



The DT Curriculum

Year 1

National Curriculum Objectives

Key stage 1

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home and school, gardens and playgrounds, the local community, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

- design purposeful, functional, appealing products for themselves and other users based on design criteria
- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]
- select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics

Evaluate

- explore and evaluate a range of existing products
- evaluate their ideas and products against design criteria

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable
- explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products.

Key stage 2

Through a variety of creative and practical activities, pupils should be taught the knowledge, understanding and skills needed to engage in an iterative process of designing and making. They should work in a range of relevant contexts [for example, the home, school, leisure, culture, enterprise, industry and the wider environment].

When designing and making, pupils should be taught to:

Design

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

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- 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

Evaluate

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

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

4 Cooking and nutrition

As part of their work with food, pupils should be taught how to cook and apply the principles of nutrition and healthy eating. Instilling a love of cooking in pupils will also open a door to one of the great expressions of human creativity. Learning how to cook is a crucial life skill that enables pupils to feed themselves and others affordably and well, now and in later life.

Pupils should be taught to:

Key stage 1

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

Key stage 2

- understand and apply the principles of a healthy and varied diet
- prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques
- understand seasonality, and know where

Year 1		Autumn 2 – Textiles (Puppets)	
National Curriculum			
National Curriculum objectives: • Explore and evaluate a range of existing products. • Select from and use a wide range of tools and equipment to perform tasks. • Design purposeful, functional, appealing products for themselves or other users based on design criteria. • Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. • Select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. • Select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics.			
Cross-Curricular Links:			
• English: Become familiar with stories, fairy tales and traditional tales, retelling them and considering their particular characteristics.			
Prior Learning		Future Learning	
EYFS: • Develop threading and weaving skills. • Develop their fine motor skills so that they can use a range of tools competently, safely and confidently. • Created a product using a design. • Reflected on what they have achieved.		Year 2 • Know that sewing is a method of joining fabric. • Know a running stitch is a style of sewing. • Know the importance of tying a knot after sewing the final stitch. Year 4 • Know that a fastening is something that holds two pieces of material together. • Know that different fastening types are useful for different purposes. Year 5 • Know that a blanket stitch is useful to reinforce edges of fabric or join two fabrics together. • Know small, neat stitches which are pulled taut see important to ensure the toy is strong and holding stuffing securely.	
Design	Make	Evaluate	Technical Knowledge
• Using a template to create a design for a puppet.	• Cutting fabric neatly with scissors. • Using joining methods to decorate a puppet. • Sequencing steps for construction.	• Reflecting on a finished product, explaining likes and dislikes.	• Learning different ways in which to join fabrics together: pinning, stapling, gluing.
Substantive Knowledge Acquired in the Unit			
• Know joining technique means connecting two pieces of materials. • Know that there are various methods of joining fabric e.g., glue, pins or staples. • Know that a template is used to cut out the same shape multiple times. • Know that a design is useful to see how an idea will look.			
Disciplinary Knowledge Acquired in the Unit			
Fixing and joining • Joining 2d and 3d materials- gluing and sticking Marking out and cutting • Safe use of simple tools to punch to cut and make holes materials			

Finishing

- Know about and apply basic finishing techniques e.g. collage, painting, colouring to match a design brief

Key Skills Acquired in the Unit

- Using a template to create a design for a puppet.
- Cutting fabric neatly with scissors
- Using joining methods to decorate puppet.
- Sequencing steps for construction.
- Reflecting on a finished product.

Misconceptions

Some children may think:

- Fabric can only be attached by glue.
- Staples can only attach paper.

By the end of this unit pupils will:

- 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

Medium Term Planning

	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Retrieval		Flashback 4 Question 1: What is the person in the picture doing? (Threading, weaving , cutting, gluing) Question 2: What is the person in the picture using to join the fabrics together? (Staples, glue , pins) Question 3: What is the person in the picture using to join the fabrics together? (Staples , glue, pins), Question 4: What is the person in the picture using to join the fabrics together? (Staples, glue, pins),	Flashback 4 Question 1: What is the person in the picture doing? (Threading, weaving , cutting, gluing) Question 2: What is the person in the picture using to join the fabrics together? (Staples, glue , pins), Question 3: What is the person in the picture using to join the fabrics together? (Staples , glue, pins), Question 4: What is the person in the picture using to join the fabrics together? (Staples, glue, pins),	Flashback 4 Question 1: What can you use to draw around? (Design, label, template , fabric) Question 2: What should you do before making your puppet to see what an idea will look like? (Design , label , template, fabric) Question 3: What can you use to join fabrics together? (Glue , staples , pins , scissors) Question 4: To make a puppet where should you join the fabric? (in the middle, only on one edge, around three edges or anywhere you like)	Question 1: What can you use to draw around? (Design, label, template , fabric) Question 2: What should you do before making your puppet to see what an idea will look like? (Design , label , template, fabric) Question 3: What can you use to join fabrics together? (Glue, staples, pins, scissors) Question 4: To make a puppet where should you join the fabric? (in the middle, only on one edge, around three edges or anywhere you like)
Learning Objective:	To join fabrics together using different methods.	To use a template to create my design.	To join two fabrics together accurately.	To decorate my design using joining methods.	To evaluate a product.

Key vocabulary	Tier 2 Join Fabric Template Tier 3 Pin Staple Glue	Tier 2 Label Fabric Design Template Tier 3 Pin	Tier 2 Join Design Template Fabric Tier 3 Glue Staple Pin	Tier 2 Decorate Design Tier 3 Glue Staple Pin	Tier 2 Join Fabric Evaluate Tier 3 Glue Staple Pin
Possible outcome	Children will join two pieces of material together using joining techniques (pinning, stapling, gluing)	Children will design a labelled puppet using a template. Children cut out template and pin them to fabric. Children cut out the fabric using the template.	Children will join their two pieces of fabric together using preferred method (gluing, stapling, or pinning).	Children will decorate their puppets by joining items to the main puppet shape.	Evaluate puppet- Is the fabric accurately joined? Does it match the design?

Year 1		Spring 2 - Mechanisms (Wheels and Axles)	
National Curriculum			
National Curriculum objectives: • Explore and evaluate a range of existing products. • Explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products. • Design purposeful, functional, appealing products for themselves and other users based on design criteria. • Generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and technology. • Evaluate their ideas and products against design criteria.			
Cross-Curricular Links:			
• English – Pupils learn to appreciate rhymes and poems and to recite some by heart.			
Prior Learning		Future Learning	
EYFS • Know how to use a range of basic tools competently, safely and confidently. • know how to explore a range of materials and use senses to explore and investigate them e.g. construction kits: wheels and axles have movable parts. • know how to construct using a wider range of construction kits using different techniques to fasten and connect things together. • know that different objects and materials can represent things in my pretend play: e.g. I can use a cereal box to represent my house; or use a 3D block as a chair. • know and use appropriate vocabulary to name and describe my models by talking and explaining about my model, how it works and what materials I have used. • know more about using a range of different media (natural and manmade) to construct basic models to represent transport vehicles.		Year 4 • Know that all moving things have kinetic energy. • Know that kinetic energy is the energy that something has by being in motion. • Know that air resistance is the level of drag on an object as it is forced through the air. • Know that the shape of a moving object will affect how it moves due to air resistance. Year 6 • Know that the mechanism in an automata uses a system of cams, axles and followers. • Know that different shaped cams produce different outputs. • Know that an automata is a hand-powered mechanical toy. • Know that a cross-sectional diagram shows the inner workings of a product.	
Design	Make	Evaluate	Technical Knowledge
• Explaining how to adapt mechanisms, using bridges or guides to control the movement. • Design a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move. • Creating clearly labelled drawings which illustrate movement	• Following a design to create moving models that use levers and sliders. • Adapting mechanisms	• Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed. • Reviewing the success of a product by testing it with its intended audience. • Testing mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move.	• Learning that levers and sliders are mechanisms and can make things move. • Identifying whether a mechanism is a lever or slider and determining what movement the mechanism will make. • Using the vocabulary: up, down, left, right, vertical and horizontal to describe movement. • Identifying what mechanism makes a toy or vehicle roll forwards. • Learning that for a wheel to move it

				must be attached to an axle.	
Substantive Knowledge Acquired in the Unit					
• A wheel needs to be round to rotate. • A wheel must be attached to a rotating axle to move. • An axel moves within an axel holder. • A frame of a vehicle (chassis) needs to be balanced.					
Disciplinary Knowledge Acquired in the Unit					
Fixing and Joining • Joining 2D and 3D materials- gluing, sticking. • Understanding of structures and how these can be made stronger and more stable. Mechanisms and control • Understanding simple mechanisms that allow movement – sliding mechanisms.					
Key Skills Acquired in the Unit					
• Designing a vehicle that includes wheels, axels and axel holders. • Creating clearly labelled drawings that illustrate movement. • Adapting mechanisms. • Testing mechanisms.					
Misconceptions					
Some children may think: • A wheel only turns on its own. • Wheels can only turn one way. • A vehicle must have four wheels.					
By the end of this unit pupils will:					
• Explain that wheels move because they are attached to an axle. • Recognise that wheels and axles are used in everyday life, not just in cars. • Identify and explain vehicle design flaws using the correct vocabulary. • Design a vehicle that includes functioning wheels, axles and axle holders. • Make a moving vehicle with working wheels and axles. • Explain what must be changed if there are any operational issues.					
Medium Term Planning					
	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Retrieval		Flashback 4 Question 1: What is this a picture of? (Axel, axel holder, vehicle, wheel) Question 2: What is this a picture of? (Axel, axel holder, vehicle , wheel)	Flashback 4 Question 1: Which word is missing? ‘Wheels are circular ____ (axle, discs , axle holder, vehicle) Question 2: Which word is missing? ‘Wheels are attached	Flashback 4 Question 1: Vehicles need ____ wheels to balance the body. (square, rectangular, round , triangular) Question 2: The wheels need to be attached to the ____ (discs, axle , axle holder, body)	Flashback 4 Question 1: What do we call the body of the car? (axle, axle holder, wheel, chassis) Question 2: Which word is missing? ‘Wheels are attached by the ____’ (axle , discs, axle holder, vehicle)

		Question 3: What is this a picture of? (Axel, axel holder, vehicle, wheel) Question 4: What is this a picture of? (Axel, axel holder, vehicle, wheel)	by the _____' (axle, discs, axle holder, vehicle) Question 3: Which word is missing? 'The axle moves inside the _____ (axle, discs, axle holder, vehicle) Question 4: Which word is missing? 'The axle holder is attached to the body of the _____ (axle, discs, axle holder, vehicle)	Question 3: The axle needs to be inside the _____ ((discs, axle, axle holder, body) Question 4: Which word is missing? 'The axle holder is attached to the body of the _____ (axle, discs, axle holder, vehicle)	Question 3: Which word is missing? 'The axle moves inside the _____ (axle, discs, axle holder, vehicle) Question 4: Which word is missing? 'The axle holder is attached to the body of the _____ (axle, discs, axle holder, vehicle)
Learning Objective:	To understand how wheels move.	To identify what stops wheels from turning.	To design a moving vehicle.	To build a moving vehicle.	To evaluate a moving vehicle.
Key vocabulary	Tier 2 Label Diagram Mechanism Tier 3 Axle Axle holder Vehicle	Tier 2 Diagram Mechanism Tier 3 Axle Axle holder vehicle	Tier 2 Label Measure Design Mechanism Tier 3 Axle Axle holder Chassis vehicle	Tier 2 Build Measure Mechanism Tier 3 Axel Axel holder Chassis Dowel vehicle	Tier 2 Evaluate Mechanism Tier 3 Axel Axel holder Chassis Dowel vehicle
Possible outcome	Children will draw diagram of vehicle and label it using appropriate vocabulary. Children use straws, paper, scissors and glue to replicate the way the vehicle is moving.	Children will write repair tickets for three broken toy car images.	Children will design and label their own moving vehicle.	Children will use design sheets to create own vehicles.	Children will test and evaluate their moving vehicles. What would they change to make their vehicles better?

Year 1	Summer 2 – Cooking and Nutrition (Fruit and Vegetables)
National Curriculum	
<u>National Curriculum objectives:</u> • use the basic principles of a healthy and varied diet to prepare dishes • understand where food comes from.	

Cross-Curricular Links:

- **Science:** Identify and classify and use observations and ideas to suggest answers to questions.
- **Computing:** Use technology to organize, create, store, manipulate and retrieve digital content.

Prior Learning

EYFS

- Know the names of different types of fruit and vegetables.
- Know how to safely use a knife to cut up foods into smaller pieces.
- Know that different ingredients can be put together to make meal.
- Know it is important to wash hands before preparing food.
- Know different equipment can be used to cook equipment.

Future Learning

Year 2

- Know what 'hidden sugars' are.
- Know where to find the nutritional information on a drinks container,
- Know roughly how much of each food group I should eat each day.
- Know how to prepare food safely using the correct tools.

Year 3

- Know that not all fruits and vegetables can be grown in the UK.
- Know that climate affects food growth.
- Know that vegetables and fruit grow in certain seasons.
- Know that cooking instructions are known as a 'recipe'.
- Know that imported food is food that has been brought into the country.

Year 5

- Know where meat comes from.
- Know that I can adapt a recipe to make it healthier by substituting ingredients.
- Know that I can use a nutritional calculator.
- Know that cross-contamination means that bacteria and germs have been passed onto ready to eat foods.

Year 6

- Know that many countries have national dishes which are recipes associated with that country.
- Know that processed food means food that has been put through multiple changes in a factory.
- Know it's important to wash fruit and vegetables before eating to remove any dirt or insecticides.

Design

- Designing smoothie carton packaging by-hand or on ICT software

Make

- Chopping fruit and vegetables safely to make a smoothie
- Identifying if a food is a fruit or a vegetable
- Learning where and how fruits and vegetables grow

Evaluate

- Tasting and evaluating different food combinations
- Describing appearance, smell and taste.
- Suggesting information to be included on packaging

Technical Knowledge

- Understanding the difference between fruits and vegetables
- Describing and grouping fruits by texture and taste

Substantive Knowledge Acquired in the Unit

- Understand the difference between fruit and vegetables.
- Know a blender mixes ingredients together into a liquid.
- Know vegetables grow either above or below the ground.
- Know some foods typically known as vegetables are actually fruits (e.g., cucumber)
- Know fruits grow on trees or vines.

- Know fruits have seeds and vegetables do not.
- Know vegetables can come from different parts of a plant.

Disciplinary Knowledge Acquired in the Unit

Finishing, including food hygiene

- Basic food handling, hygienic practices and personal hygiene, including how to control risks.
- Safe use of a variety of tools and equipment to peel, cut, grate, mix and mould food.
- The nutritional value of food stuffs in a balanced diet.

Key Skills Acquired in the Unit

- Designing smoothie carton packaging.
- Chopping fruit and vegetables safely.
- Identifying if a food is a fruit or vegetable.
- Testing and evaluating different food combinations.
- Describing appearance, smell and taste.
- Suggesting information included on a packaging.

Misconceptions

Some children may think:

- Only fruit is healthy.
- Fruit comes from a shop.
- All fruit is sweet.
- Fruit juice is not made from fruit.
- Pepper, avocado, butternut squash, tomatoes and cucumbers are vegetables.

By the end of this unit pupils will:

- Describe fruits and vegetables and explain why they are a fruit or a vegetable.
- 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.

Medium Term Planning

	Lesson 1	Lesson 2	Lesson 3	Lesson 4	Lesson 5
Retrieval		Flashback 4 Question 1: Which one of these foods is a vegetable? (broccoli, orange, plum, grapes) Question 2: Which one of these foods is a fruit? (celery, pepper , parsnip, lettuce) Question 3: Which one of these foods is a fruit? (carrot, green bean, tomato , lettuce)	Flashback 4 Question 1: Where do fruits grow? (above or below the ground, on trees or vines) Question 2: Where do vegetables grow? (above or below the ground , on trees or vines) Question 3: Apples, tomatoes, berries and oranges grow on plants, what are they? (seeds, fruits , meats, vegetables)	Flashback 4 Question 1: Carrots, broccoli and onions are all types of? (plants, fruits, nuts, vegetables) Question 2: How do we identify a fruit? (by its colour, the taste, check for seeds) Question 3: Where do lemons grow? (above ground, on a vine, on trees , below the ground)	Flashback 4 Question 1: What do we use to mix ingredients together into a smooth liquid? (oven, blender , knife, microwave) Question 2: What tool is used to remove the tough skin off fruit and vegetables? (knife, spoon, peeler , fork) Question 3: What part of the blender cuts up the food? Switch, blade , lid, container)

		Question 4: Which one of these is a vegetable? (strawberry, potato , pineapple, blueberry)	Question 4: Where do potatoes grow? (above ground, on leaves, on trees, below the ground)	Question 4: Where does spinach grow? (above ground , on leaves, on trees, below the ground)	Question 4: Which tool would you use to chop up the fruit and vegetables? (blender, fork, peeler, knife)
Learning Objective:	To identify if a food is a fruit or vegetable.	To identify where plants grow and which parts we eat.	To taste and compare fruit and vegetables.	To make a fruit and vegetable smoothie.	To evaluate a fruit and vegetable smoothie.
Key vocabulary	Tier 2 Identify Sort Criteria Tier 3 Fruit Vegetable Seed	Tier 2 Identify Sort Criteria Label Tier 3 Fruit Vegetable Seed Stem Root Leaf	Tier 2 Identify Sort Criteria Describe Tier 3 Fruit Vegetable Smoothie	Tier 2 Identify Sort Criteria Describe Design Blend Tier 3 Carton Flavour Peel Slice Smoothie Customer	Tier 2 Evaluate Describe Tier 3 Carton Fruit Smoothie Customer
Possible outcome	Children will explore different fruit and vegetables and sort these into groups.	Children will identify where familiar fruit and vegetable come from and label these on a diagram.	Children will taste a range of fruits and write down what they think of the ingredient: its appearance, feel, smell and taste.	Children will cut up fruit and vegetables and blend to create smoothies. Children design their carton for their smoothie. They ensure it is clearly labelled so customers know what they are buying.	Children will evaluate their smoothie. Did it taste how they expected? How would they improve it? Children evaluate their carton designs. Would a customer know what they were buying?