



Welburn Community Primary School DT Curriculum

Our intent for DT at Welburn Primary School is to develop children who:

- wonder and question how things work
- explore and investigate a variety of construction kits, materials, tools and products
- use a range of materials to express ideas
- work both independently and with others, listening to others' ideas and treating these with respect
- can be creative, flexible and show perseverance
- critically evaluate existing products, their own work and that of others
- develop designing skills, including generating and developing ideas, clarifying a task, creating design proposals, communicating ideas, planning and evaluating
- acquire and refine the practical skills associated with making, including working with materials and components, tools and processes, *eg planning, measuring and marking out, cutting and shaping, joining and combining, finishing, and evaluating*
- use and apply what they have learnt in maths, science, art, IT and literacy

To implement this we will:

- develop their designing and making skills
- develop knowledge and understanding
- develop their capability to create high quality products
- nurture creativity and innovation
- explore values about and attitudes to the made world and how we live and work within it
- develop an understanding of technological processes, products, and their manufacture, and their contribution to our society
- use the Welburn DT scheme of work to plan lessons which are based on the National Curriculum
- to teach about materials and components; mechanisms and control systems; structures; existing products; quality and health and safety

Welburn School Scheme of Work

DT Planning: Oak Class

National Curriculum: When designing and making, pupils should be taught to:

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria*
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology*

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]*
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics*

Evaluate

- explore and evaluate a range of existing products*
- evaluate their ideas and products against design criteria*

Unit 1.1 PUPPETS

Material: textiles (felt)

Suggested product: puppet

Knowledge & understanding: working characteristics of fabric

Making skills: *Tools:* needle & thread, sharper scissors

Marking & Measuring: mark out cut lines, measure by comparison

Cutting & Shaping: Sharp scissors with support

Joining & Combining: Glue and stitching (running or overcast)

Finishing: surface decoration

Focussed Practical Tasks: investigating types of puppet, making a finger puppet, explore binca sewing with plastic needles

Previous learning: use of puppets in classroom

Health & safety: needles & sharp scissors to be supervised



Unit 1.3 SANDWICHES

National Curriculum:

- *use the basic principles of a healthy and varied diet to prepare dishes*
- *understand where food comes from.*

Material: food

Suggested product: sandwiches

Knowledge & understanding: hygiene and food safety

Making skills: *Tools:* knife, spoon, board

Marking & Measuring: measure by comparison

Cutting & Shaping: Table knives

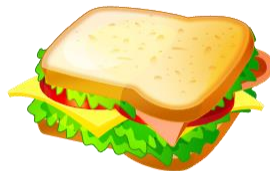
Joining & Combining: Appropriate food such as margarine, sandwich fillings

Finishing: presentation of sandwich on a plate

Focussed Practical Tasks: investigate sandwich fillings, types of bread, process of sandwich making (instructions)

Previous learning: home experience of food

Health & safety: use of knives, wash hands, tables and equipment



Unit 1.4 CHRISTMAS DECORATION

Material: textiles (felt)

Suggested product: Christmas Decoration

Knowledge & understanding: working characteristics of fabric

Making skills: *Tools:* needle & thread, sharper scissors

Marking & Measuring: mark out cut lines, measure by comparison

Cutting & Shaping: Sharp scissors with support

Joining & Combining: Glue and stitching (running or overcast)

Finishing: surface decoration and hanging loop (with support)

Focussed Practical Tasks: investigating Christmas decorations (colour and shape), explore binca sewing with plastic needles

Previous learning: knowledge of Christmas from home

Health & safety: needles & sharp scissors to be supervised

Unit 1.5 WHEELED VEHICLES

National Curriculum: *explore and use mechanisms [for example, wheels and axles], in their products.*

Material: recyclable materials (junk!)

Suggested product: wheeled vehicle

Knowledge & understanding: structures – construction and box modelling
mechanisms – construction, wheels and axles, pushes & pulls

Making skills: *Tools:* glue, tape, hole punch, junior hacksaw with vice (for dowel), scissors,

Marking & Measuring: mark out cut lines, measure by comparison

Cutting & Shaping: scissors, hacksaw

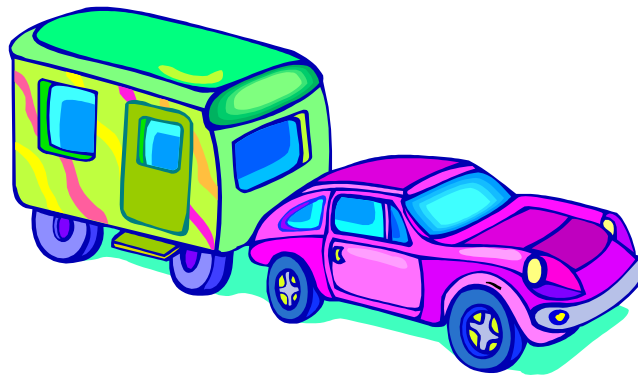
Joining & Combining: Glue, tape, axle holders

Finishing: surface decoration (probably paint) (ICT opportunity)

Focussed Practical Tasks: investigate wheeled toys and construction kit wheels, make simple fixed wheel / free axle and fixed axle / free wheel models

Previous learning: free play with construction kits and junk modelling

Health & safety: hacksaws to be supervised, cutting into card boxes



Unit 1.6 FRUIT SALAD

National Curriculum:

- use the basic principles of a healthy and varied diet to prepare dishes*
- understand where food comes from.*

Material: food

Suggested product: fruit salad

Knowledge & understanding: hygiene and food safety

Making skills: *Tools:* knife, spoon, bowl, melon baller, board

Marking & Measuring: measure by comparison

Cutting & Shaping: Table knives, sharp knives with supervision

Joining & Combining: mixing

Finishing: presentation of fruit salad in bowl with topping choice

Focussed Practical Tasks: investigate fruit preferences, how to prepare fruit

Previous learning: home & school experience of fruit

Health & safety: use of knives, wash hands, tables and equipment

DT Planning: Beech Class

National Curriculum (KS2) When designing and making, pupils should be taught to:

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups*
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design*

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately*
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities*

Evaluate

- investigate and analyse a range of existing products*
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work*
- understand how key events and individuals in design and technology have helped shape the world.*

Unit 2.1 BAGS

Material: textiles (woven fabric)

Suggested product: bags / purses (link to history / Victorians)

Knowledge & understanding: use of simple fastenings – drawstring, Velcro, popper, button

Making skills: *Tools:* needle & thread, sharper scissors, ruler

Marking & Measuring: measure with ruler, mark out cut lines with accuracy

Cutting & Shaping: Sharp scissors, use of paper pattern

Joining & Combining: stitching (running, backstitch and blanket)

Finishing: attention to material edges, possible embroidered initials, strap or carrying handle

Focussed Practical Tasks: investigating and practising types of stitch, investigating bags with different fastenings, paper prototypes (can be used for pattern)

Previous learning: basic running / overcast stitching

Health & safety: needles & sharp scissors



Unit 2.2 MOVING TOYS

National Curriculum: *understand and use mechanical systems in their products [for example, pulleys, levers and linkages]*

Material: sheet and block materials (stiff and flexible), mechanical components (cotton reels, construction kit KNex, pegs, tubing, syringes etc)

Suggested product: moving toy

Knowledge & understanding: levers & linkages, syringe and tube hydraulics, pulleys ie transferring power

Making skills: *Marking & Measuring:* measure with ruler, mark out with accuracy

Cutting & Shaping: scissors

Joining & Combining: card to wood & wood to card PVA, tape,

Finishing: higher quality finish

Focussed Practical Tasks: specific teaching on types of mechanisms- levers and pulleys.

Previous learning: junk modelling and construction kits, simple mechanisms – wheels, axles.

Health & safety: cutting stiff materials

Unit 2.3 SAVOURY BAKING

National Curriculum:

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.

Material: food

Suggested product: quiche/ pizza / bread (any food with a variety of types) (can be linked to science health)

Knowledge & understanding: cooked foods and varying ingredients for taste / texture / appearance / diet

Making skills: *NewTools:* whisk, scales, measuring jugs, timers

Marking & Measuring: measure weight / capacity

Cutting & Shaping: Table knives, cooking tin / cutter choice

Joining & Combining: Whisking, beating, folding, mixing

Finishing: icing / topping/ decoration to a design

Focussed Practical Tasks: Investigate similar existing products using senses. Learn specific cooking techniques and processes. Experiment with varying ingredients by quantity / flavour etc

Previous learning: designed and made non-cooked food in Class 1.

Possible home experience of baking.

Health & safety: use of knives, wash hands, tables and equipment. Adult to use oven.

Unit 2.4 PICTURE FRAMES

Material: thicker card, foam board, wooden strip (square sections)

Suggested product: could link to Christmas, mothers' day, Easter etc

Relevant QCA unit: 3A packaging, 3D photo frames

Knowledge & understanding: Structures- simple frames and reinforcing for rigidity and strength.

Making skills: *NewTools:* hacksaws, card triangles

Marking & Measuring: measure with ruler / set square, mark out accurately

Cutting & Shaping: hacksaw, scissors

Joining & Combining: PVA, (tacks)

Finishing: focus on tidy joins

Focussed Practical Tasks: Investigate use of different materials to build 3D frames, compare strengths. Investigate reinforcing (card triangles, triangular support members).

Previous learning: Use of junk modelling

Health & safety: hacksaws and thin wood sections



DT PLANNING: SYCAMORE CLASS

National Curriculum (KS2) When designing and making, pupils should be taught to:

Design

- use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups*
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design*

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately*
- select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities*

Evaluate

- investigate and analyse a range of existing products*
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work*
- understand how key events and individuals in design and technology have helped shape the world*

Unit 3.1 MECHANISMS AND CONTROL

National Curriculum: *understand and use mechanical systems in their products [for example, gears, cams]*

- 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.*

Material: construction kits (lego technic) with electronic components

Suggested product: jitterbugs or fairgrounds

Knowledge & understanding: gears to change speed and direction, cams and eccentrics, control of models, input from switches and sensors

Making skills: *NewTools:* programmable switches, LEDs, reversible motors

Marking & Measuring: measure and mark out with accuracy

Cutting & Shaping: wire cutters, wire strippers

Joining & Combining: focus on secure and appropriate fixings

Finishing: components attached in a functional manner.

Focussed Practical Tasks: specific teaching on cams and eccentrics, gears and use of electronic sensors, control and switches.

Previous learning: power transference including lever and linkages, hydraulics and pulleys. Simple electric circuits in science.

Health & safety: electricity.

Unit 3.2 DESIGN A COSTUME

Material: textiles (design focus)

Suggested product: costume (Greek or Carnival)

Knowledge & understanding: using a variety of information to create a costume for a specific purpose (eg carnival), taking into account resource and time restrictions

Making skills: *NewTools:* choice of fabrics and fastenings

Marking & Measuring: measuring with tape measure and marking out accurately

Cutting & Shaping: Scissors, use of paper patterns

Joining & Combining: sewing stitches – running, backstitch & blanket stitch

Finishing: ensuring costume is practical and fit for purpose

Focussed Practical Tasks: Researching likes / dislikes, constraints, costings, testing ideas on focus group. Revise specific stitches, investigate costume design in chosen area(carnival, play etc)

Previous learning: sewing bags and use of fastenings in Class2

Health & safety: needles, is design safe for purpose.

Unit 3.3 SAVOURY DISH / MEAL

National Curriculum:

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.

Material: food

Suggested product: avoid baking but anything else you fancy!

Knowledge & understanding: cooked foods and varying ingredients for taste / texture / appearance / diet

Making skills: *NewTools:* table top cookers

Marking & Measuring: measure weight / capacity

Cutting & Shaping: Table knives, cooking tin / cutter choice

Joining & Combining: Whisking, beating, folding, mixing

Finishing: presentation on the plate

Focussed Practical Tasks: Investigate where products come from. Learn specific cooking techniques and processes. Experiment with varying ingredients by quantity / flavour etc

Previous learning: baked bread / pizza in Class 2.

Health & safety: use of knives, wash hands, tables and equipment. Use of table top cookers.

FINAL NOTE:

I recommend you plan your unit in the following format:

1. Investigative, disassembly and evaluative activities (IDEAs)
2. Focused practical tasks (FPTs)
3. Design and make activity (DMA)

This is a very successful teaching process. Please plan with this in mind!

Please also ensure your product has a purpose to fulfil – a ‘design criteria’.

(This does not necessarily have to be the same for every child.)

This will help the children’s evaluations to be more objective. e.g. Does the product fulfil its design criteria or not?

Progression

Expectations

Broad issues of progression can be expressed as expectations for each key stage.

By the end of key stage 1, most children will be able to:

- use a range of materials to design and make simple products;
- select materials, tools and techniques and explain their choices;
- understand simple mechanisms and structures;
- measure, assemble, join and combine materials in a variety of ways using basic tools safely;
- investigate and evaluate simple products, commenting on the main features.

By the end of key stage 2, most children will be able to:

- use knowledge and understanding of a range of materials, components and techniques to design and make quality products;
- evaluate work as it develops and, if necessary, suggest alternatives;
- produce designs and plans which list the stages involved in making a product, and list tools and materials used;
- accurately measure, mark, cut, join and combine a variety of materials, working safely and recognising hazards to themselves and others;
- understand the use of electrical and mechanical systems and more complex structures;
- evaluate what is or is not working well in a product.

Features of progression

Progression in design and technology can be characterised by:

- an increase in knowledge, skills and understanding;
- moving from familiar to unfamiliar concepts;
- meeting needs which demand more complex or difficult solutions;
- an increase in a child's own understanding of their learning.

[Progression in design and technology](#) describes in more detail how progression can be characterised. This may be helpful to teachers in drawing up their own plans or modifying this scheme.

Progression in design and technology

At the early stages of developing capability, children should be able to:

- generate and develop ideas through talking about what their design has to do, handling materials and, where appropriate, drawing;
- increasingly take account of people's needs and wants;
- reflect more on their ideas;
- draw what they have made;
- recognise and begin to select suitable tools and materials;
- apply their previous knowledge and experience;
- suggest achievable ways forward and begin to suggest improvements to their own models.

As children make progress, they should:

- become more involved in finding out information useful to their designing and use their experience of products and applications as the stimulus for ideas;
- use 2D and 3D models to try out and develop ideas as they become more reflective about their designs;
- suggest an increasing number of achievable ways forward and develop simple plans which take into account the resources available;
- start combining and shaping materials to create products which meet their intentions;
- use tools safely and with increasing accuracy.

As children make further progress, they should:

- use a variety of information sources for their research, and set criteria for their designs, which increasingly take account of the views and preferences of the intended user;
- become more familiar with techniques, *eg brainstorming and product analysis to generate ideas*, and have a clearer sense of priorities in their design proposals;
- use a range of modelling techniques and be able to justify the decisions they make;
- plan and evaluate in a more considered manner, and show a greater awareness of constraints and the implications of their designs;
- draw upon a greater range of techniques and skills to create quality products for identified purposes;
- become increasingly competent at matching how they work to the materials and the task.