

Jessie Younghusband School Design Technology Intent

At Jessie Younghusband School, whenever we touch Design and Technology in our curriculum, we always begin with the question 'What design do you notice in the world around you?'. This is because we want children to understand how much design is in the world already. We also want them to see how they can develop their own ideas and imaginings in order to create designs.

We want all of our children to learn to be designers, rather than to simply learn how to design, and we want our children to recognise design all around them and how even the most basic of things has been designed to meet a need.

In the background of this, is our hands on and connected approach to learning and we endeavour to make our provision of design and technology noless hands on. We want all of our children to develop their own competence of skills in a variety of situations and with a variety of materials, including food and textiles. We also want our children to work in different contexts, applying their learning from other subjects to their design and technology work.

We want our children to take risks with their designing and making as this way they can learn about taking "calculated risks". We also want our children to be able to showcase their ability to be resourceful, enterprising, innovative and a critical thinker.

Our progression is developed through this intent as this structure provides the progression, along with our own professional judgement of the questions we need to ask the children at each point. As progress is made, less time needs to be spent on the grounding questions and we can spend time going deeper on the questions about refinement.



Designing

YEAR R (PRIOR LEARNING)

Vocab: explore, pattern, make, create, design

- To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
- To use a range of small tools, including scissors, paint brushes and cutlery.

YEAR 1

Vocab: mechanisms, levers, sliders, fulcrum, pivot, design, make, product

- To state which products they are designing and making.
- To describe what their products are for.
- To use simple design criteria to help develop their ideas.
- To use knowledge of existing products to help come up with ideas.
- To develop and communicate ideas by talking and drawing.

YEAR 2

Vocab: fruit, vegetables, carbohydrate, protein, dairy, generate, idea, mechanism

- To say whether their products are for themselves or others & to say how their products will work.
- To say how they will make their products suitable for their intended users.
- To generate ideas by drawing on their own experiences.
- To model ideas by exploring materials, components and construction kits and by making templates and mock- ups.
- To use information and communication technology, where appropriate, to develop and communicate their ideas..

YEAR 3

Vocab: textile, sewing, fabric, smart fabric, stitch, join, clarify, evaluate

- To describe the purpose of their products.
- To share and clarify ideas through discussion.
- To gather information about the needs and wants of particular individuals and groups. To generate realistic ideas, focusing on the needs of the user.
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YEAR 4

Vocab: mix, stir, combine, claw grip, bridge hold, mash, pattern, prototype

- To explain how particular parts of their products work.
- To model their ideas using prototypes and pattern pieces. To develop their own design criteria and use these to inform their ideas.
- To make design decisions that take account of the availability of resources.

YEAR 5

Vocab: drawing, diagram, exploded diagram, explain, justify, guide, specification

- To indicate the design features of their products that will appeal to intended users.
- ٠ To use annotated sketches, cross-sectional drawings and exploded diagrams to develop and communicate their ideas.
- To identify the needs, wants, preferences and values of particular individuals and groups.
- To develop a simple design specification to guide their thinking.
- To make design decisions, taking account of constraints such as time, resources and cost.

YEAR 6

Vocab: context, enterprise, evaluative, computer-aided design, innovative

- To work confidently within a range of contexts, such as the home, school, leisure, culture, enterprise, industry and the wider environment.
- To use computer-aided design to develop and communicate their ideas.
- To carry out research, using surveys, interviews, questionnaires and web-based resources.
- To generate innovative ideas, drawing on research.

KEY STAGE 3

Vocab: inspiring, rigorous, risks, domestic-, local- and industrial contexts

To use research and exploration, such as the study of different cultures, to identify and

- understand user needs.
- To identify and solve their own design problems and understan<u>d how to reformulate</u>
- problems given to them.
- To develop specifications to inform the design of innovative, functional, appealing products
- that respond to needs in a variety of situations.
- To use a variety of approaches [for example, biomimicry and user-centred design], to generate creative ideas and avoid stereotypical responses.
- To develop and communicate design ideas using annotated sketches, detailed plans, 3-D
- and mathematical modelling, oral and digital presentations and computer-based tools.

JYS CURRICULUM PATHWAY - DESIGN TECHNOLOGY



Making

YEAR R (PRIOR LEARNING)

Vocab: explore, pattern, make, create, design

- To safely use and explore a variety of materials, tools and techniques, experimenting with colour,
- design, texture, form and function.
 To use a range of small tools, including scissors, paint brushes and cutlery.

YEAR 1

Vocab: mechanisms, levers, sliders, fulcrum, pivot, design, make, product

- To plan by suggesting what to do next.
- To select from a range of materials and components according to their characteristics.
- To follow procedures for safety and hygiene.
- To assemble, join and combine materials and components.

YEAR 2

Vocab: fruit, vegetables, carbohydrate, protein, dairy, generate, idea, mechanism

- To select from a range of tools and equipment, explaining their choices.
- To use a range of materials and components, including construction materials and kits, textiles, food ingredients and mechanical components.
- To measure, mark out, cut and shape materials and components.
- To use finishing techniques, including those from art and design.

YEAR 3

Vocab: textile, sewing, fabric, smart fabric, stitch, join, clarify, evaluate

- To select tools and equipment suitable for the task.
- To follow procedures for safety and hygiene.
- To order the main stages of making.
- To measure, mark out, cut and shape materials and components with some accuracy and assemble, join and combine materials and components with some accuracy.

YEAR 4

Vocab: mix, stir, combine, claw grip, bridge hold, mash, pattern, prototype

- To explain their choice of tools and equipment in relation to the skills and techniques they will be using.
- To apply a range of finishing techniques, including those from art and design, with some accuracy.

YEAR 5

Vocab: drawing, diagram, exploded diagram, explain, justify, guide, specification

- To select materials and components suitable for the task.
- To use a wider range of materials and components than KSI, including construction materials and kits, textiles, food ingredients, mechanical components and electrical components.
- To produce appropriate lists of tools, equipment and materials that they need.
- To accurately measure, mark out, cut and shape materials and components.
- To accurately apply a range of finishing techniques, including those from art and design.
- To compare their performances and demonstrate improvement to achieve their personal best.
- To apply rules of fair play to competitive games.
- To develop techniques of a variety of skills to maximise team effectiveness.

YEAR 6

Vocab: context, enterprise, evaluative, computer-aided design, innovative

- To explain their choice of materials and components according to functional properties and aesthetic qualities.
- To formulate step-by-step plans as a guide to making.
- To accurately assemble, join and combine materials and components.
- To use techniques that involve a number of steps and demonstrate resourcefulness when tackling
 practical problems.

KEY STAGE 3

- To select from and use specialist tools, techniques, processes, equipment and machinery precisely, including computer-aided manufacture.
- To select from and use a wider, more complex range of materials, components and ingredients, taking into account their properties.



Evaluating

YEAR R (PRIOR LEARNING)

Vocab: explore, pattern, make, create, design

 To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

YEAR 1

Vocab: mechanisms, levers, sliders, fulcrum, pivot, design, make, product

- To talk about their design ideas and what they are making.
- To know what products are.
- To know who products are for.
- To know what they like and dislike about products.

YEAR 2

Vocab: fruit, vegetables, carbohydrate, protein, dairy, generate, idea, mechanism

- To make simple judgements about their products and ideas against design criteria.
- To suggest how their products could be improved.
- To know what products are for, how products work, how products are used, where products might be used and what materials products are made from.

YEAR 3

Vocab: textile, sewing, fabric, smart fabric, stitch, join, clarify, evaluate

- To identify the strengths and areas for development in their ideas and products.
- To investigate and analyse how well products have been made.
- To investigate and analyse why materials have been chosen.
- To refer to their design criteria as they design and make.
- To investigate and analyse who designed and made the products.
- To investigate and analyse where products were designed and made.

YEAR 4

Vocab: mix, stir, combine, claw grip, bridge hold, mash, pattern, prototype

- To investigate and analyse how well products have been designed.
- To investigate and analyse what methods of construction have been used.
- To know about inventors, designers, engineers, chefs and manufacturers who have developed groundbreaking products.
- To use their design criteria to evaluate their completed products.
- To investigate and analyse when products were designed and made.
- To investigate and analyse whether products can be recycled or reused.

YEAR 5

Vocab: drawing, diagram, exploded diagram, explain, justify, guide, specification

- To consider the views of others, including intended users, to improve their work.
- To investigate and analyse how well products work and how well products achieve their purposes.
- To evaluate their ideas and products against their original design specification.
- To investigate and analyse how much products cost to make.
- To investigate and analyse how sustainable the materials in products are.

YEAR 6

Vocab: context, enterprise, evaluative, computer-aided design, innovative

- To investigate and analyse how well products meet user needs and wants.
 To critically evaluate the quality of the design, manufacture and fitness for purpose of their products as they design and make.
- To investigate and analyse how innovative products are.
- To investigate and analyse what impact products have beyond their intended purpose.

KEY STAGE 3

- To analyse the work of past and present professionals and others to develop and broaden their understanding.
- To investigate new and emerging technologies.
- To test, evaluate and refine their ideas and products against a specification, taking into account the views of intended users and other interested groups.
- To understand developments in design and technology, its impact on individuals, society and the environment, and the responsibilities of designers, engineers and technologists.





JYS CURRICULUM PATHWAY - DESIGN TECHNOLOGY

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Technical Knowledge

YEAR R (PRIOR LEARNING)

Vocab: explore, pattern, make, create, design

- To safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
- To use a range of small tools, including scissors, paint brushes and cutlery.

YEAR 1

Vocab: mechanisms, levers, sliders, fulcrum, pivot, design, make, product

- To know about the simple working characteristics of materials and components.
- To know about the movement of simple mechanisms such as levers, sliders, wheels and axles.
- To know about how freestanding structures can be made stronger, stiffer and more stable.

YEAR 2

Vocab: fruit, vegetables, carbohydrate, protein, dairy, generate, idea, mechanism

- To know that a 3-D textiles product can be assembled from two identical fabric shapes.
- To know that food ingredients should be combined according to their sensory characteristics.
- To know the correct technical vocabulary for the projects they are undertaking.

YEAR 3

Vocab: textile, sewing, fabric, smart fabric, stitch, join, clarify, evaluate

- To know how to use learning from science to help design and make products that work.
- To know how mechanical systems such as levers and linkages or pneumatic systems create movement.
- To know how to make strong, stiff shell structures.
- To know that a single fabric shape can be used to make a 3D textiles product.

YEAR 4

Vocab: mix, stir, combine, claw grip, bridge hold, mash, pattern, prototype

- To know how to use learning from mathematics to help design and make products that work.
- To know how simple electrical circuits and components can be used to create functional products.

E=MC²

- To know how to program a computer to control their products.
- To know that food ingredients can be fresh, pre-cooked and processed.

YEAR 5

Vocab: drawing, diagram, exploded diagram, explain, justify, guide, specification

- To know that materials have both functional properties and aesthetic qualities.
- To know the correct technical vocabulary for the projects they are undertaking.
- To know how mechanical systems such as cams or pulleys or gears create movement.
- To know how to reinforce and strengthen a 3D framework.
- To know that a 3D textiles product can be made from a combination of fabric shapes.

YEAR 6

Vocab: context, enterprise, evaluative, computer-aided design, innovative

- To know that materials can be combined and mixed to create more useful characteristics.
- To know that mechanical and electrical systems have an input, process and output.
- To know how more complex electrical circuits and components can be used to create functional products.
- To know how to program a computer to monitor changes in the environment and control their products.
- To know that a recipe can be adapted by adding or substituting one or more ingredients.

KEY STAGE 3

- To understand and use the properties of materials and the performance of structural elements to achieve functioning solutions.
- To understand how more advanced mechanical systems used in their products enable changes in movement and force.
- To understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs].
- To apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors], and control outputs [for example, actuators], using programmable components [for example, microcontrollers].

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Cooking and Nutrition

YEAR R (PRIOR LEARNING)

Vocab: explore, pattern, make, create, design

To use a range of small tools, including scissors, paint brushes and cutlery.

YEAR 1

Vocab: mechanisms, levers, sliders, fulcrum, pivot, design, make, product

- To know that all food comes from plants or animals.
- To know that everyone should eat at least five portions of fruit and vegetables every day
- To know how to prepare simple dishes safely and hygienically, without using a heat source.

YEAR 2

Vocab: fruit, vegetables, carbohydrate, protein, dairy, generate, idea, mechanism

- To know that food has to be farmed, grown elsewhere (e.g. home) or caught.
- To know how to name and sort foods into the five groups in 'The eatwell plate'.
- To know how to use techniques such as cutting, peeling and grating.

YEAR 3

Vocab: textile, sewing, fabric, smart fabric, stitch, join, clarify, evaluate

- To know that food is grown (such as tomatoes, wheat and potatoes), reared (such as pigs, chickens and cattle) and caught (such as fish) in the UK, Europe and the wider world.
- To know that to be active and healthy, food and drink are needed to provide energy for the body.

YEAR 4

Vocab: mix, stir, combine, claw grip, bridge hold, mash, pattern, prototype

- To know how to prepare and cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source.
- To know that a healthy diet is made up from a variety and balance of different food and drink, as depicted in 'The eatwell plate'.

YEAR 5

Vocab: drawing, diagram, exploded diagram, explain, justify, guide, specification

- To know that seasons may affect the food available.
- To know that recipes can be adapted to change the appearance, taste, texture and aroma.

YEAR 6

Vocab: context, enterprise, evaluative, computer-aided design, innovative

- To know how to use a range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.
- To know how food is processed into ingredients that can be eaten or used in cooking.

KEY STAGE 3

- To understand and apply the principles of nutrition and health.
 To cook a repertoire of predominantly savoury dishes so that they are able to feed themselves and others a healthy and varied diet.
- To become competent in a range of cooking techniques [for example, selecting and preparing ingredients; using utensils and electrical equipment; applying heat in different ways; using awareness of taste, texture and smell to decide how to season dishes and combine ingredients; adapting and using their own recipes].
- To understand the source, seasonality and characteristics of a broad range of ingredients.