Design Technology Passport

Reception – Year 1

FOOD

I can:

- Prepare food safely.

- use tools safely.

MATERIALS

I can:

- know what tools are used for.

- use materials to make a project.

CONSTRUCTION

I can:

- use simple tools

- choose the right tools to use.

DESIGN, MAKE, REVIEW and IMPROVE

I can:

- Use the right tools and materials for a job.

Design Technology Passport – Reception

Knowledge

✓ **Exploring and using media and materials**

Early Learning Goal: Children develop their own ideas through selecting and using materials and working on processes that interest them. Through their explorations they find out and make decisions about how media and materials can be combined and changed.

✓ **Being imaginative**

Early Learning Goal: Children talk about the ideas and processes which have led them to make designs, or images. They can talk about features of their own and others' work, recognising the differences between them and the strengths of others.

✓ Pupils are given opportunities to;

- Develop ideas and interests
- Have specific foci for creative designs/purpose
- Combine and change their creation purposefully reflecting and reviewing their work
- Talk about the ideas and processes they have used in their own and others work
- Recognise the strengths of their own work and others.

Expected - The children are provided with an environment which is set up in such a way that promotes these opportunities and focus on representing their own ideas

Pupils experiment with design - sometimes adult led but not making 'everyone the same'

Exceeding - Pupils develop their ideas, make decisions, combine and change their ideas with a purpose to aligning their decision-making processes and judging their own work and the work of others through reflection on ways to improve the work they have created

Skills

✓ I can safely use a variety of tools
(Realises tools can be used for a purpose - E.g. glue, paper clip, split pins, Sellotape).

✓ I can handle materials to achieve the planned effect.

✓ I can use simple tools competently and appropriately.

✓ I can choose the best tools and techniques to shape, assemble and join materials they are using.

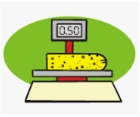
✓ I can use to DT opportunities to participate in meaningful speaking and listening activities. (*For example, I can take models made and show children in another group or class and explain how they were made.)*

fruit vegetables soft peeling cutting squeezing tasting arranging juicy crunchy sticky smooth sharp crisp sour hard flesh skin seed pip core slicing plan hold twist design make cutting joining cut fold stick join fix weak strong

Design Technology Passport - Year 1 to Year 2

FOOD

I can



- measure or weigh using measuring cups or electronic scales.
- prepare, assemble or cook ingredients.

MATERIALS

I can

- safely use a variety of tools.
- realise that tools are to be used for a purpose.
  (E.g glue, paper clip, split pins, Sellotape)
- use materials to achieve the planned effect.
- choose the appropriate resources for each task.

ELECTRICALS and ELECTRONICS

I can

- use simple tools safely and with confidence.
- select tools and techniques to shape, assemble and join materials that I am using.

DESIGN, MAKE, REVIEW and IMPROVE

I can

- choose the appropriate tools and resources for a task.

Vocabulary

pattern mark-out join running stitch fabric wheel

axel fixed free design make cutting joining

hacksaw vice dowel body cab shaping cut

fold stick join fix weak strong healthy diet

choosing ingredients planning

Art and Design Passport – Year 1

Knowledge

- ✓ To know what a template is.
- ✓ To know what wheels, axels and axel holders are.
- ✓ To know the difference between fixed and free moving axels.
- ✓ To know simple methods to fix wheels and axels to a product.
- ✓ To know the names of some simple tools and their purpose.
- ✓ To know simple commercial products that use wheels and axels to move.
- ✓ To know the difference between pulling and pushing forces.
- ✓ To know which materials are best used for particular parts of a product (*i.e. rubber covered wheels might provide more grip than plastic wheels).*
- ✓ To know how to make freestanding structures stronger, stiffer and more stable.
- ✓ To know how to join some simple materials.
- ✓ To know a simple order of making a structure.
- ✓ To know some simple finishing techniques to complete their structure.
- ✓ To know the name of simple 2D shapes.
- ✓ To know some strong/stiff structures *(i.e. climbing frame, tower).*
- ✓ To know what materials are useful for strengthening or stiffening structures and why this is.
- ✓ To know some simple facts about an important structural engineer *(i.e. Isambard Kingdom Brunel)*
- ✓ To know how to use simple cutting tools to prepare soft fruit and vegetables.
- ✓ To know how to follow simple health and safety procedures.
- ✓ To know how to peel, chop, slice and grate foods.
- ✓ To know where a range of fruit and vegetables come from.
- ✓ To know the principles of a varied diet.

Skills

- ✓ I can measure or weigh using measuring cups or electronic scales.
- ✓ I can assemble or cook ingredients.
- ✓ I can safely use a variety of tools
- ✓ I understand that tools can be used for a purpose.

  (Eg glue, paper clip, split pins, Sellotape)
- ✓ I can manipulate materials to achieve the planned effect.
- ✓ I can select the appropriate resources to follow through on a project planned.
- ✓ I can demonstrate a range of cutting and shaping skills *(such as tearing, cutting, folding and curling).*
- ✓ I can use simple tools safely, competently and appropriately.
- ✓ I can choose tools and techniques to shape, assemble and join materials they are using.

Design Technology Passport - Year 2 to Year 3

FOOD

I can

- cut, peel or grate ingredients safely and hygienically.
- measure or weigh using measuring cups or electronic scales.
- prepare, assemble or cook ingredients safely and hygienically.

MATERIALS

I can

- cut materials safely using tools provided.
- measure and mark out to the nearest centimetre.
- demonstrate a range of cutting and shaping techniques *(such as tearing, cutting, folding and curling).*
- demonstrate a range of joining techniques *(such as gluing, hinges or combining materials to strengthen).*

TEXTILES

I can

- shape textiles using templates.
- join textiles using running stitch.
- colour and decorate textiles using a number of techniques *(such as dyeing, adding sequins or printing).*

ELECTRICALS and ELECTRONICS

I can

- I can diagnose faults in battery operated devices *(such as low battery, water damage or battery terminal damage).*

COMPUTING

I can

- model designs using software.

CONSTRUCTION

I can

- I can use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products.

DESIGN, MAKE, REVIEW and IMPROVE

I can

- I can design products that have a clear purpose and an intended user.
- I can make products, refining the design as work progresses.

Design Technology Passport – Year 2

Knowledge

Continue to develop and refine the knowledge and skills from FS and Year 1.

- ✓ To know what a template is and why designers use them.
- ✓ To know when to use certain fabrics based on their suitability to the product.
- ✓ To know how to use joining and simple stitch techniques.
- ✓ To know which finishing technique to use depending upon the required effect.
- ✓ To know the names of at least one designer of fabric products
- ✓ To know where simple fabrics come from/are made of (
- ✓ To know how to operate sliders and levers and where they are used in a real-life context.
- ✓ To know that different mechanisms create different types of movement.
- ✓ To know the name of simple tools and their purpose.
- ✓ To know some simple fixing techniques and when to use them
- ✓ To know what a pivot is.
- ✓ To know how to make freestanding structures stronger, stiffer and more stable.
- ✓ To know how to join some simple materials.
- ✓ To know a simple order of making a structure.
- ✓ To know some simple finishing techniques to complete their structure.
- ✓ To know the name of simple 3D shapes.
- ✓ To know some strong/stiff structures
- ✓ To know what materials are useful for strengthening or stiffening structures and why this is.
- ✓ To know some simple facts about more than one structural engineer
- ✓ To know how to prepare simple dishes safely and hygienically, without using a heat source.
- ✓ To know how to use techniques such as cutting, peeling and grating with greater confidence and independency.
- ✓ To know what a design evaluation is.

Skills

- ✓ I can cut, peel or grate ingredients safely and hygienically.
- ✓ I can measure or weigh using measuring cups or electronic scales
- ✓ I can assemble or cook ingredients.
- ✓ I can cut materials safely using tools provided.
- ✓ I can measure and mark out to the nearest centimetre.
- ✓ can demonstrate a range of cutting and shaping techniques
- ✓ I can demonstrate a range of joining techniques
- ✓ I can shape textiles using templates.
- ✓ I can join textiles using running stitch.
- ✓ I can colour and decorate textiles using several techniques
- ✓ I can diagnose faults in battery operated devices
- ✓ I can model designs using software.
- ✓ I can use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products
- ✓ I can design products that have a clear purpose and an intended user.
- ✓ I can make products, refining the design as work progresses.

Vocabulary

template quality suitable feature dye design fray mechanism lever slider slot pivot guide masking tape fastener pull push down straight work design evaluate purpose

Design Technology Passport – Year 3 to Year 4

FOOD

I can

- prepare ingredients hygienically using appropriate utensils.
- follow a recipe.
- assemble or cook ingredients *(controlling the temperature of the oven or hob, if cooking).*

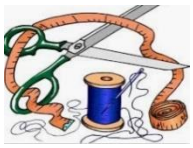
MATERIALS

I can

- cut materials accurately and safely by selecting appropriate tools.
- select appropriate joining techniques.

TEXTILES

I can



- join textiles with appropriate stitching.

ELECTRICALS and ELECTRONICS

I can

- diagnose faults in battery operated devices *(such as low battery, water damage or battery terminal damage).*

COMPUTING

I can

- control and monitor models using software designed for this purpose.
- write code to control and monitor models or products.

CONSTRUCTION

I can

- choose suitable techniques to construct products or to repair items.
- strengthen materials using suitable techniques.

MECHANICS

I can

- use scientific knowledge of the transference of forces
- to choose appropriate mechanisms for a product *(such as levers, winding mechanisms, pulleys and gears).*

DESIGN, MAKE, REVIEW and IMPROVE

I can

- refine work and techniques as work progresses, continually evaluating the product design.
- improve upon existing designs, giving reasons for choices.
- disassemble products to understand how they work.

TAKING INSPIRATION FROM DESIGN THROUGH HISTORY

I can

- identify some great designers in all the areas of study to generate ideas for designs.

Design Technology Passport – Year 3

Knowledge

- ✓ To know how to strengthen, stiffen and reinforce existing fabrics.
- ✓ To know how to securely join two pieces of fabric together using a range of stitches.
- ✓ To know why designers use patterns.
- ✓ To know how different fabrics are constructed
- ✓ To know what a design brief is.
- ✓ To know what a prototype is.
- ✓ To know why designers evaluate their designs.
- ✓ To know how to control and program a product using computing.
- ✓ To know the difference between a fixed and loose pivot.
- ✓ To know how to use lever and linkage mechanisms.
- ✓ To know the difference between inputs and outputs.
- ✓ To know how to increase accuracy when measuring, marking out and cutting.
- ✓ To know where levers and linkages are used in commercial products or industry.
- ✓ To know why levers are used to lift loads.
- ✓ To know more sophisticated methods for stiffening/strengthening structures.
- ✓ To know what a net is.
- ✓ To know the names of more complex 3D shapes.
- ✓ To know which tools are appropriate for cutting and scoring materials.
- ✓ To know how to test a material's strength.
- ✓ To know why engineers use certain structures for certain purposes.
- ✓ To know how engineers solve design problems.
- ✓ To know some simple facts about more than one structural engineer.
- ✓ To know how to chop a wider range of foods using different techniques.
- ✓ To know how to use sensory information to evaluate a variety of ingredients.
- ✓ To know how to combine foods using different utensils.
- ✓ To know relevant health and safety procedures when handling and preparing foods.
- ✓ To know about a range of fresh and processed foods for their product.
- ✓ To know whether foods are grown, reared or caught.

Skills

- I can prepare ingredients hygienically using appropriate utensils.
- I can follow a recipe.
- I can assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking).
- I can cut materials accurately and safely by selecting appropriate tools.
- I can select appropriate joining techniques.
- I can join textiles with appropriate stitching.
- I can diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage).
- I can control and monitor models using software designed for this purpose.
- I can write code to control and monitor models or products.
- I can choose suitable techniques to construct products or to repair items.
- I can strengthen materials using suitable techniques.
- I can use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).
- I can refine work and techniques as work progresses, continually evaluating the product design**.**
- I can improve upon existing designs, giving reasons for choices.
- I can disassemble products to understand how they work.
- I can identify some of the great designers in all the areas of study to generate ideas for designs.

Vocabulary

Fastening compartment zip finishing technique function prototype back stitch felted woven knitted bonded user fault toggle switch loose pivot fixed pivot system input process shell structure net marking out material joining three dimensional texture taste appearance preference greasy moist fresh savoury hygienic edible grown reared caught frozen tinned processed seasonal

Design Technology Passport – Year 4 to Year 5

FOOD

I can

- prepare ingredients hygienically using appropriate utensils.
- follow a recipe.
- measure ingredients to the nearest gram accurately.
- assemble or cook ingredients *(controlling the temperature of the oven or hob, if cooking).*

MATERIALS

I can

- apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material *(such as slots or cut outs).*
- select appropriate joining techniques.
- measure and mark out to the nearest millimetre.

TEXTILES

I can

- understand the need for a seam allowance.
- join textiles with appropriate stitching.
- select the most appropriate techniques to decorate textiles.

ELECTRICALS and ELECTRONICS

I can

- create series and parallel circuits

COMPUTING

I can

- control and monitor models using software designed for this purpose.
- write code to control and monitor models or products.

CONSTRUCTION

I can

- choose suitable techniques to construct products or to repair items.
- strengthen materials using suitable techniques.

MECHANICS

I can

- use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product *(such as levers, winding mechanisms, pulleys and gears).*

DESIGN, MAKE, REVIEW and IMPROVE

I can

- refine work and techniques as work progresses, continually evaluating the product design.
- improve upon existing designs, giving reasons for choices.
- disassemble products to understand how they work.

TAKING INSPIRATION FROM DESIGN THROUGH HISTORY

I can

- identify some of the great designers in all the areas of study to generate ideas for designs.

Design Technology Passport – Year 4

Knowledge

- ✓ To know why designers might need to strengthen, stiffen and reinforce existing fabrics.
- ✓ To know how/when to use decorative stitches to finish a product.
- ✓ To know what constitutes a renewable/sustainable material/fabric.
- ✓ To know how to follow relevant health and safety protocols.
- ✓ To what accuracy means and how it can be improved.
- ✓ To know what an annotated sketch is.
- ✓ To know why designers use prototypes.
- ✓ To know a range of designers who use fabrics in their work.
- ✓ To know what an electrical circuit is.
- ✓ To know a range of simple electrical components and their functions, such as a bulb, buzzer and switch.
- ✓ To know how to control and program a product using computing
- ✓ To know how to construct a simple series circuit.
- ✓ To know how to make a range of simple secure connections.
- ✓ To know some simple conductors and insulators.
- ✓ To know how electricity is measured *(volts and amps*).
- ✓ To know a range of places electrical systems are used.
- ✓ To know more sophisticated methods for stiffening/strengthening structures.
- ✓ To know what a net is.
- ✓ To know which tools are appropriate for cutting and scoring materials.
- ✓ To know how to test a material's strength.
- ✓ To know how to use CAD to develop a product.
- ✓ To know where loose and fixed pivots are used in products.
- ✓ To know how to use lever and linkage mechanisms.
- ✓ To know the difference between inputs and outputs.
- ✓ To know how to increase accuracy when measuring, marking out and cutting *(i.e. measure in mm rather than cm).*
- ✓ To know how a lever and pivot can be positioned to lift a greater weight.
- ✓ To know why engineers use certain structures for certain purposes.
- ✓ To know how engineers solve design problems
- ✓ To know some simple facts about more than one structural engineer
- ✓ To know how to chop a wider range of foods using different techniques i.e. claw grip, bridge grip.
- ✓ To know how to measure ingredients using simple measures
- ✓ To know how to use sensory information to evaluate a variety of ingredients.
- ✓ To know how to combine foods using different utensils i.e. whisk, spatula.
- ✓ To know relevant health and safety procedures when handling and preparing foods.
- ✓ To know about a range of fresh and processed foods for their product.
- ✓ To know whether foods are grown, reared or caught.
- ✓ To know about fair trade food.
- ✓ To know about one key chef and their contribution to healthy eating. *(e.g. Jamie Oliver).*

Skills

- I can prepare ingredients hygienically using appropriate utensils.
- I can follow a recipe.
- I can measure ingredients to the nearest gram accurately.
- I can assemble or cook ingredients (controlling the temperature of the oven or hob, if cooking).
- I can cut materials accurately and safely by selecting appropriate tools.
- I can apply appropriate cutting and shaping techniques that include cuts within the perimeter of the material (such as slots or cut outs).
- I can select appropriate joining techniques.
- I can measure and mark out to the nearest millimetre.
- I can understand the need for a seam allowance.
- I can join textiles with appropriate stitching.
- I can select the most appropriate techniques to decorate textiles.
- I can create series and parallel circuits
- I can control and monitor models using software designed for this purpose.
- I can write code to control and monitor models or products.
- I can choose suitable techniques to construct products or to repair items.
- I can strengthen materials using suitable techniques.
- I can use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears).
- I can design with purpose by identifying opportunities to design.
- I can make products by working efficiently (such as by carefully selecting materials).
- I can refine work and techniques as work progresses, continually evaluating the product design**.**
- I can use software to design and represent product designs.
- I can design with the user in mind, motivated by the service a product will offer (rather than simply for profit).
- I can use prototypes, cross-sectional diagrams and computer aided designs to represent designs.
- I can improve upon existing designs, giving reasons for choices.
- I can disassemble products to understand how they work.
- I can identify some of the great designers in all of the areas of study to generate ideas for designs.

Aesthetics seam allowance pinning embroidery back stitch blanket stitch cross stitch series circuit connection push-to-make switch push-to-break switch innovative appealing control box input device output device system loose pivot fixed pivot system input process output linear rotary reciprocating innovative appealing linkage oscillating assemble prism vertex breadth capacity scoring adhesives reduce reuse recycle corrugating ribbing laminating

Design Technology Passport - Year 5 to Year 6

FOOD

I can

- measure accurately and calculate ratios of ingredients to scale up or down from a recipe followed.
- understand the importance of correct storage and handling of ingredients *(using knowledge of micro-organisms).*

MATERIALS

I can

- show an understanding of the qualities of materials to choose appropriate tools to cut and shape *(such as the nature of fabric may require sharper scissors than would be used to cut paper).*
- cut materials with precision and refine the finish with appropriate tools *(such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape).*

TEXTILES

I can

- Create objects *(such as a cushion)* that employ a seam allowance.
- Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles *(such as a soft decoration for comfort on a cushion)*.

ELECTRICALS and ELECTRONICS

I can

- create series and parallel circuits, adding components such as switches and chips.

COMPUTING

I can

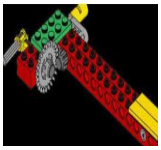
- apply my understanding of computing to programme, monitor and control my products.

CONSTRUCTION

I can

- develop a range of practical skills to create products *(such as cutting, drilling and screwing, nailing, gluing, filing and sanding).*

MECHANICS



I can

- convert rotary motion to linear using cams.
- use innovative combinations of electronics *(or computing)* and mechanics in product designs.

DESIGN, MAKE, REVIEW and IMPROVE

I can

- make products through stages of prototypes, making continual refinements, while ensuring products have a high-quality finish, using art skills where appropriate.

TAKING INSPIRATION FROM DESIGN THROUGH HISTORY

I can

- identify some of the great designers in all the areas of study to generate ideas for designs.

Design Technology Passport – Year 5

Knowledge

- ✓ To know that a 3D textile product can be made from a combination of accurately made pieces.
- ✓ To know when to combine multiple different fabrics to create a 3D product.
- ✓ To know how embroidery can embellish a product.
- ✓ To know when to use particular stitch types.
- ✓ To know what a questionnaire is and how it can help with product design.
- ✓ To know how to test fabrics in order to select them for use.
- ✓ To know how to analyse existing products and report what joining/fastening methods and multiple pieces have been used.
- ✓ To know some key dates in the development of fabric and textiles.
- ✓ To know how to incorporate simple self-made switches in a circuit.
- ✓ To know how to test components in more complex circuits.
- ✓ To know how simple switches can be made.
- ✓ To know how to assess faults in their own electrical systems.
- ✓ To know how to test components in a simple series circuit.
- ✓ To know why materials make good conductors and insulators.
- ✓ To know how electrical systems are controlled *(i.e. flow charts).*
- ✓ To know that mechanical and electrical systems have an input, process and output.
- ✓ To know what a gear is.
- ✓ To know what a pulley is.
- ✓ To know that gears and pulleys can be used to speed up, slow down or change the direction of movement.
- ✓ To know where pulleys and gears are used in commercial products and industry.
- ✓ To know what forces are acting on pulleys and gears *(i.e. friction, gravity).*
- ✓ To know whether a gear will turn clockwise or anticlockwise.
- ✓ To know how to stiffen, strengthen and reinforce a range of
- ✓ 3-D frameworks.
- ✓ To know which materials are best suited to stiffen and reinforce by selecting them due to their properties.
- ✓ To know which shapes are the strongest and will support the most weight in a structure.
- ✓ To know how to safely use a range of tools.
- ✓ To know why engineers use complex structures for certain purposes.
- ✓ To know how engineers solve complex design problems.
- ✓ To know some simple facts about more than one structural engineer.
- ✓ To know some more advance methods for mixing ingredients.
- ✓ To know how to measure ingredients accurately using different units.
- ✓ To know how to follow a recipe.
- ✓ To know how to select appropriate utensils for specific jobs.
- ✓ To know how to cut, shape and knead dough Wider knowledge.
- ✓ To know about a range of chefs and their individual styles of cooking
- ✓ To know about organic foods and the impact of these

Skills

- I can measure accurately and calculate ratios of ingredients to scale up or down from a recipe followed.
- I can understand the importance of correct storage and handling of ingredients.
- I can show an understanding of the qualities of materials to choose appropriate tools to cut and shape.
- I can cut materials with precision and refine the finish with appropriate tools
- I can create objects that employ a seam allowance.
- I can use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles.
- I can apply their understanding of computing to programme, monitor and control their products.
- I can develop a range of practical skills to create products.
- I can convert rotary motion to linear using cams.
- I can use innovative combinations of electronics and mechanics in product designs.
- I can make products through stages of prototypes, making continual refinements, while ensuring products have a high-quality finish, using art skills where appropriate.
- I can combine elements of design from a range of inspirational designers throughout history, giving reasons for choices.
- I can evaluate the design of products and suggest improvements.

Vocabulary

specification tacking working drawing clasp pinking shears design criteria hem reinforce stem stitch satin stitch tie dye parallel circuit light emitting diode monitor flowchart design specification reed switch tilt switch pulley gear driver follower rotation motor belt spindle circuit switch ratio transmit annotated drawings exploded diagrams functionality reinforce triangulation stability temporary permanent prototype innovation functional design brief ingredients yeast dough wholemeal unleavened baking soda spice herbs carbohydrate sugar fat protein vitamins nutrients gluten allergy intolerance savoury seasonality pour mix kneed whisk beat combine fold rubbing in

Design Technology Passport - Year 6 to Year 7

FOOD

I can

- measure accurately and calculate ratios of ingredients to scale up/down from a recipe followed.
- demonstrate a range of baking and cooking techniques.
- understand the importance of correct storage and handling of ingredients *(using knowledge of micro-organisms).*
- create and refine recipes, including ingredients, methods, cooking times and temperatures.

MATERIALS

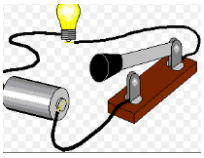
I can

- show an understanding of the qualities of materials to choose appropriate tools to cut and shape *(such as the nature of fabric may require sharper scissors than would be used to cut paper).*
- cut materials with precision and refine the finish with appropriate tools *(such as sanding wood after cutting or a more precise scissor cut after roughly cutting out a shape).*

TEXTILES

I can

- join textiles with a combination of stitching techniques
- *(such as back stitch for seams and running stitch to attach decoration).*
- use the qualities of materials to create suitable visual and tactile effects in the
- decoration of textiles *(such as a soft decoration for comfort on a cushion).*



ELECTRICALS and ELECTRONICS

I can

- create circuits using electronics kits that employ several components *(such as LEDs, resistors, transistors and chips).*

COMPUTING

I can

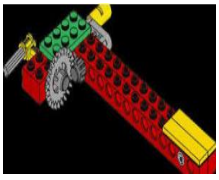
- apply my understanding of computing to programme, monitor and control their products.

CONSTRUCTION

I can

- develop a range of practical skills to create products *(such as cutting, drilling and screwing, nailing, gluing, filing and sanding).*
- convert rotary motion to linear using cams.

MECHANICS



I can

- make products through stages of prototypes, making continual refinements, while ensuring products have a high-quality finish, using art skills where appropriate.

DESIGN, MAKE, REVIEW and IMPROVE

I can

- use innovative combinations of electronics *(or computing)* and mechanics in product designs.

TAKING INSPIRATION FROM DESIGN THROUGH HISTORY,

- I can
- combine elements of design from a range of inspirational designers throughout
- history, giving reasons for choices.
- evaluate the design of products so as to suggest improvements to the user experience.

Design Technology Passport – Year 6

Knowledge

- ✓ To know that a 3D textile product can be made from a combination of accurately made pieces.
- ✓ To know when to combine multiple different fabrics to create a 3D product.
- ✓ To know how embroidery can embellish a product.
- ✓ To know when to use particular stitch *types.*
- ✓ To know what a questionnaire is and how it can help with product design.
- ✓ To know how to test fabrics in order to select them for use.
- ✓ To know how to analyse existing products and report what joining/fastening methods and multiple pieces have been used.
- ✓ To know some key dates in the development of fabric and textiles.
- ✓ To know how to incorporate simple self-made switches in a circuit.
- ✓ To know how to test components in more complex circuits.
- ✓ To know how simple switches can be made.
- ✓ To know how to assess faults in their own electrical systems.
- ✓ To know how to test components in a simple series circuit.
- ✓ To know why materials make good conductors and insulators.
- ✓ To know how electrical systems are controlled.
- ✓ To know that mechanical and electrical systems have an input, process and output.
- ✓ To know what a gear is.
- ✓ To know what a pulley is.
- ✓ To know that gears and pulleys can be used to speed up, slow down or change the direction of movement.
- ✓ To know how to accurately draw an exploded diagram.
- ✓ To know how ratio affects speed of rotation.
- ✓ To know how to stiffen, strengthen and reinforce a range of 3-D frameworks.
- ✓ To know which materials are best suited to stiffen and reinforce by selecting them due to their properties.
- ✓ To know which shapes are the strongest and will support the most weight in a structure.
- ✓ To know how to use a range of tools i.e. junior hacksaws, G-clamps, bench hooks, hand drills safely.
- ✓ To know why engineers use complex structures for certain purposes To know how engineers solve complex design problems.
- ✓ To know some simple facts about more than one structural engineer.
- ✓ To know some more advance methods for mixing ingredients i.e. rubbing in.
- ✓ To know how to measure ingredients accurately using different units. To know how to follow a recipe.
- ✓ To know how to select appropriate utensils for specific jobs.
- ✓ To know how to cut, shape and knead dough.
- ✓ To know about a range of chefs and their individual styles of cooking

Skills

- I can measure accurately and calculate ratios of ingredients to scale up/down from a recipe followed.
- I can demonstrate a range of baking and cooking techniques.
- I can understand the importance of correct storage and handling of ingredients.
- I can create and refine recipes, including ingredients, methods, cooking times and temperatures.
- I can show an understanding of the qualities of materials to choose appropriate tools to cut and shape.
- I can cut materials with precision and refine the finish with appropriate tools.
- I can join textiles with a combination of stitching techniques.
- I can use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles.
- I can create circuits using electronics kits that employ a number of components.
- I can apply their understanding of computing to programme, monitor and control their products.
- I can develop a range of practical skills to create products.
- I can convert rotary motion to linear using cams.
- I can use innovative combinations of electronics and mechanics in product designs.
- I can make products through stages of prototypes, making continual refinements, while ensuring products have a high-quality finish, using art skills where appropriate.
- I can combine elements of design from a range of inspirational designers throughout history, giving reasons for choices.
- I can evaluate the design of products so as to suggest improvements to the user experience.

Vocabulary

applique annotate evaluate innovation functionality renewable authentic chain stitch light dependent resistor interface control micro switch latching switch transmit annotated drawings exploded diagrams functionality reinforce triangulation stability temporary permanent prototype innovation functional design brief