

Design and Technology

Curriculum End Points

Reception



Unit Topic: STRUCTURES: Junk Modelling.

In this unit, pupils explore and learn about various types of permanent and temporary join. They are encouraged to tinker using a combination of materials and joining techniques in the junk modelling area.

Unit Topic: TEXTILES: Bookmarks.

Pupils develop and practise threading and weaving techniques using various materials and objects. They look at the history of the bookmark from Victorian times versus modern-day styles. The pupils apply their knowledge and skills to design and sew their own bookmarks.

Unit Topic: STRUCTURES: Boats

In this unit, children explore what is meant by 'waterproof', 'floating' and 'sinking', then experiment and make predictions with various materials to carry out a series of tests. They learn about the different features of boats and ships before investigating their shape and structures to build their own.

Additional Unit: COOKING AND NUTRITION: Soup

In this unit, children explore the differences between fruits and vegetables using their senses (taste, texture, smell etc.). They listen to the story 'The best pumpkin soup' and discuss the key ingredients the characters used before developing a class-based vegetable soup recipe.

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Year 1



Unit Topic: STRUCTURES: Constructing a Windmill

- Identify some features that would appeal to the client (a mouse) and create a suitable design.
- Explain how their design appeals to the mouse.
- Make stable structures, which will eventually support the turbine, out of card, tape and glue.
- Make functioning turbines and axles that are assembled into the main supporting structure.
- Say what is good about their windmill and what they could do better.

Unit Topic: TEXTILES: Puppets

- Join fabrics together using pins, staples or glue.
- Design a puppet and use a template.
- Join their two puppets' faces together as one.
- Decorate a puppet to match their design.

Unit Topic: COOKING AND NUTRITION: Smoothies.

- Describe fruits and vegetables and explain how to identify fruits.
- Name a range of places that fruits and vegetables grow.
- Describe basic characteristics of fruit and vegetables.
- Prepare fruits and vegetables to make a smoothie.

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Year 2



Unit Topic: STRUCTURES: Baby Bear's Chair

- Identify man-made and natural structures.
- Identify stable and unstable structural shapes.
- Contribute to discussions.
- Identify features that make a chair stable.
- Work independently to make a stable structure, following a demonstration.
- Explain how their ideas would be suitable for Baby Bear.
- Produce a model that supports a teddy, using the appropriate materials and construction techniques.
- Explain how they made their model strong, stiff and stable.

Unit Topic: MECHANISMS: Fairground Wheel.

- Design and label a wheel.
- Consider the designs of others and make comments about their practicality or appeal.
- Consider the materials, shape, construction and mechanisms of their wheel.
- Label their designs.
- Build a stable structure with a rotating wheel.
- Test and adapt their designs as necessary.
- Follow a design plan to make a completed model of the wheel.

Unit Topic: MECHANISMS: Making a Moving Monster.

- Identify the correct terms for levers, linkages and pivots.
- Analyse popular toys with the correct terminology.
- Create functional linkages that produce the desired input and output motions.
- Design monsters suitable for children, which satisfy most of the design criteria.
- Evaluate their two designs against the design criteria, using this information and the feedback of their peers to choose their best design.
- Select and assemble materials to create their planned monster features.
- Assemble the monster to their linkages without affecting their functionality.

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Year 3



Unit Topic: FOOD: Eating Seasonally.

- Explain that fruits and vegetables grow in different countries based on their climates.
- Understand that seasonal fruits and vegetables grow in a given season.
- Understand that eating seasonal fruit and vegetables positively affects the environment.
- Design a tart recipe using seasonal ingredients.

Unit Topic: DIGITAL WORLD: Wearable Technology.

- Give a brief explanation of the digital revolution and/or remember key examples.
- Suggest a feature from the virtual micro:bit that is suitable for the product.
- Write a program that initiates a flashing LED panel, or another pattern, on the virtual micro:bit when a button is pressed.
- Identify errors, if testing is unsuccessful, by comparing their code to a correct example.
- Explain the basic functionality of their finished program.
- Suggest key features for a way to attach the product to the user, with some consideration for the overall theme and the user.
- Create annotated diagrams to help illustrate how their product is worn.
- Describe what is meant by 'point of sale display' with an example.
- Follow basic design requirements using computer-aided design, drawing at least one shape with a text box and bright colours, following a demonstration.
- Evaluate their design using a focus group.

Unit Topic: STRUCTURES: Constructing a Castle.

- Draw and label a simple castle that includes the most common features.
- Recognise that a castle is made up of multiple 3D shapes.
- Design a castle with key features which satisfy a given purpose.
- Score or cut along lines on the net of a 2D shape.
- Use glue to securely assemble geometric shapes.
- Utilise skills to build a complex structure from simple geometric shapes.
- Evaluate their work by answering simple questions.

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Year 4



Unit Topic: STRUCTURES: Pavilions.

- Produce a range of free-standing frame structures of different shapes and sizes.
- Design a pavilion that is strong, stable and aesthetically pleasing.
- Select appropriate materials and construction techniques to create a stable, free-standing frame structure.
- Select appropriate materials and techniques to add cladding to their pavilion.
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Unit Topic: MECHANICAL SYSTEMS: Making a Slingshot Car.

- Work independently to produce an accurate, functioning car chassis.
- Design a shape that is suitable for the project.
- Attempt to reduce air resistance through the design of the shape.
- Produce panels that will fit the chassis and can be assembled effectively using the tabs they have designed.
- Construct car bodies effectively.
- Conduct a trial accurately and draw conclusions and improvements from the results.
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Unit Topic: ELECTRICAL SYSTEMS: Torches.

- Identify electrical products and explain why they are useful.
- Help to make a working switch.
- Identify the features of a torch and how it works.
- Describe what makes a torch successful.
- Create suitable designs that fit the success criteria and their own design criteria.
- Create a functioning torch with a switch according to their design criteria.

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Year 5



Unit Topic: ELECTRICAL SYSTEMS: Doodlers.

- Identify simple circuit components (battery, bulb and switch) with a basic explanation of their function.
- Explain that a series circuit is assembled in a loop to allow the electricity to flow along one path.
- Describe a motor as a circuit component that changes electrical energy into movement.
- Provide examples of motorised products that use movement to rotate or spin different parts.
- Remove and replace different parts of a Doodler, as part of a team.
- Suggest ways to switch the configuration to amend the form or function of the Doodler.
- Explain, in an investigation report, each of the changes they made and the effect this had on the Doodler's ability to draw scribbles (function) and appearance (form).
- Develop design criteria with consideration for the target user, the purpose of their Doodler, a key function and the Doodler's form and final appearance (e.g. fun, bright, soft).
- Explain simply why their Doodler has a certain configuration based on the findings of their investigation (e.g. I used four pens because the Doodler would fall over with two).
- Create a functional Doodler that creates scribbles on paper with or without a switch.
- Identify and list each of the required materials, tools and circuit components required to build a Doodler.
- Explain simply the steps to assemble a Doodler as part of a set of instructions (or storyboard).
- Write instructions to build a functional circuit, explaining how to identify if it is functional or not.
- Provide suggestions to improve a peer's set of instructions after testing how effective they are at guiding someone.

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Year 5



Unit Topic: MECHANICAL SYSTEMS: Pop-Up Book.

- Produce a suitable plan for each page of their book.
- Produce the structure of the book.
- Assemble the components necessary for all their structures/mechanisms.
- Hide the mechanical elements with more layers using spacers where needed.
- Use a range of mechanisms and structures to illustrate their story and make it interactive for the users.
- Use appropriate materials and captions to illustrate the story.

Unit Topic: COOKING AND NUTRITION: Developing a Recipe.

- Describe the process of beef production.
- Research a traditional recipe and make changes to it.
- Add nutritional value to a recipe by selecting ingredients.
- Prepare and cook a version of bolognese sauce.

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Year 6



Unit Topic: TEXTILES: Waistcoats.

- Consider a range of factors in their design criteria and use this to create a waistcoat design.
- Use a template to mark and cut out a design.
- Use a running stitch to join fabric to make a functional waistcoat.
- Attach a secure fastening, as well as decorative objects.
- Evaluate their final product.

Unit Topic: STRUCTURES: Playgrounds.

- Create five apparatus designs, applying the design criteria to their work.
- Make suitable changes to their work after peer evaluation.
- Make roughly three different structures from their plans using the materials available.
- Complete their structures, improving the quality of their rough versions and applying some cladding to a few areas.
- Secure their apparatus to a base.
- Make a range of landscape features using a variety of materials which will enhance their apparatus.

Unit Topic: DIGITAL WORLD: Navigating the World.

- Incorporate key information from a client's design request such as 'multifunctional' and 'compact' in their design brief.
- Write a program that displays an arrow to indicate cardinal compass directions with an 'On start' loading screen.
- Identify errors (bugs) in the code and suggest ways to fix (debug) them.
- Self and peer evaluate a product concept against a list of design criteria with basic statements.
- Identify key industries that use 3D CAD modelling and why.
- Recall and describe the name and use of key tools used in Tinkercad (CAD) software.
- Combine more than one object to develop a finished 3D CAD model in Tinkercad.
- Complete a product pitch plan that includes key information.