Subject Overview 2019/20: DT
Intent (Skills/ knowledge):
Implementation (How/ When):

	Year 3	Year 4	Year 5	Year 6
INTENT	**Photograph Frames** • To identify the features of a photograph frame. • To know what the word 'stable' means. • To make changes to the design of a stable structure to make it fit for purpose. • To explore a range of materials and evaluate the usefulness of their properties for a particular project. • To explore how to make stable structures that can stand alone. • To follow a design to make a stable structure. • To know some ways to make a structure more stable. • To evaluate my finished structure against a set of given criteria.	**Seasonal Stockings** • To explain the difference between the function and visual appeal of a product. • To evaluate the function and visual appeal of a variety of Christmas stockings. • To use pins to temporarily fasten two pieces of fabric together. • To use running stick, back stitch, overstitch and zigzag stitch to join two pieces of fabric together. • To hide the finishing knot. • To identify a variety of decorative techniques that have been used to decorate Christmas stockings. • To sew a button, bead, sequin or pipe cleaner onto a piece of fabric. • To embroider shapes and patterns into a piece of fabric. • To design a Christmas stocking incorporating some decorative techniques. • To use a template to cut out front and back pattern pieces. • To follow a design to create a Christmas stocking. • To evaluate the function and visual appeal of my finished Christmas stocking.	**Building Bridges** To know what beams and pillars are and how they are used in bridge construction. • To can predict which beams will be strongest from their cross-section. • To can test the strength of different beam shapes using paper and card. • To can explain what a truss is and how trusses make bridges stronger. • To can identify the three types of trusses commonly used in bridge design. • To can build a truss bridge spanning a width of 40cm using paper straws. • To can use a fair test to evaluate the strength of my truss bridge. • To can explain how arches work to make bridges stronger. • To can test the arch heights to see which can bear the most load. • To can make an arch frame. • To can explain how suspension bridges use tension forces to work. • To can design, make and evaluate a prototype suspension bridge using a scale of 1:100 according to specific design criteria.	**Funky Furnishings** • To explain the difference between the function and visual appeal of a product. • To evaluate the function and visual appeal of a variety of funky furnishings (EG cushions) • To use pins to temporarily fasten two pieces of fabric together. • To use running stitch, back stitch, overstitch and zigzag stitch to join two pieces of fabric together. • To use different opening /closing techniques to allow access • To hide the finishing knot. • To identify a variety of decorative techniques that have been used to decorate home furnishings e.g. applying buttons, beads, sequins or pipe cleaners onto the fabric. • To embroider more complex shapes and patterns onto the fabric. • To use appliqué to add decoration to a piece of fabric. • To design a furnishing incorporating a range of decorative techniques. • To use a template to cut out front and back pattern pieces. • To follow a design to create a funky furnishing. • To evaluate the function and visual appeal of my finished piece.
	Sandwich Snacks • To 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. • To generate, develop, model and communicate my ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. • To select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to my functional properties and aesthetic qualities. • To investigate and analyse a range of existing products • To evaluate my ideas and products against my own design criteria and consider the views of others to improve my work. • To understand and apply the principles of a healthy and varied diet. • To prepare and cook a variety of predominantly savory dishes using a range of cooking techniques.	**Alarms** • To recognise the uses to which alarm systems can be put. • To understand that switches work in different ways. • To understand the dangers of mains electricity. • To explain how a simple circuit works. • To experiment with different ways of creating circuits and switches. • To know how to work safely with electricity. • To design an alarm system that is suitable for a particular purpose. • To apply what I have learnt about alarms, circuits and switches when designing my own alarm systems. • To discuss and finalise my designs. • To apply what I have learnt when making my alarm systems. • To use a variety of electrical components accurately. • To discuss my work and suggest areas for improvement. • To understand why evaluation is an important part of the designing and making process. • To evaluate my own finished products fairly. I can discuss my work and the work of others fairly.	**Biscuits** To 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 To generate, develop, model and communicate my ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design To select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to my functional properties and aesthetic qualities To investigate and analyse a range of existing products To evaluate my ideas and products against my own design criteria and consider the views of others to improve my work To prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques To 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 To generate, develop, model and communicate my ideas through	**Bird House Builders** • To investigate the appearance and function of a variety of different bird houses. • To identify what materials have been used to construct a variety of bird houses and suggest how the parts have been joined together. • To know what a flat pack diagram is and can use it to identify each part of a structure. • To create a flat pack diagram of a constructed bird house. • To draw an exploded diagram. • To identify the tools associated with basic woodwork. • To measure, clamp, saw, sand and join wood. • To use a hand drill to drill a hole in a piece of wood. • To know the safety rules I need to follow when doing woodwork. • To design a bird house for a particular bird, taking into account the bird's needs. • To select appropriate tools and materials to use when making a bird house. • To create a sturdy bird house frame using wood. • To evaluate my finished bird house, taking into account the views of others to improve my work. • To use observation to evaluate the effectiveness of my bird house.

Subject Overview 2019/20: DT
Intent (Skills/ knowledge):
Implementation (How/ When):

			discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design To select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to my functional properties and aesthetic qualities To investigate and analyse a range of existing products To evaluate my ideas and products against my own design criteria and consider the views of others to improve my work To prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques 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 To generate, develop, model and communicate my ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design To select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to my functional properties and aesthetic qualities To investigate and analyse a range of existing products To evaluate my ideas and products against my own design criteria and consider the views of others to improve my work To prepare and cook a variety of predominantly savory dishes using a range of cooking techniques	
	Mini Greenhouses • To know what a greenhouse is and how they work. • To explore a range of different greenhouses. • To know how greenhouses are used today. • To explain how the shape of a structure affects its stability. • To know that the weight of the structure needs to be evenly spread on the base to make it secure. • To know that the wider a structure's base is, the more stable it will be. • To use 3D nets to explore potential structures for a greenhouse, assessing their stability. • To investigate ways of making a structure more stable, e.g. by inserting dowelling or adding triangles at the joins.	**Story Books** • To explore moving parts in storybooks, suggesting how they work and what purpose they serve. • To explain what the words 'linkage', 'pivot', 'rotate' and 'lever' mean. • To use a paper concertina to make an object pop out of a book. • To arrange and stick paper between pages to create a pop-out. • To use levers to create moving parts. • To create moving wheel mechanisms to create different effects. • To experiment with different fonts and graphic design features. • To design pages of a storybook to include moving mechanisms and appropriate graphic features. • To follow my designs to create a storybook with moving mechanisms. • To evaluate how well my moving mechanisms work. • To evaluate the overall effectiveness of my storybook.	**Moving Toys** • To make a sliding mechanism out of card. • To know what a pivot and lever are. • To use a pivot and lever mechanism using card and a split pin. • To make a wheel mechanism using card and a split pin. • To match a mechanism to the type of movement they produce. • To design a moving toy to include a variety of moving mechanisms. • To follow a design to create a moving toy • To evaluate my finished moving toy by identifying things that worked well and things that could be improved.	**Fairgrounds** To 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 To generate, develop, model and communicate my ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design To select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately To select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to my functional properties and aesthetic qualities To investigate and analyse a range of existing products

Subject Overview 2019/20: DT
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	• To experiment with a range of materials to test which would be most appropriate for making the structure of a mini greenhouse. • To design a mini greenhouse using specific design criteria. • To select appropriate tools and materials to make a mini greenhouse. • To follow my design to make a mini greenhouse. • To evaluate my finished mini greenhouse for stability, effectiveness and visual appeal.			To evaluate my ideas and products against my own design criteria and consider the views of others to improve my work To apply my understanding of how to strengthen, stiffen and reinforce more complex structures To understand and use mechanical systems in my products [for example, gears, pulleys, cams, levers and linkages] To understand and use electrical systems in my products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
	Vocabulary user, purpose, design, model, evaluate, prototype, annotated sketch, functional, innovative, investigate, label, drawing, function, planning, design criteria, annotated sketch, appealing * Vocabulary in red are new words to be introduced **Vocabulary in black are words previously introduced in DT topics.	Vocabulary evaluating, design brief, design criteria, innovative, prototype, user, purpose, function, prototype, design criteria, innovative, appealing, design brief, planning, annotated sketch, sensory evaluations	Vocabulary **design decisions, functionality, authentic**, user, purpose, **design specification,** design brief, innovative, **research, evaluate**, design criteria, **annotate**, evaluate, **mock-up,** prototype	Vocabulary **function**, innovative, **design specification,** design brief, user, purpose design brief, design specification, prototype, annotated sketch, purpose, user, innovation, **research, functional,** mock-up, prototype
	Seasonal Food 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	**Seasonal Food** 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	**Seasonal Food** 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	**Seasonal Food** 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
	Vocabulary **name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet** * Vocabulary in red are new words to be introduced **Vocabulary in black are words previously introduced in DT topics.	Vocabulary name of products, names of equipment, utensils, techniques and ingredients texture, taste, sweet, sour, hot, spicy, appearance, smell, preference, greasy, moist, cook, fresh, savoury, hygienic, edible, grown, reared, caught, frozen, tinned, processed, seasonal, harvested healthy/varied diet	**Vocabulary** ingredients, **yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble**	**Vocabulary** ingredients, yeast, dough, bran, flour, wholemeal, unleavened, baking soda, spice, herbs fat, sugar, carbohydrate, protein, vitamins, nutrients, nutrition, healthy, varied, gluten, dairy, allergy, intolerance, savoury, source, seasonality utensils, combine, fold, knead, stir, pour, mix, rubbing in, whisk, beat, roll out, shape, sprinkle, crumble

Subject Overview 2019/20: DT
Intent (Skills/ knowledge):
Implementation (How/ When):

IMPLEMENTATION

Approach to DT

Through the study of design and technology, the children combine practical skills with an understanding of aesthetic, social and environmental issues. Design and technology helps all children to become discerning and informed consumers and potential innovators. It provides children with a greater awareness and understanding of how everyday products are designed and made. We emphasise vocabulary within all DT lessons using a 3 tier vocabulary approach which is revisited regularly to enable understanding and retention. Pre-cueing of vocabulary is regular focus for our EAL pupils. Aspirations and possible future careers are prioritised within Design and Technology with a 'What's the Point?' approach. Our children learn about links with a range of careers linked with the topic being studied.
Design and Technology lessons support our school context based drivers, the 5 Es (Excel yourself, embrace yourself, Explore the world, Engage with others, Express yourself). These are explicitly shared with the children.

Our aims are:

- to develop imaginative thinking in children and to enable them to talk about what they like and dislike when designing and making;
- to enable children to talk about how things work, and to draw and model their ideas;
- to encourage children to select appropriate tools and techniques for making a product, whilst following safe procedures;
- to foster enjoyment, satisfaction and purpose in designing and making;
- to use ICT software to assist our designing and learning.

Teaching and Learning
We use a variety of teaching and learning styles in design and technology lessons. Teachers ensure that the children apply their knowledge and understanding when developing ideas, planning, making products and evaluating them.

We do this through a mixture of whole class teaching and individual/group activities. All children's ideas are treated with respect and they are encouraged to critically evaluate their own work and that of others. They have the opportunity to use a wide range of materials and resources, including ICT.

We teach design and technology to all pupils, whatever their ability, and provide learning opportunities that enable them to make progress. We do this by setting suitable learning challenges and respond to children's individual needs. We strive to support individual needs and enable children to achieve their full potential through appropriate challenge and questioning.

Subject Overview 2019/20: DT
Intent (Skills/ knowledge):
Implementation (How/ When):

Children are encouraged to think and work independently and collaboratively evaluating, extending and improving their ideas.

The Curriculum
Children are given the opportunity to work within three main areas of development during each topic:

- investigative tasks including analysing existing products;
- focused practical tasks allowing children to learn, practice and develop key skills;
- design and make assignments allowing children to apply their knowledge, skills and understanding when developing their ideas and creations.

Across Key Stage 2, we plan design and technology activities so that they build upon prior learning of the children. We give children of all abilities the opportunity to develop their skills, knowledge and understanding and ensuring progressive challenge, breadth and depth to their design and making. The units are focused on the following areas:

- cooking and nutrition;
- materials;
- construction including mechanics.

Where possible the planning is completed through a cross curricular approach ensuring that design technology has a link to the topic/s being studied.

Subjects such as English, Maths, Science and Computing are reinforced through design and technology by giving children the opportunity to:

- apply methods of calculation and measurement to real life situations;
- write plans, instructions, rationales and evaluations;
- articulate ideas and compare and contrast their views with others;
- discuss views and clarify design ideas;
- use a range of increasingly technical vocabulary;
- apply scientific knowledge to designs and inventions;
- use a range of resources including computer design.

Subject Overview 2019/20: DT
Intent (Skills/ knowledge):
Implementation (How/ When):

	Autumn	Spring	Summer	Whole school project
Year 3	Photograph Frames	Sandwich Snacks	Mini Greenhouses	Seasonal Food
Year 4	Seasonal Stockings	Alarms	Story Books	Seasonal Food
Year 5	Biscuits	Building Bridges	Moving Toys	Seasonal Food
Year 6	Funky Furnishings	Bird House Builders	Fairgrounds	Seasonal Food

The whole school takes part in the Seasonal Food project at the same time, meaning that this project can be launched with a whole-school assembly and learning can be enjoyed and celebrated by the whole school as a shared experience.

The Design and Technology curriculum is set out in this way to ensure that throughout KS2 all key skills and objectives from the National Curriculum are met. This can be seen in the progression document which shows that general skills are taught and embedded throughout KS2 and skills specific to the unit being taught are incorporated when appropriate.

Objective	Year 3			Year 4			Year 5			Year 6		
	Photo frames	Sandwich snacks	Mini Green houses	Seasonal stockings	Alarms	Story books	Biscuits	bridges	Moving toys	Funky furnishings	Fairgrounds	Bird House Builders
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												
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												
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												
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	This objective is			taught as part of			The computing			curriculum for Year 6.		
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												

Subject Overview 2019/20: DT
Intent (Skills/ knowledge):
Implementation (How/ When):

Differentiation/SEND

Our DT curriculum ensures provision for all children. Inclusivity is a key part of its philosophy. Teachers can tailor each lesson to meet the needs of the children in their classes by using some of the following approaches:

Quality first teaching and differentiation for SEND

- Varied questioning depending on SEND need. Scaffolds may be needed to support the responses gained.
- Ensure all SEND pupils can see and hear the input. Seats may need to be varied dependent on where main teaching will be taking place. If any child is hearing or visually impaired, additional support may be needed.
- Resources to be made accessible- differentiated to the need of the pupils.
- Use of talk partner's/ group discussions to elicit understanding and to share ideas.
- Displays- where appropriate to be language rich and resourced with pictures to match the language.
- Pre-cut or pre folded items where appropriate
- Clear step by step instructions – this could be written or in picture form with sort captions
- Additional time given where needed.
- Use of a scribe to record learning.
- Pre prepared labels to help with design sketches
- Practical equipment used wherever possible
- Use of ICT- videos to show process e.g. step by step method that can be replayed whenever children need it
- Support from additional adults is planned to scaffold pupil's learning. (Where appropriate)
- Work in mixed ability groups - Support from peers
- Pre cueing of language- encouraged to ensure children can access the language used.

Quality first teaching and differentiation for PP

- Quality first teaching.
- Resources to be made accessible- differentiated to the need of the pupils.
- Varied questioning
- Displays- where appropriate to be language rich
- Ensuring that PP are challenged as some PP are MAT children.

Quality first teaching and differentiation for EAL

- Resources to be made accessible- differentiated to the need of the pupils.
- Use of talk partner's/ group discussions to elicit understanding and to share ideas.
- Displays- where appropriate to be language rich and resourced with pictures to match the language.
- Physical resources used to explore and to deepen understanding.
- Use of ICT – this could be to show the activity step by step
- Support from additional adults is planned to scaffold pupil's learning.
- Peer support (mixed ability groups)
- Labels to help with design sketches etc.

- Pre cueing of language- encouraged to ensure children can access the language used.
- Recapping of prior learning at regular intervals, in particular key language.

Quality first teaching and differentiation for MAT

- More variety of resources available so that children can investigate materials for themselves and make the choice of what to use.
- Varied questioning to elicit deeper thought. –Blooms taxonomy.
- Displays- where appropriate to be language rich
- Provide challenge in the tasks set.
- Challenge cards – a statement that may contradict what has been found so far so that children can deepen their understanding
- Build in time for reflection and review.

SMSC

Spiritual development in DT inspires the children to develop an awe and wonder of the natural world, looking in particular at ways in which we can overcome problems and inventions that have changed the way we live today. It also includes looking at the inventions of the past and look at how these can be improved for the future

Moral education allows children to recognise that development takes place in a design and technology context and consider the impact of inventions on the people of the world.

Social education looks at the study of real people in different societies and the obstacles they have overcome with their innovative ideas and inventions. It allows children to develop a sense of identity and allows community spirit to de strengthened.

Throughout the ages, people have left evidence of their culture in their writing, their artwork, in
their technological achievements and in the way that they shaped their environments. Opportunities
are taken to share these with the children.

Assessment and tracking pupil progress

Formative assessment

Assessment is an integral part of every subject. The children are continuously assessed before, during and after the lessons. After each lesson, the children will be assessed using an 'I can' statement. This will be shown on the appropriate page in the floor book. The children will be RAG rated on how they have achieved the particular knowledge or skill they have been working on. Green will show that the child has achieved ARE within that lesson. If the name is not coloured, then that means that they are not working at ARE. The word

'absent' will be put next to the name if the child was away during the lesson. This assessment will inform a teacher's judgement as to whether they are age related at the end of the unit. Any of the 5Es that are relevant to the lesson will be noted next to the learning objective on the 'I can' statement.
Due to the practical nature of design and technology, evidence of work undertaken by children can be in the form of teacher's notes or as a photographic record. Samples of the design process and end product are also valuable evidence which is displayed in the floor book.

Summative assessment

At the end of a unit, the teacher will fill in an assessment grid which will assess the children based on the outcomes from the entire unit. Retention of knowledge is supported through a range of mini quizzes revisited regularly.

Trips and visitors

Trips and visitors are encouraged to engage the children further in their learning. These are encouraged towards the beginning of a unit of work, allowing the children to become fully immersed in the unit. These may include a trip to Gladstone pottery museum for flower and other pottery making, Asda or Tesco or a trip to Alton Towers to see fairground rides in action.

Subject Overview 2019/20: DT
Intent (Skills/ knowledge):
Implementation (How/ When):

Notable Designers

Year 3	
Photo frames	Natalini Marquetry (designer)
Sandwich Snacks	The Sammies 2020 – (Sandwich designer comp) https://awards.sandwich.org.uk/index.php
mini greenhouses	Charles Lucien Bonaparte (inventor)
Year 4	
Seasonal Stockings	Laura Radniecki (designer)
Alarms	Edwin Holmes (inventor of the burglar alarm)
Story Books	Robert Sabuda
Year 5	
Biscuits	Thomas Huntley and George Palmer https://www.huntleyandpalmers.com/
Building Bridges	Isambard Kingdom Brunell
Moving Toys	Robert Race http://www.southwick.wilts.sch.uk/pdf/Careers/Robert%20Race%20toy%20maker%20feb%2012.pdf
Year 6	
Funky Furnishings	Christian Lacroix https://www.bing.com/images/search?q=christian%20lacroix%20cushion&qs=n&form=QBIR&sp=-1&pq=christian%20lacroix%20cushion&sc=3-25&sk=&cvid=6B6A14B2578E4FA3A1B4ABECFE3D7821
Fairgrounds	Dennis Jefferies (inventor of the Waltzer)
Bird House Builders	http://www.stickybuffalo.com/beautiful-birdhouse-design-and-ideas-30-beautiful-birdhouse-design-and-ideas/

Reading for learning

Reading for learning

Reading for learning is encouraged to enable learners to gain more information about the units being covered. E.g. evidence in guided reading sessions and links to instructional texts.