



Dunmow St Mary's Primary School

Policy for Design Technology (D.T.)

October 2019

Intent: Design Technology

Why do we teach Design Technology?

The world as we know it exists because of invention.

Invention is a creative science: there is a balance between what an invention does (its purpose) and how it works (its science).

The world is constantly changing and within the space of years, technology becomes outmoded, replaced by more powerful, more effective systems.

Our children are part of this world and while young we believe that by offering them invitations to build, create and learn how things work effectively and by engaging them in the joy of a 'working creation', we will be helping to create the inventors of tomorrow.

Everyone needs to be able to build and make things in their own homes too. We aim to help give the children the skills that will serve them well for their whole lives. We aim also to build children's confidence to have a go at fixing problems in their future homes, such as a faulty plug or putting up blinds or making their own food.

The DT curriculum is split into four areas:

1. Engineering 1 (construction)
2. Engineering 2 (things that move)
3. Making Food
4. Making Books

Each area has three overarching strands:

- a) designing
- b) building
- c) testing

What do we want our children to feel about Design Technology?

- pleasure: in the Craft of making something
- wonder: at how things work
- curiosity: to explore ideas
- inspired: by inventors of the past and present
- excitement: at the pleasure of making something that works or tastes good
- confidence: to fail and try again

What should children learn in Design Technology?

- Using real tools effectively
- Using real tools safely (at age-appropriate times: we need to teach children how to use a real knife, not a plastic one)
- To understand that effective planning and careful measurement and construction leads to creations that function well
- To build strong models with appropriate intent (Construction)
- To make models that move
- To make food that is healthy and nourishes us physically

- To make food that nourishes us spiritually (treats, holidays, religious festivals)
- to make books which celebrate their ideas in writing, drawing, mathematics and science
- To understand the purpose of their designing and building by creating products for a wide range of audiences and users.
- To gain understanding about how inventors and designers have solved problems and what knowledge they can teach us.

What do we believe children should master in Design Technology?

Infants

Spreading, mashing, using dough, mixing
 Make models with wheels
 How to make things from cups, bricks, boxes that stand up and don't fall down under pressure
 Design and simply adapt clothing
 Make simple stapled-covered books, sewn pages

Juniors

Making a variety of meals
 Making models that use propellers, pneumatics, gears and motors
 Learning how to strengthen structures and materials
 Design their own clothes
 Design and make an increasingly developed selection of book-styles including pop up books, hardback books and less orthodox shaped books (E.g. tunnel books)

Intent: Making Food

Why do we teach 'Making food'?		
<ul style="list-style-type: none"> • Food nourishes us as human beings. • It nourishes us physically and it nourishes us emotionally. • Food is a vital part of every human life; it keeps us healthy and it can be used to celebrate or for pure enjoyment. • These two strands are at the centre of our curriculum. The prime focus should be on creating meals and dishes which a child should make to keep them healthy and well. 		
What do we want our children to feel about 'Making food'?		
<ul style="list-style-type: none"> • Enjoyment of the food they make and of the process itself. • Physically good! In how the food they made nourished them. • Appreciative of the role food plays in Festivals and celebrations (religious, personal, world) • Confident to make the food themselves with little adult intervention, other than guidance. • Assured to be able make the food well and aim to do this themselves at home and as a regular part of the rest of their lives. 		
What should children learn?		
<ul style="list-style-type: none"> • How food nourishes us (Healthy eating) • How to use food preparation tools safely and effectively (knives, potato mashers/peelers/graters) • How to use common food preparation processes: spreading, cutting, rubbing, mashing, whisking, frying • To know and apply food safety procedures 		
What do we believe children should master creating in 'Making Food'		
Reception	Toast with spread , make their own butter	Using a knife to spread safely and effectively
Year 1/2	<u>Making a snack/celebration food:</u> Sandwiches, salads, toasted cheese/toasted sandwich; buns (with decoration such as butterfly cakes), scones, crumble Making a meal: simple baked goods (e.g. baked potato/baked egg)	Using a dinner knife to cut a sandwich/spread fillings Rubbing technique for butter/flour Mixing techniques
Year 3/4	<u>Making a meal:</u> Soup, Making Bread Making sandwich fillings (*Using eggs – boiled)	As above plus: Using an oven/oven glove Using a food processor Whisking Kneading
Year 5/6	<u>Making a meal</u> Simple pasta dishes and	As above plus:

	sauces (e.g. bolognaise/pasta salad), Scone-based pizza Making snacks: Using pastry (e.g. sausage rolls, cheese biscuits) *Using eggs (scrambled egg/omelette)	Using a frying pan Rolling out pastry Using a peeler/grater
ALL Year groups	Children will also make and explore food which celebrates different festivals and explore food originating from other places in the world (e.g. pancakes, samosas, Greek cheeses...)	

Intent: Making things that move

Why do we teach 'Making things that move'?

- Human beings have always created inventions which imitate life: machines make whisking ingredients a lot faster and easier, cars transport us from one place to another a lot more quickly, aeroplanes help us to make the impossible a lot more possible!
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What do we want our children to feel about 'Making things that move'?

- Excitement – the moment when inanimate objects behave in a different way is inspirational!
- Determined – sometimes the model will not work as well as you hoped, so it's important to keep motivated
- Competition! Not all models work equally, so children will enjoy a healthy feeling of competition to 'beat' the other models in their effectiveness!

What should children learn?

- How wheels and axles work effectively
- How hydraulics, cams, levers, pulleys and gears work effectively
- How mechanisms combine with engineered structures to produce a working model
- How prototypes help to establish knowledge and act as a springboard for final constructions
- How inventors have worked on similar problems 'in real life'

What do we believe children should master creating in 'Making things that move'?

Reception/KS 1:

Adding wheels and axles to containers to make simple cars and vehicles.

Using paper-fasteners to make simple levers

Using string to make simple lifting structures (E.g. a drawbridge for a castle)

KS2:

As with KS 1 but also:

Adding a motor to a model to make something move

Using cams and gears to make something move 'by itself'.

Using kinetic energy to make something move 'by itself'.

Intent: Engineering (construction)

Why do we teach 'Construction'?

Human beings love to build. Working out how materials fit together to make the tallest, strongest, most attractive, structures is an endlessly fascinating problem for us. For children, from the earliest age, building blocks, Lego, boxes, cartons and cardboard tubes hold a similar attraction. To gain and then develop crucial knowledge about how structures work and explore different creative approaches to problems posed is our goal in this area of D.T.

What do we want our children to feel about 'Construction'?

- Fascination in learning key ways to use materials in designing structures
- Being creative and original in finding ways in which they can solve problems in unique and personal ways
- Determination and resilience in solving problems when structures fail
- Delight in how structures they have built work

What should children learn?

- How different materials serve different purposes and work to different degrees of effectiveness
- How different shapes and structures can be stronger or more resilient than others
- How to reinforce structures
- How different joining methods suit different products (e.g. nails, different kinds of glue)

What do we believe children should master creating in 'Construction'?

Reception/KS 1:

- Begin to use tools aimed at younger children (e.g. tack + hammer boards)
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KS2:

As with KS 1 but also:

- Incorporate electrical components into structures (e.g. bulbs, LEDs, buzzers)
- Learn how triangles create stronger structures
- Learn how to reinforce structures
- Use patterns to create structural components of correct and uniform sizes
- Use real hammers and nails to join wood

Intent: Making Books

Why do we teach 'Making books'?	
<ul style="list-style-type: none"> Books are a celebration of the written word. The written word encompasses an infinitely array of subjects, stories and beliefs, and can be expressed in an infinite variety of ways. We believe that by capturing in book form the individual's responses to a stimulus (a book about a school trip), a story, or anything in fact, then we are helping to crystallise crucial moments of learning for the child. Making books and putting them in class libraries, the school or town library or passing them to loved ones to read is an effective way of transmitting the energies and joy of learning in a simple and direct way. We share our learning 	
What do we want our children to feel about 'Making books'?	
<ul style="list-style-type: none"> Pride – a book made in childhood by the child themselves is a book that can end up being treasured for life. It becomes a fixed memory of their young self. Ownership – by creating their own illustrations, layouts and designs, the book made by an individual child is as unique as the creator. It is a testament to the child's own life. Importance – from their earliest exposure to reading books, children learn that these volumes are 'grown up' ways of communicating stories and information to a wide audience. There is something important and grown up about writing appearing in a book. 	
What should children learn?	
<ul style="list-style-type: none"> How to arrange pages How to layout pages How to decorate pages using illustration and paper mechanisms how to stitch and construct a book how the whole book design can reflect the subject of the writing. (e.g. a concertina book that folds out to show a long sequence of a story) 	
What do we believe children should master creating in 'Making books'	
Reception	Stapled pages, folded book with cover Concertina book
Year 1	4-page picture book Pop up box book
Year 2	Pop up box book with varied shapes
Year 3	Page-at-a-time book Making a simple, softback cover (with French flaps)
Year 4	Hardback book with sewn signatures
Year 5	'Suitcase' book
Year 6	Books with advanced 'pop up' parts and techniques

Intent: Art/D.T. crossover

What is the crossover between Art and D.T.?

There is a crossover between some creative skills in the Design and Technology and Art curricula. They fall into two main areas:

- **Textiles** are fabrics that are knitted or woven. Humans use textiles everyday – in the clothes they wear, in the objects they use (such as wallets)..
- **Model making** in this area of the DT curriculum involves using paper and papier mache and moulding techniques to create models such as masks (which like textiles can be worn, used or express personal feelings).

In both aspects of this part of the DT curricula children at our school will create their own clothes and simple toys. To make something in this way (which children may have only experienced by buying from a shop) is extremely motivating and a source of real pride. By being introduced to the knowledge and experience of these associated techniques, we aim for children to be confident and curious to create things for themselves to wear or use in their future lives.

What do we want our children to feel about the things they make in Textiles?

- Proud that they have created something that could be bought
- Motivated to master some tricky techniques and fine motor skills
- Enjoyment of creating a personal product

What should children learn?

- How to use a variety of basic sewing skills
- How to use a sewing machine
- How to use printing techniques
- How to make their own fabric (e.g. weaving/paper making)
- How to use mouldable materials to create products (e.g. salt-dough/plasticene moulds)

What do we believe children should master creating in 'Textiles'

Reception/KS 1:

- Simple cross-stitch
- Sew together pieces of felt
- Weave paper or feathers into a loom
- Make simple masks with added components (e.g. Feathers/buttons)
- Use basic moulds (e.g. a balloon) to make a papier mache model or simple mask

KS2:

- Develop range of stitches: running stitch, backstitch, overstitch
- Use a sewing machine
- Use screen printing to design own clothes
- Use patterns to create structural components of correct and uniform sizes
- Make models using salt-dough (e.g. puppet heads)
- Make their own looms and design and weave wool into cloth
- Make masks using moulds and papier mache techniques.

Implementation of the D.T. Curriculum

Skills

Reception

Designing	<ul style="list-style-type: none">• Draw pictures to design a product• Use demonstrated skills to think of own ideas• Begin to show awareness what needs to be done next when working on designs• Begin to know and use the names and feel of foods, materials, textiles, tools, colours and shapes to make and describe products
Building	<ul style="list-style-type: none">• Make a model• Practise skills demonstrated by the teacher (e.g. measuring/cutting)• Use construction kits to make models• Begin to use the names of materials and tools to say what you are making and which tools are being used• Begin to know how mechanisms can be used in different ways (e.g. wheels/axles)• Wash hands before making/eating food
Testing	<ul style="list-style-type: none">• Recount the making procedure orally or by sequencing photos of the project• Say whether your product does what it was meant to do• Say whether the product looks good or not.

Keystage 1

Designing	<ul style="list-style-type: none">• Talk about how moving objects work (e.g. paper sliders/wheels)• Draw pictures and label them to design a product• Use a computer in the planning procedure• Use demonstrated skills to think of own ideas• Show awareness what needs to be done next when working on designs• Know and use the names and feel of foods, materials, textiles, tools, colours and shapes to make and describe products Readily use the knowledge of materials to make products (e.g. plaiting yarn or folding paper to make it stronger)
Building	<ul style="list-style-type: none">• Make a model and say why it is useful for someone to use• Use the names of materials and tools to say what you are making and which tools are being used• Use balances to weigh• Practise skills demonstrated by the teacher (e.g. measuring/cutting)• Use knowledge of halves in measuring products• Begin to use simple finishing techniques to improve the appearance of a product• Mix ingredients to make something that can be eaten• Work out how to make models stronger• Use construction kits to make models• Use estimation (e.g. of size/amount) in the design and making process• Know and see turns, half turns and quarter turns• Know how mechanisms can be used in different ways (e.g. wheels/axles)• Follow basic safety procedures for food safety and hygiene (e.g. washing hands/holding a knife)

Testing and Evaluating	<ul style="list-style-type: none"> • Discuss improvements needed for a product • Recount the design and making procedure with lively detail (e.g. Order and make captions for a series of photos/pictures to describe the design and production of a product) • Readily recognise what has been done well as work progresses and suggest what could be done to improve in the future) • Say whether your product does what it was meant to do and whether it is a quality product • Use technology to record the making process and to evaluate work
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Lower Keystage 2

Designing	<ul style="list-style-type: none"> • Produce step-by-step labelled diagrams with some understanding of scale (e.g. in the measurements shown) • Seek out the views of an intended audience • Research products and designs using a range of sources, including ICT • Use knowledge of electricity in the design and making of a product (See Science)
Building	<ul style="list-style-type: none"> • Use accurate measuring to cut/weigh appropriate proportions • Begin to more independently select and work with a range of tools and equipment • With support, investigate the properties of materials and decide how best they can be used • Use a range and variety of tools and skills to make products stronger or to improve their final appearance (e.g. use cardboard triangles to strengthen corners) • Follow safe procedures for food safety and hygiene • Develop the range of 'finishing' techniques (e.g. how to strengthen/improve final appearance)
Testing	<ul style="list-style-type: none"> • Present designs and ideas in appropriate ways, using a range of ICT where necessary (e.g. slide show/animations) • Show more awareness of adapting designs to the views of the audience as the development of the product progresses • identify areas of strength or improvement in own skills used to make a product • Show awareness of being more thorough when carrying out tests before making improvements to a piece of work (e.g. by testing two or three different aspects/considering different scenarios in which the product might be used)

Upper Keystage 2

<p>Designing</p>	<ul style="list-style-type: none"> • Carry out market research to seek the views and needs of an intended audience • Plan costs and time Choose the best materials for a product • Use the Internet to research thoroughly • Clarify ideas through discussion, drawing and modelling • Make a range of designs, showing awareness of the limitations of certain designs
<p>Building</p>	<ul style="list-style-type: none"> • Work fluently from plans, including using spreadsheets and other ICT-generated plans • Use a range of tools, materials, component, processes and equipment with precision • Confidently create a finished product which uses a range of finishing techniques to strengthn/improve the appearance. • Use control devices in ICT with accuracy • Use mathematical formulae to calculate measurements (e.g. wheel circumference) • Readily use the understanding of characteristics of familiar products when developing and communicating ideas • Follow safe procedures for food safety and hygiene
<p>Testing</p>	<ul style="list-style-type: none"> • Check and modify plans during the development of a product where appropriate • Test and evaluate products with the intended use and audience in mind • Produce persuasive texts on the benefits and uses of a product

Impact of the D.T. Curriculum

How do we know our DT curriculum is doing what it should?

What do the children say and do?	<p>Teachers check on the intent of the unit of work with the children at the end through selected interviews or sending out an evaluation.</p> <p>The evaluation and impact will be assessed by:</p> <ul style="list-style-type: none">• Child's pride• Child's interest in what they will do next to improve• Child's changing feelings about what they have developed/mastered as part of the project• Child's own levels of ownership and leadership over the project
Monitoring	<p>The evaluations from the children will be monitored by the coordinator and SLT. Book scrutiny will take place where necessary.</p>
Moderating	<p>Teachers will moderate their evaluations and the work producedtimes a year.</p>
Display	<p>The DT coordinator and Senior leaders will ask for examples of the work producedtimes a year.</p>