

Long-term overview for Design Technology

YEAR 3

Use textiles to make a logo related to your locality or school

Find out about locality or school and explore initial ideas

Design an initial idea, which focuses on gluing different textiles

Gather resources and make the product

Evaluate the final product against the original brief

Designing

- Begin to research existing products before designing their own
- Use own ideas to design something and be prepared to describe how their own idea works
- Begin to develop their own ideas through drawings, and where appropriate, make templates or mock ups

Making

- Assemble and join materials using a variety of methods
- With help, measure, mark out and cut a range of materials.
- Use tools safely (e.g. scissors and a hole punch).
- Begin to assemble, join and combine materials and components together using a variety of temporary methods (e.g. glue or sellotape).
- Begin to use simple finishing techniques to improve the appearance of their products.

Evaluating

- Begin to evaluate their products as they are developed, identifying strengths and possible changes they might make.

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YEAR 3

Create a simple pop up toy similar to one that children may have played with in the past

Find out about toys in the past, especially those before batteries, etc.

Design an initial idea, which has one moving part

Ensure that the moving part is strong enough when the making stage begins

Evaluate the final product against the original brief

Designing

- Begin to research existing products before designing their own
- When researching, find out how products work and which materials have been used.
- Design a product which moves
- Explain to someone else how they want to make their product
- Make a simple plan before making
- Begin to develop their own ideas through drawings, and where appropriate, make templates or mock ups

Making

- Begin to build structures, exploring how they can be made stronger, stiffer and more stable.
- Explore the use of different mechanisms (for example sliders, wheels and axles) in their products.
- With help, measure, mark out and cut a range of materials.
- Use tools safely (e.g. scissors and a hole punch).
- Begin to assemble, join and combine materials and components together using a variety of temporary methods
- Begin to use simple finishing techniques to improve the appearance of their products.

Evaluating

- Explain what works well and not so well in the model they have made
- Begin to evaluate their products as they are developed, identifying strengths and possible changes they might make.

Technical Knowledge

- Make their own model stronger
- Make a product that has at least one moving part e.g. wind/ simple motor powered boat

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YEAR 3

Create a system that incorporates an axle as part of a swing

Investigate playgrounds and investigate moving parts, such as swings

Design an initial idea, which focuses on a swing

Gather resources and make a product that incorporates a swing

Evaluate the final product against the original brief and consider how they might have made changes

Designing

- Begin to research existing products before designing their own
- When researching, find out how products work and which materials have been used.
- Explain to someone else how they want to make their product
- Begin to develop their own ideas through drawings, and where appropriate, make templates or mock ups.

Making

- Begin to build structures, exploring how they can be made stronger, stiffer and more stable.
- Explore the use of different mechanisms (for example axles) in their products.
- With help, measure, mark out and cut a range of materials.
- Use tools safely (e.g. scissors and a hole punch).
- Begin to use simple finishing techniques to improve the appearance of their products.

Evaluating

- Explain what works well and not so well in the model they have made
- Begin to evaluate their products as they are developed, identifying strengths and possible changes they might make.

Technical Knowledge

- Make their own model stronger
- Make a product that incorporates an axle

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YEAR 4

Create a tall structure similar to the ones seen in London

Research the large tower-like structure in London

Design a tall structure that would not seem out of place in London

Gather the resources needed to make the structure

Ensure the structure is strong, at least 30cms tall and can stand without additional support

Evaluate the final product giving consideration to how it may differ if it were to be made again

Designing

- Begin to develop their design ideas using research and discussion with peers and adults.
- Understand the purpose of their product
- Think of an idea and plan what to do next
- Explain why they have chosen specific textiles or materials
- Draw a simple design and label the parts of their product
- develop their own ideas through drawings, and where appropriate, make templates or mock ups.

Making

- Choose tools and materials and explain why they have chosen them
- Join materials and components in different ways, including glue, sellotape and masking tape.
- Build structures, exploring how they can be made stronger, stiffer and more stable.
- With help, measure, cut and score with some accuracy.
- Start to assemble, join and combine materials in order to make a product.

Evaluating

- Evaluate their work against their design criteria.
- Start to evaluate their product as it is being developed, identifying strengths and possible changes they might make.
- With confidence talk about their ideas, saying what they like and dislike about their product.

Technical Knowledge

- Make a model stronger and more stable,

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YEAR 4

Create a Kenyan traditional village home that incorporates an African-style material roof

Research what traditional village homes look like in parts of Kenya

Take time to design the roof (made from textiles) taking account of Kenyan art

Gather the resources needed to make the structure and the textile roof

Ensure that the roof design incorporates some sewing (running stitch)

Evaluate the final product against the original design and ensuring Kenyan style pattern on the roof

Designing

- Begin to develop their design ideas using research and discussion with peers and adults.
- Understand the purpose of their product
- Explain why they have chosen specific textiles or materials
- Draw a simple design and label the parts of their product
- Develop their own ideas through drawings, and where appropriate, make templates or mock ups of their initial ideas.

Making

- Choose tools and materials and explain why they have chosen them
- Join materials and components in different ways, including sewing.
- Can identify and name a simple selection of hand tools (e.g. scissors).
- Use simple sewing techniques including cutting, shaping and joining fabric to make a simple product.
- With help, measure, cut and score with some accuracy.
- Start to assemble, join and combine materials in order to make a product.
- Start to choose and use appropriate finishing techniques based on their own ideas.

Evaluating

- Evaluate their work against their design criteria.
- Start to evaluate their products as they are developed, identifying strengths and possible changes they might make.
- With confidence, talk about their ideas, saying what they like and dislike about their product.

Technical Knowledge

- Make a model stronger and more stable,

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YEAR 4

Create a Victorian style vehicle that moves on axles and wheels

Research what vehicles looked like in Victorian times

Design a vehicle that takes account of the historical period and incorporates axles and wheels

Gather the resources needed to make the vehicle

Ensure that in the making phase, the axles and wheels are strong enough

Evaluate the vehicle against the original design and explain how it could be made stronger

Designing

- Research independently and generate some ideas before thinking about resources.
- Order the main stages of making a product, continually referring to purpose and establish criteria for a successful product.
- Design a product and make sure that it meets the design criteria including looking attractive (if needed)
- When planning, explain their choices of materials and components, including function.

Making

- Choose tools and materials and explain why they have chosen them
- Can identify and name a simple selection of hand tools (e.g. scissors).
- Build structures, exploring how they can be made stronger, stiffer and more stable.
- With help, measure, cut and score with some accuracy.
- Start to assemble, join and combine materials in order to make a product.
- Start to choose and use appropriate finishing techniques based on their own ideas.

Evaluating

- Evaluate their work against their design criteria.
- Start to evaluate their products as they are developed, identifying strengths and possible changes they might make.
- With confidence, talk about their ideas, saying what they like and dislike about their product.

Technical Knowledge

- Make a model stronger and more stable,
- Use wheels and axles, when appropriate to do so

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YEAR 5

Create a weaving loom to produce a A4 floor mat which incorporates a range of textiles and textures

Research different ways of weaving

Design a floor mat that has different patterns and textures

Gather the resources needed to make the floor mat

Show the correct techniques when weaving, knowing how to join different materials

Evaluate the floor mat against their original idea and make suggestions about improvements

Designing

- Begin to develop design ideas using research and discussion with peers and adults.
- Understand the purpose of their product
- Think of an idea and plan what to do next
- Draw a simple design and label the parts of their product
- Develop their own ideas through drawings, and where appropriate, make templates or mock ups of their initial ideas.

Making

- Follow a step-by-step plan, choosing the right equipment and materials
- Select the most appropriate tools and techniques for a given task
- Work accurately to measure, mark out, make cuts, score, make holes and assemble components with more accuracy.
- Start to work safely and accurately with a range of simple tools.
- Choose finishing techniques to improve the appearance of their products using a range of equipment
- Start to think about their ideas as they make their product and be willing to change things if they help them to improve their work.

Evaluating

- Explain how to improve a finished model
- Know why a model has or has not been successful
- Evaluate their product against their original design criteria (e.g. how well it meets its intended purpose).

Technical Knowledge

- If needed, use a simple IT program within the design.

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YEAR 5

Create a large structure to represent their city, town or village in the way that the Angel of the North represents an area

Research to find out about other large structures that exist in the UK

Design a structure which is sympathetic to the area they live

Gather the resources needed to make the structure

Ensure that the structure is stable but also aesthetically pleasing

Evaluate the structure and consider what is pleasing and what could have been different

Designing

- Consider the purpose and audience for their product
- Design a product and make sure that it meets the design criteria including looking attractive (if needed)
- Draw annotated designs with labels that detail their material choices and suitability of the given materials
- Learn about designers who have developed ground breaking products.
- When planning, explain their choices of materials and components, including function.
- Develop their own ideas through drawings, making templates or mock ups of their initial ideas.

Making

- Select the most appropriate tools and techniques for the task
- Work accurately to measure, mark out, make cuts, score, make holes and assemble components with more accuracy.
- Start to work safely and accurately with a range of simple tools.
- Start to think about their ideas as they make their product and be willing to change things if they help them to improve their work.
- Start to measure, tape or pin, cut and join fabric with some accuracy.

Evaluating

- Explain how to improve a finished model
- Know why a model has or has not been successful
- Evaluate their product against their original design criteria (e.g. how well it meets its intended purpose).
- Evaluate the key designs of individuals in DT has helped shaped the world.

Technical Knowledge

- Know how to strengthen a product by stiffening a given part or reinforce a part of the structure.

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YEAR 5

Create a mechanism for loading objects onto a boat which incorporates a pulley system (lifting 1 kg)

Understand how pulleys work and look how objects are loaded onto boats

Design a pulley structure which is capable of lifting a weight of 1Kg

Gather the resources needed to make the pulley

Ensure that the pulley is stable and can swing to move weight from A to B

Evaluate the pulley structure and consider how it could be improved

Designing

- Consider the purpose of their product
- Prove that a design meets the specification
- Design a product and make sure that it meets the design criteria.
- Draw annotated designs with labels that detail their material choices and suitability of the given materials
- Learn about inventors, designers, engineers, chefs and manufacturers who have developed ground breaking products.
- When planning, explain their choices of materials and components, including function.

Making

- Select the most appropriate tools and techniques for the task
- Work accurately to measure, mark out, make cuts, score, make holes and assemble components with more accuracy.
- Start to work safely and accurately with a range of simple tools.
- Start to understand that mechanical systems (pulley) create movement.
- Start to think about their ideas as they make their product and be willing to change things if they help them to improve their work.

Evaluating

- Know why a model has or has not been successful
- Evaluate their product against their original design criteria (e.g. how well it meets its intended purpose).
- Begin to disassemble and evaluate familiar products and consider the views of others to improve them.

Technical Knowledge

- Create a product that incorporates a pulley mechanism.

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YEAR 6

Create a Roman weapon to propel a marble one metre which is operated by a lever system

Research to find out more about Roman weapons

Design a weapon with a lever system and has the capability of propelling a marble at least 1m

Gather the resources needed to make the weapon

Ensure that the weapon looks authentic and is stable with a working lever system

Evaluate the end product (weapon) and consider how it could be improved

Designing

- Research Roman weapons before designing the product.
- Confidently make labelled drawings from different views, showing specific features.
- Produce a plan and explain how the lever will work.
- Communicate ideas through annotated sketches that show different viewpoints of the product
- Begin to be very familiar with different inventors, designers, engineers, chefs and manufacturers who have developed ground breaking products.

Making

- Know which tools to use for a particular task and show knowledge of handling the tool accurately and safely.
- Know which material is likely to give the best outcome based on its properties
- Mark, measure and cut accurately a range of materials using appropriate tools, equipment and techniques.
- Start to join and combine materials and components accurately in temporary and permanent ways.
- Show high levels of perseverance when things do not go as they would wish in the first instance.
- Know how mechanical systems (such as levers) create movement.
- Understand how to reinforce and strengthen a 3D framework.
- Begin to use finishing techniques to strengthen and improve their appearance of their product using a range of equipment.

Evaluating

- Evaluate product for both their purpose and appearance
- Evaluate their product, carrying out appropriate tests.
- Evaluate their product both during and at the end of the assignment.
- Be able to disassemble and evaluate familiar products and consider the views of others to improve them.

Technical Knowledge

- Create a product that incorporates at least one lever.

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YEAR 6

Create a A4 personal flag for the opening ceremony of the Ancient Greek Olympics which incorporates a running stitch

Research what happened at the Greek Olympics

Design a flag that is made from different materials

Gather the resources needed to make the flag

Join different parts of the flag by sewing, showing appropriate sewing techniques

Evaluate the completed flag and consider how it could be improved

Designing

- Research as a matter of course before considering designing a product.
- Produce a plan and explain the use of materials, equipment and processes
- If the first attempt fails, identify strengths and future areas for development.
- Communicate ideas through annotated sketches that show different viewpoints of the product

Making

- Know which tools to use for a particular task and show knowledge of handling the tool accurately and safely.
- Know which material is likely to give the best outcome based on its properties
- Mark, measure and cut accurately a range of materials using appropriate tools, equipment and techniques.
- Start to join and combine materials and components accurately in temporary and permanent ways.
- Sew, weave or knit using a range of stitches
- Show high levels of perseverance when things do not go as they would wish in the first instance.

Evaluating

- Evaluate products for both their purpose and appearance
- Evaluate their own and others work
- Evaluate their product, carrying out appropriate tests.
- Evaluate their product both during and at the end of the assignment.
- Present a product in an interesting way

Technical Knowledge

- Use appropriate sewing techniques.

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YEAR 6

Create an electrical torch which incorporates changing colours e.g. kaleidoscope

Understand how a torch works

Design a colour system that can be attached to a torch to create a kaleidoscope

Gather the resources needed to the colour changes

Ensure the kaleidoscope is strong enough to withstand constant use

Evaluate the kaleidoscope against the original design

Designing

- Produce a plan and explain the use of materials, equipment and processes
- Persevere and adapt work when original ideas do not work
- If the first attempt fails, identify strengths and future areas for development.
- Communicate ideas through annotated sketches that show different viewpoints of the product
- Begin to be very familiar with different inventors, designers, engineers, chefs and manufacturers who have developed ground breaking products.

Making

- Know which tools to use for a particular task and show knowledge of handling the tool accurately and safely.
- Know which material is likely to give the best outcome based on its properties
- Mark, measure and cut accurately a range of materials using appropriate tools, equipment and techniques.
- Start to join and combine materials and components accurately in temporary and permanent ways.
- Show high levels of perseverance when things do not go as they would wish in the first instance.
- Know how simple electrical circuit and components can be used to create functional products.

Evaluating

- Evaluate and suggest improvements for designs
- Evaluate their product, carrying out appropriate tests.
- Evaluate their product both during and at the end of the assignment.
- Present a product in an interesting way

Technical Knowledge

- Link scientific knowledge by using lights, switches or buzzers
- Use IT where appropriate to add to the quality of the product.