"Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values. They acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art. Pupils learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation." DFE 2013

DESIGN TECHNOLOGY SUBJECT OVERVIEW

By Helen Tetlow

Our Vision – *Love, Respect, Shine*

Design Technology is a unique way of communicating that can inspire and motivate children. It is a vehicle for personal expression and it can play an important part in the child's personal development. (Love)

Design Technology enables children to reflect on the different cultures and society we live in and so the teaching and learning of design technology enables children to better understand the world they live in. (Respect)

At Cheadle Catholic Infant School, we provide opportunities for all children to develop a love of Design Technology as they engage in a variety of activities: speaking, listening, exploring, experimenting, designing, making and evaluating. (Shine)

Intent & Implementation

- At Cheadle Catholic Infant School our comprehensive and bespoke Design Technology curriculum has been designed in line with the EYFS framework and the National Curriculum.

- We ensure all of our Design Technology lessons are inclusive, well planned and sequential. This ensures that all children are given the best chance to succeed and develop the skills and knowledge they will need to achieve at the end of Key Stage 1 and beyond.

How is the Design Technology Curriculum Sequenced throughout the school?

Design Technology Overview

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	Topic: All About Me Book: The Colour Monster Creative area-experimenting using glue Healthy diet/hygiene Food-where does food come from?	Topic/Book: The Gruffalo & The Gruffalo's Child Junk Modelling Den Building **Graphic Designer: Alena Tkach**	Topic/Book: Nursery Rhymes Construction Modelling Dough Making Musical Instruments **Musical Instrument Designer: Adolphe Sax**	Topic: Traditional Tales Book: The Three Little Pigs Constructing Houses –The Three Little Pigs' Houses Den Building **Architectural Designer: Norma Merrick Sklarek**	Topic: Growing Book: Jasper's Beanstalk Design a garden Design seed packets and flowers to sell in the garden centre.	Topic: Minibeasts Book: What the Ladybird Heard Design a safe cow shed for the prize cow Make playdough mini-beasts
Reception	Topic/Book: All About Me Healthy Foods/Diet Exploring and using Construction Sets Collage a favourite meal Design a healthy plate (main, desert and drink)	Topic/Book: Seasons & Celebrations Diwali & Rangoli/ henna designs Painting, collage **Christmas Card Designer: Anna Shuttlewood** Design your own Christmas card Christmas craft	Topic: Superheroes Design drawings of their own superhero costume, eye mask, vehicle Making models (3D)	Topic: Space Design and make an alien Construction sets to create space rockets, space buggies & space stations	Topic: Mini-Beasts & Growing Design a bug house Design a habitat for a mini-beast using recycled materials	Topic: India Book: Elephants Can't Dance Drawing/Sketching/ Building the Taj Mahal **Designer: Ustad Ahmed** Indian patterns Design a Sari/Doti Textiles **Designer: Rita Kumar**

How is the Design Technology Curriculum Sequenced throughout the school?

Design Technology Overview

Year Group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1	Art Focus	Topic: Freestanding Structures Making a play area Construction Sets **Designers @ Monstrum : Ole Barsland Nielson & Christian Jenson**	Topic: Templates & Joining Making Puppets Textiles **Designer/ Puppeteer: Jim Henson**	Art Focus	Topic: Preparing Fruits & Vegetables Food Hygiene Food Safety Making Fruit Salads **Designer: Julie Lee Food Stylist/ Photographer**	Art Focus
Year 2	Art Focus	Topic: Designing & Making Eco-Friendly Christmas Products How to create eco-friendly products **Designer: Louise Mulgrew**	Art Focus	Topic: The Great Fire of London Wheels & Axels Making Emergency Vehicles **Designer: Helene Rother Ackerknecht**	Topic: Animals & Habitats Levers & Sliders Make a moving picture book about animals and their habitats **Designer: Sue Hendra**	Art Focus

Curriculum Plans

-What are the plans for the progression of key skills?

Design Technology Key Skills: Expected by the end of Reception

Developing Ideas:	Evaluation:
- To draw upon own experiences to help generate ideas - Discussion about the materials around them and their properties	- To plan and adapt initial ideas to make them better - Talk about what they like about their design - To talk about how they might change their design if they were to do it again

Mechanisms	Food	Structures
- Constructs with a purpose in mind using a variety of resources - Uses simple tools and techniques competently and appropriately - Selects tools needed to shape, assemble and join materials they are using. - They use and explore a variety of materials, tools and techniques - Learning about how everyday objects work by dismantling things and looking at their component parts	- To begin to understand some of the tools, techniques and processes involved in food preparation - To discuss food hygiene and how to have a healthy diet - To discuss how food tastes, its texture, how it looks and feels - To know where food comes from and sort food into groups e.g. fruits and vegetables	- To learn to construct with a purpose in mind - To build and construct with a wide range of objects, selecting appropriate resources and adapting work where necessary - To explore a variety of construction kits - To observe closely and replicate a structure

Design Technology Key Skills: Expected by the end of Reception

Developing Ideas:

- To draw upon own experiences to help generate ideas
- Discussion about the materials around them and their properties

Evaluation:

- To plan and adapt initial ideas to make them better
- Talk about what they like about their design
- To talk about how they might change their design if they were to do it again

Mechanisms
- Constructs with a purpose in mind using a variety of resources
- Uses simple tools and techniques competently and appropriately
- Selects tools needed to shape, assemble and join materials they are using.
- They use and explore a variety of materials, tools and techniques
- Learning about how everyday objects work by dismantling things and looking at their component parts

Food
- To begin to understand some of the tools, techniques and processes involved in food preparation
- To discuss food hygiene and how to have a healthy diet
- To discuss how food tastes, its texture, how it looks and feels
- To know where food comes from and sort food into groups e.g. fruits and vegetables

Structures
- To learn to construct with a purpose in mind
- To build and construct with a wide range of objects, selecting appropriate resources and adapting work where necessary
- To explore a variety of construction kits
- To observe closely and replicate a structure

Design Technology Key Skills: Expected by the end of Reception

Developing Ideas:

- To draw upon own experiences to help generate ideas
- Discussion about the materials around them and their properties

Evaluation:

- To plan and adapt initial ideas to make them better
- Talk about what they like about their design
- To talk about how they might change their design if they were to do it again

Mechanisms
- Constructs with a purpose in mind using a variety of resources
- Uses simple tools and techniques competently and appropriately
- Selects tools needed to shape, assemble and join materials they are using.
- They use and explore a variety of materials, tools and techniques
- Learning about how everyday objects work by dismantling things and looking at their component parts

Food
- To begin to understand some of the tools, techniques and processes involved in food preparation
- To discuss food hygiene and how to have a healthy diet
- To discuss how food tastes, its texture, how it looks and feels
- To know where food comes from and sort food into groups e.g. fruits and vegetables

Structures
- To learn to construct with a purpose in mind
- To build and construct with a wide range of objects, selecting appropriate resources and adapting work where necessary
- To explore a variety of construction kits
- To observe closely and replicate a structure

Design Technology Key Skills: Year 2

Develop Ideas:
- To begin to understand the development of existing products. What are they for? How do they work? What materials are used?
- To begin to design purposeful, functional and appealing products based on design criteria
- To develop their ideas through talk and drawings. Make templates and mock-ups of their own ideas in card or paper or using ICT

Evaluation:
- Evaluate products against design criteria
- When looking at existing products, explain what it is they like or dislike about them and why
- Explain what they are making
- Explain what materials they are going to use and why
- Select and name the tools needed to work the materials
- Describe the next steps of their design
- Annotate changes to the design process on paper
- Identify the good and bad points of their design and talk about possible changes they would make in future

Mechanisms
- Generate, develop, model and communicate ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology
- Select and use a wide range of materials and components, including construction materials and textiles according to their characteristics
- Choose materials and talk about why they were chosen
- Join materials together
- Explore and use mechanisms e.g. levers, sliders, wheels and axels in their product

Food
- Understand the need for a variety of foods in a diet
- Group familiar food groups together e.g. fruits and vegetables
- To know where food comes from
- To cut, peel, grate and chop a range of ingredients
- Understand how to work safely and hygienically
- Measure and weigh food items in non-standard measures e.g. A spoon or a cup

Design
- Use pictures or words to convey what they want to design or make
- Propose more than one idea for their product
- Select pictures to help develop their ideas
- Explore ideas by rearranging pictures of ingredients
- Use drawings to record ideas and add notes to explain
- Talk about their design, identifying along the way, good and bad points

Structures
- Begin to assemble, join and combine materials and components together using a variety of temporary methods e.g. glues or masking tape
- Join structures permanently using a variety of materials
- Build structures, thinking about how they can be made stronger, stiffer and more stable
- Use a range of construction sets to create 3D structures
- Begin to use simple finishing techniques to improve the appearance of their product

Curriculum Plans

-What are the plans for the progression of design technology vocabulary?

EYFS Design Technology Vocabulary

Design, designer, idea, user, purpose, product, materials, fabric, textiles, construct, structure, base, tower, weak, strong, vehicle, wood, metal, plastic, wheels, card, paper, fruit, vegetables, tools, equipment, utensils, scissors, tape, glue, string, paper fasteners, staplers, template, cut, pattern, decorate, healthy diet, tasting, sweet, sticky, sour, crunchy, flesh, skin, seed, pip, core, arranging, assembling, shaping, moving, properties, stiff, tough, smooth, rough, shiny, hard, soft, bumpy waterproof, surface, side, edge, corner, point, straight, curved, thinner, thicker, circle, triangle, square, rectangle, cube, cuboid, cylinder 2D, 3D, forwards, backwards, investigating, problem-solving, discuss, teamwork, change, make, evaluate.

Key Stage 1: Design Technology Vocabulary

All Vocabulary for EYFS plus:

Design Technology KS1 Key Vocabulary:

Design brief, design criteria, user, purpose, product, function, idea, popular, materials, fabric, textiles, construction kits, vehicle, wood, metal, plastic, wheels, axles, chassis, cab, card, paper, fruit, vegetables, tools, equipment, utensils, scissors, hole punch, cellotape, masking tape, glue, string, paper fasteners, staplers, knives, chopping boards, choosing, ingredients, healthy diet, planning, tasting, arranging, assembling, shaping, moving, mechanism, properties, corrugated, compliant, resistant, stiff, tough, techniques, fold, bend, cut, join, fix, staple, template, pattern, decorate, structure, wall, tower, framework, weak, strong, base, top, underneath, side, edge, surface, thinner, thicker, corner, point, straight, curved, circle, triangle, square, rectangle, cube, cuboid, cylinder, 2D, 3D, slider, lever, pivot, slot, bridge, forwards, backwards, soft, juicy, crunchy, sweet, sticky, smooth, sharp, crisp, sour, hard, flesh, skin, seed, pip, core, slicing, peeling, cutting, squeezing, mock-up, investigating, problem-solving, discuss, teamwork, change, finishing techniques, decorate, make, evaluate.

Key Concepts: What are the main themes throughout?

The Key Concepts of Design Technology

Key Concept	Explanation
User	Pupils should have a clear idea of who they are designing and making products for, considering their needs, wants, values, interests and preferences. The intended users could be themselves or others, an imaginary/story-based character, a client, a consumer or specific target group.
Purpose	Pupils should be able to clearly communicate the purpose of the products they are designing and making. Each product they create should be designed to perform one or more defined tasks. Pupils' products should be evaluated through use.
Functionality	Pupils should design and make products that work/function effectively to fulfil users' needs, wants and purposes.
Design	Pupils need opportunities to make their own design decisions. Making design decisions allows pupils to demonstrate their creative, technical and practical expertise, and draw on learning from other subjects. Through making design decisions pupils decide on the form their product will take, how their product will work, what task or tasks it will perform and who the product will be for.
Innovation	When designing and making, pupils need support to be original with their thinking. Projects that encourage innovation, lead to a range of design ideas and products being developed and are characterised by engaging open-ended starting points for learning.

The Key Concepts of Design Technology Cont…

Key Concept	Explanation
Authenticity	Pupils should design and make products that are believable, real and meaningful to themselves and others.
Nutrition	Pupils need awareness of where food comes from. They should learn about nourishment; the process of consuming the proper amount of food to provide our bodies with enough energy. An example of nutrition is the nutrients found in fruits and vegetables. An example of nutrition is eating a healthy diet.

Curriculum plans – what are the plans for retention of knowledge and skills? Linking learning and remembering learning.

- **Class Discussions**
  As a class we discuss our new topic but we often start by saying - Can you still remember…? We recap our previous learning.

- **Our Memory Display**
  We have a memory wall in our classrooms to help us to remember the topics and activities we have done in class.

- **Our Memory Box**
  We collect images of things we have learnt about to put in our memory box. We look at the memory box with our class teachers once per term and this helps to promote discussion about our previous learning.

- **Knowledge organisers for staff & children**
  We have knowledge organisers for the staff and the children to remember what the designers looks like, facts about the designer and the key vocabulary for the topic.

An Example of a Pupil Knowledge Organiser

Our designer this half term is ...Alena Tkach

Autumn Term 2

Facts about Alena Tkach:

- Alena Tkach is Ukranian.
- She is an artist & designer.
- Alena is most famous for her illustrations and the designs of characters for children's books and gaming companies.
- Alena created her first illustrated book in 2014.
- Alena's work is inspired by the nature she sees everyday.

Key Vocabulary:

Design, design, idea, character, draw, pencil, imagination, colour, crayons, pastels, felt pen.

Our designers this half term are ...   Ole Barslund Nielson & Christian Jenson

Facts about the designers:

- Ole and Christian both live in Denmark.
- They create children's playgrounds all around the world.
- Ole and Christian's company name is Monstrum, and it began in 2003.
- The company started when the nursery that Ole's 5 year old son went to, began a project to design a new playground. Ole was tasked with planning the project and it was a great success.
- This gave Ole the idea to develop his own playground designs company with his business partner Christian Jenson.

Key Vocabulary:

Design brief, design criteria, user, purpose, product, function, idea, plan, imagination, safety, materials, wood, plastic, rope, textiles, cut, join, fix, glue, staple, sew, mock-up, investigating, problem-solving, discussion, teamwork, change, finishing techniques, decorate, make, evaluate.

Pedagogy – How are lessons structured?

1. Enquiry Triangle

2. Recall previous learning -Quizzes, Can you still? Discussion, Talk Partner Work, collaborative work.

3. Introduce new learning including new vocabulary-'my turn, your turn.'

4. Recording of new learning in a variety of ways

5. Mini plenaries

Inclusion – How does your school provide an inclusive classroom for all pupils?

- By treating each of our pupils as equals.

- By valuing diversity and celebrating differences whether it be differences in a child's culture, language, socioeconomic status, gender, religion, disabilities or needs.

- By promoting a "Can do" attitude to learning.

- By promoting a sense of community which requires the development of positive relationships between all people, teachers, pupils and their families.

- By accepting all learners abilities, interests, skills and talents.

- By creating a pupil-centred approach where a child can be actively involved in the learning process.

- By collaborating with appropriate professional personnel to share knowledge, skills, best practice, specialist equipment, or resources wherever possible to enhance a child's learning environment.

Pupil voice -what the children say about Design & Technology?

- <u>Nursery</u>- Violet – "I like making a den with my friends."

- Lorenzo- "I like building tall towers with the bricks."

- <u>Reception</u>- Summer – "I made a Christmas card for my family. I liked gluing on the sequins and glitter."

- Oliver - "My card had a snowman on it. I used cotton wool for the snow."

- <u>Year 1</u> - Jessica – "I made a puppet from a wooden spoon. I used blue material and I stuck on the wiggly eyes."

- Ayda- " I liked the puppet I made. It looked good when I decorated it."

- <u>Year 2</u> – Daniel - "I was happy with my design for the Christmas wrapping paper. If I changed it next time I would add more detail to my drawing."

- Isla – "I liked making the eco friendly wrapping paper because it is better for the environment."

Subject evaluation - How do I find out about what's going well and what needs to improve?

- Subject leader days

- Regular book looks

- Learning Walks

- Classroom observations

- Pupil Voice

Strengths

- I have created a unique, bespoke scheme of work.

- Children at our school enjoy design technology lessons.

- The key skills are clearly mapped out for each year group.

- I have collected evidence of the children's work and it shows progression from Nursery through to Year 2.

- Key vocabulary has been identified to ensure children have a good knowledge of the terms and concepts.

- Children at our school frequently recap learning by starting each lesson with, 'Can you still..?'

Next steps:

- To develop children's understanding of how to describe what is meant by Design Technology?

- To continue to develop design technology skills through experimentation so that children find out for themselves. This way the children will learn from their mistakes and develop their own preferences in terms of using different tools, techniques and mediums.

- To support the children in their knowledge of the key concepts for design technology.

- To ensure each classroom has its own design technology display where designers work and children's work can be recognised and celebrated.

- To make links with the junior school to look at progression of skills throughout the school.

- To continue to attend the subject leader network meetings to extend my knowledge of design technology teaching and gain expert advice.