE 2**	**Area of learning: Textiles** **Design** - Explore a range of existing products. - Discuss ideas. - Design purposeful, functional appealing products for themselves. - Draw and label simple designs. - Follow and refine plans as necessary. **Make** - Select from and use a range of tools and equipment to perform practical tasks e.g. cutting, shaping, joining and finishing. - Use a needle and thread safely and effectively. **Evaluate** - Evaluate and compare against existing textile products. - Test and evaluate final product - is it fit for purpose? - Reflect back on design criteria. - Suggest improvements. - Use peer assessment to improve their work. **Technical knowledge** - Use and store equipment such as needles safely. - Follow a set of instructions in order to learn a new skill such as sewing. - Children will learn stitch names. **Key vocabulary** User Textile Product Stitch **Cooking and nutrition**

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Animal puppets - (link to an English text- Story writing promps) **Textiles - To make an animal puppet** **Design** - Explore different range of puppets and their features (finger puppets, hand puppets, stick puppets, string puppets…) Asking and answering lots of questions. Remind the children about the skills we used to make a Christmas Decoration earlier in the year. Return to practising threading a needle and running stitch introduce **overstitch**. Design their glove puppet researching animal patterns of their chosen animal before they start. Ensuring features are detailed. **Make** - Focus - following their design carefully. What do we need to do to ensure this happens? Can the children remember the steps/sequence we followed last time. **Evaluate -** Name their puppets and introduce them to each other! Do they work as they are meant to. Share with the reception class/tell them a story. Do they match their designs? What would they change next time? **Vehicles** **Design** - Look at different forms of vehicles that people have used to travel the world and what purpose they have. Link to Famous Explorers (history) Look at vehicle structures, wheels, axles, chassis, body work. Detailed plans and designs - use pictures moon buggies to support (computing link) Make - To design and make a moon buggy that Neil Armstrong can use when on the moon. Explain the parts they have used and give detailed reasons as to why? **Evaluate -**Is it fit for purpose? Work with peers to discuss what could be used to improve it? Is it possible to adapt it to make it so? **Food technology,** Link to jigsaw 'Healthy Me' Science 'Plants' (where does food come from) To make mini pizzas	- Use the principles of a healthy and varied diet to prepare dishes. - Understand where food comes from.

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Roses	
Topics/Themes/Texts: (To be decided by individual schools)	**The key things we want children to know/be able to do**
Cycle 1 Textiles - To make a Christmas Decoration (linked to science Materials) **Design** - Explore different decorations - bring in from home, look at examples Discuss what they like and don't like. Design a bauble share and develop their ideas Practise cutting skills/ threading needle/sewing (**running stitch**) **Make** - Show the children step by step instructions for making the bauble- talk about what would happen if it was done in a different order. Encourage confidence when making the baubles (metacognition) Remind of safety rules throughout. Show the children how to stuff the bauble and that this then needs to be sealed so it doesn't come back out. **Evaluate** - Talk to the children about what this means and that everyone that designers do this to improve their work. Return to the design criteria to see if it has been successful for its purpose. What would they do differently next time? Decorate the class christmas tree with the baubles. **Moving Dinosaurs or Bears (linked to English)** **Design** - Look at books with moving parts - What is the purpose of them? Explain that they are going to be making moving dinosaurs/bears	**Year 1** **Area of learning: Textiles** **Design** - Explore a range of existing products. - Discuss ideas. - Design purposeful, functional appealing products for themselves. - Draw and label simple designs. - Follow and refine plans as necessary. **Make** - Select from and use a range of tools and equipment to perform practical tasks e.g. cutting, shaping, joining and finishing. - Use a needle and thread safely and effectively. **Evaluate** - Evaluate and compare against existing textile products. - Test and evaluate final product - is it fit for purpose? - Reflect back on design criteria. - Suggest improvements. - Use peer assessment to improve their work. **Technical knowledge**

Look at sliding, wheel, lever and pivot mechanisms. Which dinosaurs/bears would they suit?
Make - To design and make a dinosaur/bear for an author who is writing a book about dinosaurs (link to English)
Evaluate - What has worked well - What hasn't? What would you change?

Cooking and nutrition

'Healthy Me' (PSHE Jigsaw unit)) Animals including humans - science
To make a fruit salad

CYCLE 2

Animal puppets - (? link to an English text -Story writing prompts)
Textiles - To make an animal puppet
Design -
Explore different range of puppets and their features (finger puppets, hand puppets, stick puppets, string puppets…) Asking and answering lots of questions.
Remind the children about the skills we used to make a Christmas Decoration earlier in the year.
Return to practising threading a needle and running stitch introduce **overstitch**.
Design their glove puppet researching animal patterns of their chosen animal before they start. Ensuring features are detailed.
Make -
Focus - following their design carefully. What do we need to do to ensure this happens?
Can the children remember the steps/sequence we followed last time.
Evaluate -
Name their puppets and introduce them to each other! Do they work as they are meant to. Share with the reception class/tell them a story.
Do they match their designs? What would they change next time?

Vehicles

- Use and store equipment such as needles safely.
- Follow a set of instructions in order to learn a new skill such as sewing.
- Children will learn stitch names.

Key vocabulary
User
Textile
Product
Stitch
Cooking and nutrition
- Use the principles of a healthy and varied diet to prepare dishes.

Understand where food comes from

Year 2

Area of learning: Mechanisms
Design
- Explore a range of existing products.
- Discuss ideas.
- Design purposeful, functional appealing products for other users.
- Draw and label simple designs.
- Follow and refine plans as necessary.
- Create group or individual mock-ups.

Make
- Select from and use a range of tools and equipment to perform practical tasks e.g. cutting, shaping, joining and finishing.
- Use levers, sliders, wheels and axles to make a product that moves. Can be covered over two projects.
- Say why they have chosen moving parts.

Evaluate

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Design - Look at different forms of vehicles that people have used to travel the world and what purpose they have. Link to Famous Explorers (history) Look at vehicle structures, wheels, axles, chassis, body work. Detailed plans and designs - use pictures of moon buggies to support (computing link) Make - To design and make a moon buggy that Neil Armstrong can use when on the moon. Explain the parts they have used and give detailed reasons as to why? **Evaluate** -Is it fit for purpose? Work with peers to discuss what could be used to improve it? Is it possible to adapt it to make it so? **Food technology,** Link to jigsaw 'Healthy Me' Science 'Plants' (where does food come from) To make mini pizzas	- Evaluate and compare against existing products. - Test and evaluate final product - is it fit for purpose? - Reflect back on design criteria. - Suggest improvements. - Use peer assessment to improve their work. **Technical knowledge** - Build structures, exploring how they can be made stronger, stiffer and more stable. - Explore and use mechanisms as above. Input – What do you do to make it work? Push? Process – How does your product work? The wheel turns on the axel. Output – what happens? The car moves. **Key vocabulary** User Function Features Aesthetics Components Resilience Input Process Output Mechanism NB: If opportunity to consider **food technology** focus on food production from farm to fork. Where does your food come from?
Tulips	

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Topics/Themes/Texts: (To be decided by individual schools)	**The key things we want children to know/be able to do**
Cycle 1 **Stone Age Shoe** Children receive a letter from Om's people (Stone Age Boy- recommended book) requesting shoes for their children. Joining 3 pieces of material. Children can applique felt designs. Attach using buttons and button holes, punched holes and crocheted 'laces'. Children to follow a brief and explore multiple designs. ● strength of stitch ● ease for target audience ● safe storage of needles. ● testing and evaluation of product **Cooking and Nutrition** Bread - links to Egyptian and biblical story of Moses freeing the slaves from pharaoh. RE links to Moses and baking unleavened bread. Children to design, research, produce, evaluate flavoured unleavened bread to sell within school. Children work in table teams to compete as producers do in retail. **Cycle 2** **Textiles Christmas decorations** Children research fabric Christmas decoration and design a decoration for a specific audience. Children join fabrics using a range of stitches with a range of stitches with increasing independence. Add further decoration to their work using buttons, beads sequins etc. Cooking and nutrition	**Year 3** **Area of learning: Textiles** **Design** - Consider function, aesthetics, user needs. - Create multiple designs. - Research key events and individuals. - Use market research to inform plans. - Follow a brief for a target audience. - Follow and refine plans as necessary. - Describe their design using an accurately labelled sketch. - Consider culture and society in designs. - Choose textiles both for their appearance and properties. **Make** - Select appropriate equipment e.g. needles, knitting needles, crochet hooks and materials for the task. - Change the way they are working if needed. - Join textiles of different types in different ways. **Evaluate** - Test and evaluate final product - is it fit for purpose? - Reflect back on design criteria. - Suggest improvements. - Use peer assessment to improve their work. **Technical knowledge** - Apply the understanding of how to strengthen and reinforce. - Use and store equipment such as needles safely. - Follow a set of instructions in order to learn a new skill such as crochet.

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Using a specific event/ festival children prepare a savoury dish in celebration. Research the products and create a food map that considers sustainability and the food journey Consider adaptations to allow it to be accessible to all e.g. vegetarians, vegans, gluten free etc.	**Key vocabulary** Target market User Client Function Features Aesthetics Components Resilience Stitch Textile Material Year 4 **Area of learning: Cooking and nutrition** **Design** - Follow brief for predominantly savoury dishes for a specific event, individual or group. - Consider culture and society e.g. fair trade - Use market research to inform dishes. - Follow and refine plans as necessary. - Justify and explain plans through discussion and annotations. **Make** - Select appropriate ingredients. - Select and use basic hand-held and other kitchen equipment safely. - Consider a range of cooking techniques e.g. weighing and measuring, stirring and kneading.

	- Understand and follow food hygiene rules when preparing food e.g. how to store, prepare and cook. **Evaluate** - Test and evaluate final product - is it fit for purpose? - Suggest improvements. - Use peer assessment to improve their product. **Technical knowledge** - Be familiar with the principles of a healthy and varied diet e.g. The Eatwell Guide. - Show some understanding of seasonality, knowing where and how a variety of ingredients are grown, reared, caught and processed. - Be aware of dietary needs of others e.g. allergies, intolerance or religious beliefs. **Key vocabulary** Target market Nutrition Hygiene Allergy Intolerance Diet
Lilies	
Topics/Themes/Texts: (To be decided by individual schools)	**The key things we want children to know/be able to do**
Cycle one Mechanisms and Electrical systems	**Year 5** **Area of learning: Mechanisms** **Design**

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Roll up, roll up for fun at the fair - examine a variety of rotating fairground rides before designing and making their own ride using an electrical motor. **Cycle two** Mechanisms - Make a trebuchet (catapult). (Links to Ancient Greece) Students work as teams of engineers and research how to design and build their own trebuchets from scratch while following a select number of constraints. Market research must take place, with children evaluating current products - using these ideas in the design process. They sketch and experiment with ideas. They test their trebuchets, evaluate their results through several quantitative analyses, and present their results and design process to the class. Link to Maths Measurement (WRM Y5 Summer 1) Electrical systems - ? link to WW1 and WW2 Design an air raid shelter that contains an electrical system that provides light and sound to warn of danger and the all clear. .	- Consider function, aesthetics, user needs. - Create multiple designs. - Research key events and individuals. - Use market research to inform plans. - Follow a brief for a target audience. - Draw own designs, neatly with colour. - Follow and refine plans as necessary. - Justify and explain plans through discussion and annotations. - Consider culture and society in designs. **Make** - Make and develop one idea to fit the brief. - Use a ruler to measure in cm and mm. - Use junior saws and hand drills. - Use a file and sandpaper to finish. - Select appropriate materials. - Change the way they are working if needed. **Evaluate** - Test and evaluate final product - is it fit for purpose? - Reflect back on design criteria. - Suggest improvements. - Use peer assessment to improve their work. - Consider how your work compares to key events and individuals researched. **Technical knowledge** - Understand how to strengthen, stiffen and reinforce structures. - Understand and use mechanical systems in their products for example, gears, pulleys, cams, levers and linkages. Input – What do you do to make it work? Push, pull?

	Process – The mechanism that makes the output happen such as a handle which makes a cog turn. Output – what happens? Do wheels spin? - Consider categories and properties of materials used e.g. wood – what type? Pine? Oak? Manmade? **Key vocabulary** Target market User Client Function Features Aesthetics Components Resilience Input Process Output Year 6 **Area of learning: Electrical systems as part of a product.** **Design** - Consider function, aesthetics, user needs. - Create multiple designs. - Research key events and individuals. - Use market research to inform plans. - Follow a brief for a target audience. - Sketch circuit plans. - Follow and refine plans as necessary. - Justify and explain plans through discussion and annotations. - Consider culture and society in designs. **Make**

	- Select appropriate equipment and materials for the task. - Change the way they are working if needed. - Incorporate an electrical element to the product. **Evaluate** - Test and evaluate final product - is it fit for purpose? - Reflect back on design criteria. - Suggest improvements. - Use peer assessment to improve their work. - Consider how your work compares to key events and individuals researched. **Technical knowledge** - Understand and use electrical systems in their products for example, switches, bulbs, buzzers and motors. Input – What do you do to make it work? Flick a switch? Process – How does your circuit connect to make the product work? Output – what happens? Does a light come on? - Apply their understanding of computing to program, monitor and control their products. **Key vocabulary** Target market User Client Function Features Aesthetics Components Resilience Input Process Output See science curriculum for electrical vocabulary.

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GLOSSARY	
Design and Technology	Cooking and Nutrition
• **Target market** - a particular group of consumers at which a product or service is aimed • **User** – A person who will interact or 'use' the product • **Client** - A company or organisation who has asked you to produce a product. • **Function** – The job of the product (Entertainment , Educational etc) • **Features** - • **Aesthetics** – How the product looks. Consider colour, shape and texture. • **Components –** parts that when combined create a product • **Input** - a device through which, energy or information enters a system • **Process** – components or mechanism that produce change • **Output** – a place where power or information leaves a system. • **Context –** the setting or background information for the brief • **Brief –** initial outline of what is required • **Work of others -** teamwork • **Annotate –** notes • **Specification –** a set of rules for the product, a list of musts • **Modelling –** a trial version • **CAD –** Computer Aided Design • **CAM –** Computer Aided Manufacture • **Ergonomics –** making products that humans can operate efficiently	• **Nutrition** • **Hygiene** • **Allergy** • **Intolerance** • **Diet** • **Gluten formation** • **Gelatinisation,** • **Shortening** • **Coagulation**