



Honesty Empathy Aspiration Respect Teamwork

Knowledge and skills document

DESIGN TECHNOLOGY - DESIGN, MAKE, EVALUATE & TECHNICAL KNOWLEDGE

FS1

Knowledge:

- To explore different materials freely, in order to develop their ideas about how to use them and what to make
- To develop their own ideas and then decide which materials to use to express them
- To join different materials and explore different textures

Skills:

- Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
- Share their creations, explaining the process they have used.
- Make use of props and materials when role playing characters in narratives and stories.
- Hold a pencil effectively in preparation for fluent writing – using the tripod grip in almost all cases.
- Use a range of small tools, including scissors, paintbrushes and cutlery.
- Begin to show accuracy and care when drawing.

Curriculum
Drivers

Personal: our world – context – society
Originality: oracy – adventure – risk – aspiration – creativity
Well-being: mental and physical - meta cognitive – learning powers
Environment and Nature: environment – sustainability
Real: here and now – current affairs - topical

“Those who can imagine anything, can create the impossible”

Alan Turing





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DESIGN TECHNOLOGY - DESIGN, MAKE, EVALUATE & TECHNICAL KNOWLEDGE

FS2

Final product

Knowledge:

- To know how to select different media for different purposes
- To return to and build on their previous learning, refining ideas and developing their ideas to represent them
- To know that they can evaluate their work and how to do this

Skills:

- *Select appropriate resources
- *Use gestures, talking and arrangements of materials and components to show design
- * Use contexts set by the teacher and myself
- *Use language of designing and making (join, build, shape, longer, shorter, heavier etc.)
- *Construct with a purpose, using a variety of resources
- *Use simple tools and techniques
- *Build / construct with a wide range of objects
- *Select tools & techniques to shape, assemble and join
- *Replicate structures with materials / components
- *Discuss how to make an activity safe and hygienic
- *Record experiences by drawing, writing, voice recording
- *Understand different media can be combined for a purpose
- *Adapt work if necessary
- *Dismantle, examine, talk about existing objects/structures
- *Consider and manage some risks
- *Practice some appropriate safety measures independently
- *Talk about how things work
- *Look at similarities and differences between existing objects / materials / tools
- *Show an interest in technological toys
- *Describe textures
- *Begin to understand some food preparation tools, techniques and processes
- *Practice stirring, mixing, pouring, blending
- *Discuss how to make an activity safe and hygienic
- *Discuss use of senses
- *Understand need for variety in food
- *Begin to understand that eating well contributes to good health

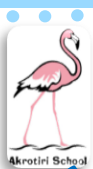
Curriculum
Drivers

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DESIGN TECHNOLOGY - DESIGN, MAKE, EVALUATE & TECHNICAL KNOWLEDGE

Y1

Final product

Design: (e.g. houses)

To design purposeful, functional, appealing products for themselves and other users based on design criteria

To generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and where appropriate, information and communication technology

Skills:

- explain what I want to do
- explain what my product is for, and how it will work
- use pictures and words to plan, begin to use models
- design a product for myself following design criteria
- research similar existing products

Evaluate: To explore and evaluate a range of existing products

Skills:

- talk about my work, linking it to what I was asked to do
- talk about existing products considering: use, materials, how they work, audience, where they might be used
- talk about existing products, and say what is and isn't good
- talk about things that other people have made
- begin to talk about what could make product better

Make: To select from and use a range of tools and equipment to perform practical tasks e.g. cutting, joining, finishing

To select from and use a wide range of materials and components, including textiles and ingredients, according to their characteristics

Skills:

- explain what I'm making and why
- consider what I need to do next
- select tools/equipment to cut, shape, join, finish and explain choices
- measure, mark out, cut and shape, with support
- choose suitable materials and explain choices
- try to use finishing techniques to make product look good
- work in a safe and hygienic manner

Technical knowledge: To build structures, exploring how they can be made stronger, stiffer and more stable e.g. houses

Skills:

- begin to measure and join materials, with some support
- describe differences in materials
- suggest ways to make material/product stronger

Vocab:

Product, plan, shelter, materials, join, strong, cut, fold, fix

Final product

Cooking and Nutrition To use basic principles of a healthy and varied diet to prepare dishes

Skills:

- describe textures
- wash hands & clean surfaces
- think of interesting ways to decorate food
- say where some foods come from, (i.e. plant or animal)
- describe differences between some food groups
- discuss how fruit and vegetables are healthy
- cut, peel and grate safely, with support

Vocab:

Clean, healthy, vegetable, fruit, names of fruit and vegetables

Curriculum Drivers

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DESIGN TECHNOLOGY - DESIGN, MAKE, EVALUATE & TECHNICAL KNOWLEDGE

Y2

Final product

Design: (e.g. wheels and axles) To design purposeful, functional, appealing products for themselves and other users based on design criteria

To generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and where appropriate, information and communication technology

Skills: have own ideas and plan what to do next

- explain what I want to do and describe how I may do it
- explain purpose of product, how it will work and how it will be suitable for the user
- describe design using pictures, words, models, diagrams, begin to use ICT
- design products for myself and others following design criteria
- choose best tools and materials, and explain choices

use knowledge of existing products to produce ideas

Make: To select from and use a wide range of tools and equipment to perform practical tasks e.g. cutting, shaping, joining and finishing

To select from and use a wide range of materials and components, including construction materials, according to their characteristics

Skills: *explain what I am making and why it fits the purpose

- *make suggestions as to what I need to do next.
- *join materials/components together in different ways
- *measure, mark out, cut and shape materials and components, with support.
- *describe which tools I'm using and why
- *choose suitable materials and explain choices depending on characteristics.
- *use finishing techniques to make product look good
- *work safely and hygienically

Evaluate: To explore and evaluate a range of existing products against design criteria

Skills: describe what went well, thinking about design criteria

- talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion
- evaluate how good existing products are
- talk about what I would do differently if I were to do it again and why

Technical knowledge: To explore and use mechanisms, wheels and axles, in their products

Skills: measure materials

- describe some different characteristics of materials
- begin to understand how to use wheels and axles

Vocab: Product, plan, wheel, axle, materials, join, cut, fold, fix

Final product

Cooking and Nutrition To use basic principles of a healthy and varied diet to prepare dishes
To understand where food comes from

Skills:

- explain hygiene and keep a hygienic kitchen
- describe properties of ingredients and importance of varied diet
- say where food comes from (animal, underground etc.)
- describe how food is farmed, home-grown, caught
- draw eat well plate; explain there are groups of food
- describe "five a day"
- cut, peel and grate with increasing confidence

Vocab: Sensory descriptions of fruit and vegetables, healthy diet, hygiene, varied diet, food group, cut, peel, grate

Curriculum Drivers

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DESIGN TECHNOLOGY - DESIGN, MAKE, EVALUATE & TECHNICAL KNOWLEDGE

Y3

Final product

Design: (e.g. levers/linkages) 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 their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Skills: begin to research others' needs

show design meets a range of requirements

describe purpose of product

follow a given design criteria

have at least one idea about how to create product

create a plan which shows order, equipment and tools

describe design using an accurately labelled sketch and words

make design decisions

explain how product will work

make a prototype

begin to use computers to show design

Make: To select from and use a wider range of tools and equipment to perform practical tasks e.g. 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 their functional properties and aesthetic

Skills: select suitable tools/equipment, explain choices; begin to use them accurately

select appropriate materials, fit for purpose.

work through plan in order

consider how good product will be

begin to measure, mark out, cut and shape materials/components with some accuracy

begin to assemble, join and combine materials and components with some accuracy

begin to apply a range of finishing techniques with some accuracy

Final product

Cooking and Nutrition

To understand and apply the principles of a healthy and varied diet

To prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques e.g. meze

Skills:

*carefully select ingredients

*use equipment safely

*make product look attractive

*think about how to grow plants to use in cooking

*begin to understand food comes from UK and wider world

*describe how healthy diet= variety/balance of food/drinks

*explain how food and drink are needed for active/healthy bodies.

*prepare and cook some dishes safely and hygienically

*grow in confidence using some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking

Vocab:

Evaluate: To investigate and analyse a range of existing products

To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

To understand how key events and individuals in design and technology have helped shape the world

Skills: look at design criteria while designing and making

use design criteria to evaluate finished product

say what I would change to make design better

begin to evaluate existing products, considering: how well they have been made, materials, whether they work,

how they have been made, fit for purpose

begin to understand by whom, when and where products were designed

learn about some inventors/designers/ engineers/chefs/ manufacturers of ground- breaking products

Technical Knowledge: To understand and use mechanical systems in their products e.g. levers and linkages

Skills: select appropriate tools / techniques

alter product after checking, to make it better

begin to try new/different ideas

use simple lever and linkages to create movement

Vocab: Lever, linkage, pivot, material, research, purpose, tools, combine, design

Curriculum Drivers

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Originality: oracy – adventure – risk – aspiration – creativity

Well-being: mental and physical - meta cognitive – learning powers

Environment and Nature: environment – sustainability

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DESIGN TECHNOLOGY - DESIGN, MAKE, EVALUATE & TECHNICAL KNOWLEDGE

Y4

Final product

Design: (e.g. *seasonal stockings*). 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 their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Skills: use research for design ideas

- *show design meets a range of requirements and is fit for purpose
- *begin to create own design criteria
- *have at least one idea about how to create product and suggest improvements for design.
- *produce a plan and explain it to others
- *say how realistic plan is.
- *include an annotated sketch
- *make and explain design decisions considering availability of resources
- *explain how product will work
- *make a prototype
- *begin to use computers to show design.

Evaluate: To investigate and analyse a range of existing products

To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

To understand how key events and individuals in design and technology have helped shape the world

Skills: *refer to design criteria while designing and making

- *use criteria to evaluate product
- *begin to explain how I could improve original design
- *evaluate existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose
- *discuss by whom, when and where products were designed
- *research whether products can be recycled or reused
- *know about some inventors/designers/ engineers/chefs/manufacturers of ground-breaking products

Final product

Cooking and Nutrition

To understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed e.g. *boiling soup/stew*
To prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques

Skills:

- *explain how to be safe/hygienic
- *think about presenting product in interesting/ attractive ways
- *understand ingredients can be fresh, pre-cooked or processed
- *begin to understand about food being grown, reared or caught in the UK or wider world
- *describe eat well plate and how a healthy diet=variety / balance of food and drinks
- *explain importance of food and drink for active, healthy bodies
- *prepare and cook some dishes safely and hygienically
- *use some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking

Vocab:

Make: To select from and use a wider range of tools and equipment to perform practical tasks e.g. 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 their functional properties and aesthetic qualities

Skills: select suitable tools and equipment, explain choices in relation to required techniques and use accurately

- *select appropriate materials, fit for purpose; explain choices
- *work through plan in order.
- *realise if product is going to be good quality
- *measure, mark out, cut and shape materials/components with some accuracy
- *assemble, join and combine materials and components with some accuracy
- *apply a range of finishing techniques with some accuracy

Technical Knowledge: To understand and use electrical systems in their products e.g. series circuits incorporating switches, bulbs, buzzers and motors (e.g. *link to science – electricity*)

Skills: *select most appropriate tools

- *techniques
- *explain alterations to product after checking it
- *grow in confidence about trying new / different ideas

Vocab:

Research, criteria, annotate, prototype, purpose, assemble, component, circuit, switch, motor

Curriculum Drivers

Personal: our world – context – society

Originality: oracy – adventure – risk – aspiration – creativity

Well-being: mental and physical - meta cognitive – learning powers

Environment and Nature: environment – sustainability

Real: here and now – current affairs - topical

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DESIGN TECHNOLOGY - DESIGN, MAKE, EVALUATE & TECHNICAL KNOWLEDGE

Y5

Final product

Design: (e.g. structures)

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 their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Skills:

- *use internet and questionnaires for research and design ideas
- *take a user's view into account when designing
- *begin to consider needs/wants of individuals/groups when designing and ensure product is fit for purpose
- *create own design criteria
- *have a range of ideas
- *produce a logical, realistic plan and explain it to others.
- *use cross-sectional planning and annotated sketches
- *make design decisions considering time and resources.
- *clearly explain how parts of product will work.
- *model and refine design ideas by making prototypes and using pattern pieces.
- *use computer-aided designs

Make:

To select from and use a wider range of tools and equipment to perform practical tasks e.g. 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 their functional properties and aesthetic qualities

Skills:

- *use selected tools/equipment with good level of precision
- *produce suitable lists of tools, equipment/materials needed
- *select appropriate materials, fit for purpose; explain choices, considering functionality
- *create and follow detailed step- by-step plan
- *explain how product will appeal to an audience
- *mainly accurately measure, mark out, cut and shape materials/components
- *mainly accurately assemble, join and combine materials/components
- *mainly accurately apply a range of finishing techniques
- *use techniques that involve a small number of steps
- begin to be resourceful with practical problems

Final product

Cooking and Nutrition

To understand seasonality and know where and how a variety of ingredients are grown, reared, caught and processed. Making ice-cream (link to Science reversible and irreversible changes)

To prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques (solids, liquids & gasses)

Skills:

- *explain how to be safe / hygienic and follow own guidelines
- *present product well - interesting, attractive, fit for purpose
- *begin to understand seasonality of foods
- *understand food can be grown, reared or caught in the UK and the wider world
- *describe how recipes can be adapted to change appearance, taste, texture, aroma
- *explain how there are different substances in food / drink needed for health
- *prepare and cook some savoury dishes safely and hygienically including, where appropriate, use of heat source
- *use range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.

Vocab:

Evaluate:

To investigate and analyse a range of existing products

To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

To understand how key events and individuals in design and technology have helped shape the world

Skills:

- *evaluate quality of design while designing and making
- *evaluate ideas and finished product against specification, considering purpose and appearance.
- *test and evaluate final product
- *evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose
- *begin to evaluate how much products cost to make and how innovative they are
- *research how sustainable materials are
- *talk about some key inventors/designers/ engineers/ chefs/manufacturers of ground- breaking products

Technical Knowledge

To apply their understanding of computing to program, monitor and control their products

e.g. STEM day

To understand and use mechanical systems in their products *e.g. gears, pulleys and cams.*

Skills:

- *refine product after testing
- *grow in confidence about trying new / different ideas
- *begin to use cams, pulleys or gears to create movement

Vocab:

Design criteria, cross-sectional planning, function, frame, structure, reinforce, triangulation, stability

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DESIGN TECHNOLOGY - DESIGN, MAKE, EVALUATE & TECHNICAL KNOWLEDGE

Y6

Final product

Design: (e.g. shelters) 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 their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Skills:

- *draw on market research to inform design
- *use research of user's individual needs, wants, requirements for design
- *identify features of design that will appeal to the intended user
- *create own design criteria and specification
- *come up with innovative design ideas
- *follow and refine a logical plan.
- *use annotated sketches, cross- sectional planning and exploded diagrams
- *make design decisions, considering, resources and cost
- *clearly explain how parts of design will work, and how they are fit for purpose
- *independently model and refine design ideas by making prototypes and using pattern pieces
- *use computer-aided designs

Make: To select from and use a wider range of tools and equipment to perform practical tasks e.g. 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 their functional properties and aesthetic qualities

Skills:

- *use selected tools and equipment precisely
- *produce suitable lists of tools, equipment, materials needed, considering constraints
- *select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics
- *create, follow, and adapt detailed step-by-step plans
- *explain how product will appeal to audience; make changes to improve quality
- *accurately measure, mark out, cut and shape materials/components
- *accurately assemble, join and combine materials/components
- *accurately apply a range of finishing techniques
- *use techniques that involve a number of steps
- *be resourceful with practical problems

Final product

Cooking and Nutrition To understand and apply the principles of a healthy and varied diet and the impact of diet on the function of the body
To prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques e.g. blending and kneading Greek foods

Skills: *understand a recipe can be adapted by adding / substituting ingredients

- *explain seasonality of foods
- *learn about food processing methods
- *name some types of food that are grown, reared or caught in the UK or wider world
- *adapt recipes to change appearance, taste, texture or aroma.
- *describe some of the different substances in food and drink, and how they can affect health
- *prepare and cook a variety of savoury dishes safely and hygienically including, where appropriate, the use of heat source.
- *use a range of techniques confidently such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.

Vocab:

Evaluate: To investigate and analyse a range of existing products

To evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
To understand how key events and individuals in design and technology have helped shape the world

Skills:

- *evaluate quality of design while designing and making; is it fit for purpose?
- *keep checking design is best it can be.
- *evaluate ideas and finished product against specification, stating if it's fit for purpose
- *test and evaluate final product; explain what would improve it and the effect different resources may have had
- *do thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose
- *evaluate how much products cost to make and how innovative they are
- *research and discuss how sustainable materials are
- *consider the impact of products beyond their intended purpose
- *discuss some key inventors/designers/ engineers/ chefs/manufacturers of ground- breaking products

Technical Knowledge To apply their understanding of how to strengthen, stiffen and reinforce more complex structures (e.g. shelters)

Skills:

- *select materials carefully, considering intended use of the product, the aesthetics and functionality.
- *explain how product meets design criteria
- *reinforce and strengthen a 3D frame

Vocab:

Requirement, specification, functional properties, aesthetics, step-by-step plans, finishing, impact, complex structure, temporary, permanent

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