Design and Technology Curriculum: Year 1

## What are the aims and intentions of this curriculum?

That by the end of KS 1,children will:

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.

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.

| Unit | Topic | Knowledge<br>*Technical Knowledge | Skills<br>*Design *Make *Evaluate | Vocabulary |
|---|---|---|---|---|
| 1 | **Food:**<br>**Fruit and vegetables** | Understanding the difference between fruits and vegetables<br>To understand that some foods typically known as vegetables are actually fruits (e.g. cucumber)<br>To know that a blender is a machine which mixes ingredients together into a smooth liquid | Designing smoothie carton packaging by-hand or on ICT software<br>Chopping fruit and vegetables safely to make a smoothie<br>Identifying if a food is a fruit or a vegetable<br>Learning where and how fruits and vegetables grow | Blender, Carton, Fruit, Healthy, Ingredients, Peel, Peeler, Recipe, Slice, Smoothie, Stencil, Template, Vegetable |

| | | | | |
|---|---|---|---|---|
| | | To know that a fruit has seeds and a vegetable does not<br>To know that fruits grow on trees or vines<br>To know that vegetables can grow either above or below ground<br>To know that vegetables can come from different parts of the plant (e.g. roots: potatoes, leaves: lettuce, fruit: cucumber) | Tasting and evaluating different food combinations<br>Describing appearance, smell and taste<br>Suggesting information to be included on packaging | |
| **2** | **Structures: Constructing windmills** | Learning the importance of a clear design criteria<br>Including individual preferences and requirements in a design<br>Making stable structures from card, tape and glue<br>Learning how to turn 2D nets into 3D structures<br>Following instructions to cut and assemble the supporting structure of a windmill<br>Making functioning turbines and axles which are assembled into a main supporting structure | To understand that the shape of materials can be changed to improve the strength and stiffness of structures<br>To understand that cylinders are a strong type of structure (e.g. the main shape used for windmills and lighthouses)<br>To understand that axles are used in structures and mechanisms to make parts turn in a circle<br>To begin to understand that different structures are used for different purposes<br>To know that a structure is something that has been made and put together<br>To know that a client is the person I am designing for<br>To know that design criteria is a list of points to ensure the product meets the clients' needs and wants<br>To know that a windmill harnesses the power of wind for a purpose like grinding grain, pumping water or generating electricity<br>To know that windmill turbines use wind to turn and make the machines inside work<br>To know that a windmill is a structure with sails that are moved by the wind<br>To know the three main parts of a windmill are the turbine, axle and structure | Client, Design Criteria, Evaluation, Net, Stable, Strong, Test, Weak, Windmill, Structure |

Design and Technology Curriculum: Year 1

| | | | | |
|---|---|---|---|---|
| **3** | **Mechanisms: Moving story book** | Explaining how to adapt mechanisms, using bridges or guides to control the movement<br>Designing a moving story book for a given audience<br>Following a design to create moving models that use levers and sliders<br>Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed<br>Reviewing the success of a product by testing it with its intended audience | To know that a mechanism is the parts of an object that move together<br>To know that a slider mechanism moves an object from side to side<br>To know that a slider mechanism has a slider, slots, guides and an object<br>To know that bridges and guides are bits of card that purposefully restrict the movement of the slider<br>To know that in Design and Technology we call a plan a 'design' | Assemble, Design, Evaluation, Mechanism, Model, Sliders, Stencil, Target audience, Template, Test |
| **4** | **Mechanisms: Wheels and axles** | Designing a vehicle that includes wheels, axles and axle holders, which will allow the wheels to move<br>Creating clearly labelled drawings which illustrate movement<br>Adapting mechanisms<br>Testing mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move | To know that wheels need to be round to rotate and move<br>To understand that for a wheel to move it must be attached to a rotating axle<br>To know that an axle moves within an axle holder which is fixed to the vehicle or toy<br>To know that the frame of a vehicle (chassis) needs to be balanced<br>To know some real-life items that use wheels such as wheelbarrows, hamster wheels and vehicles | Axle, Axle holder, Chassis, Design, Evaluation, Fix, Mechanic, Mechanism, Model, Test, Wheel |
| **5** | **Textiles: Puppets** | Using a template to create a design for a puppet<br>Cutting fabric neatly with scissors<br>Using joining methods to decorate a puppet<br>Sequencing steps for construction<br>Reflecting on a finished product, explaining likes and dislikes (evaluation) | To know that 'joining technique' means connecting two pieces of material together<br>To know that there are various temporary methods of joining fabric by using staples, glue or pins<br>To understand that different techniques for joining materials can be used for different purposes<br>To understand that a template (or fabric pattern) is used to cut out the same shape multiple times<br>To know that drawing a design idea is useful to see how an idea will look | Decorate, Design, Fabric, Glue, Model, Hand puppet, Joining, Safety pin, Staple, Stencil, Template, Evaluation |