

# Design and Technology

## EYFS:

### **Design**

- Support children to use their senses in hands-on exploration of natural materials
- Encourage children to think about and discuss what they want to make.
- Discuss problems and how they might be solved as they arise.

### **Make**

- Provide a range of tools and teach children to use them with care and precision.
- Provide opportunities to work together to develop and realise creative ideas.
- Make imaginative and complex small worlds with blocks and construction kits
- Create collaboratively sharing ideas, resources and skills

### **Evaluate**

- Reflect with children how they have achieved their aims.
- Explore how things work

## Technical Knowledge

### **Structure and Materials**

- Teach children different techniques for joining materials, such as how to use adhesive tape and different sorts of glue.
- Join different materials and explore different textures
- Provide children with a range of materials to construct with.
- Develop cutting techniques and scissor skills (cutting along given lines).
- Develop precision when sticking a variety of materials (e.g. chick, given outline, glue and feathers)
- Use a range of objects to build with – bricks, stickle bricks, Lego, wooden blocks etc.

## Year 1:

### **Design**

- Think of their own ideas and be able to explain what they want to do.
- Explain what the product is for, and how it will work.
- Use pictures and key words to design and explain.
- Design a product with an awareness of the design criteria.
- Research similar existing products.
- Begin to use simple ICT to design.

### **Make**

- Select tools and equipment to cut, shape, join, finish and explain choices
- Measure, mark out, cut and shape, with support
- Choose suitable materials from a given range and explain choices
- Try to use finishing techniques to make product look good
- Work in a safe and hygienic manner

### **Evaluate**

- Talk about my work, linking it to what I was asked to do
- Talk about existing products considering: use, materials, how they work, audience, where they might be used
- Talk about existing products, and say what is and isn't good
- Talk about things that other people have made
- Begin to talk about what could make product better

## Technical Knowledge

### **Structure and Materials**

- Begin to measure and join materials, with some support
- Describe differences in materials
- Suggest ways to make material/product stronger

### **Mechanisms**

- Begin to use levers or slides.

### **Food and Nutrition**

- Wash hands and clean surfaces, with guidance
- Weigh, measure, mix and bake with support
- Use an oven safely with supervision

## **Year 2:**

### **Design**

- Have their own ideas and plan what to do next
- Explain what they want to do and describe how they may do it
- Explain the purpose of a product, how it will work and how it will be suitable for the user.
- Describe a design using pictures, words, models, diagrams and simple ICT design
- Design products following a design criterion
- Choose the best tools and materials, and explain choices
- Use knowledge of existing products to produce ideas

### **Make**

- Explain what they are making and why it fits the purpose
- Join materials and components together in different ways \*Measure, mark out, cut and shape materials and components, with support.
- Describe which tools they are using and why
- Choose suitable materials and explain choices depending on characteristics.
- Use finishing techniques to make product look good
- Work safely and hygienically

### **Evaluate**

- Describe what went well, thinking about design criteria
- Talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion
- Evaluate how good existing products are
- Talk about what I would do differently if I were to do it again and why

## **Technical Knowledge**

### **Structure and Materials**

- Measure materials
- Join materials in different ways \*Use joining, layering, rolling or folding to make it stronger
- Use own ideas to try to make product stronger

### **Mechanisms.**

- Use levers or slides
- Identify and name the mechanism being used

### **Textiles**

- Use a given template
- Carefully measure textiles, with some accuracy
- Join 2 pieces of textiles together using stitching.
- Explore stitching techniques
- Carefully cut textiles with some accuracy
- Use applique techniques to develop design, with support

## **Year 3**

### **Design**

- Begin to research others' needs
- Show how the design meets a range of requirements
- Describe purpose the of a product
- Follow a given design criterion
- Have at least one idea about how to create a product
- Describe the design using an accurately labelled sketch and words
- Make design decisions in the planning stage
- Explain how a product will work
- Use a range of media to show the design including ICT software.

### **Make**

- Select suitable tools and equipment, explain choices; begin to use them accurately
- Select appropriate materials, fit for purpose.
- Work through a plan in order
- Begin to measure, mark out, cut and shape materials and components with some accuracy
- Begin to assemble, join and combine materials and components with some accuracy
- Begin to apply a range of finishing techniques with some accuracy

### **Evaluate**

- Look at design criteria while designing and making

- Use design criteria to evaluate finished product
- Say what I would change to make design better
- Begin to evaluate existing products, considering: how well they have been made, materials, whether they work, how they have been made, fit for purpose
- Begin to understand by whom, when and where products were designed
- Learn about some inventors/designers/ engineers/chefs/ manufacturers of ground-breaking products

### Technical Knowledge

#### **Structure and Materials**

- Work accurately to make cuts and holes, with support.
- Begin to handle tools safely
- Explore finishing techniques
- Begin to develop techniques to reinforce and strengthen structures

#### **Mechanisms.**

- *Begin to use pulleys to create movement, with support. (swapped from Y5)*

#### **Textiles**

- Use weaving skills to join materials
- Use strengthening skills to make textile joins stronger

#### **Food and Nutrition**

- Use equipment safely
- Begin to prepare dishes safely and hygienically
- Demonstrate skills in the following techniques: peeling, chopping, slicing, grating and mixing.

### Year 4

#### **Design**

- Use research for design ideas
- Show how a design meets a range of requirements and is fit for purpose
- Begin to create their own design criteria, with support
- Have at least one idea about how to create product and suggest improvements for its design.
- Include an annotated sketch as part of the design process
- Make and explain design decisions considering availability of resources
- Explain how product will work
- Use a range of media to show the design including ICT software.

#### **Make**

- Select suitable tools and equipment, explain choices in relation to required techniques and use accurately
- Select appropriate materials, fit for purpose; explain choices
- Work through a plan in order.
- Realise if the product is going to be good quality and adjust accordingly
- Measure, mark out, cut and shape materials and components with some accuracy
- Assemble, join and combine materials and components with some accuracy
- Apply a range of finishing techniques with some accuracy

#### **Evaluate**

- Refer to design criteria while designing and making
- Use criteria to evaluate product
- Begin to explain how I could improve original design
- Evaluate existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose
- Discuss by whom, when and where products were designed
- Research whether products can be recycled or reused
- Know about some inventors/designers/ engineers/chefs/manufacturers of ground-breaking products

### Technical Knowledge

#### **Structure and Materials**

- Measure accurately and carefully to avoid mistakes
- Strengthen and reinforce products using joining, hammering, overlapping, layering.
- Work accurately to make cuts and holes
- Join materials, screwing, nailing, hammering, cutting.
- Develop techniques to handle tools safely
- Use finishing techniques

#### **Food and Nutrition**

- Prepare and cook dishes safely and hygienically
- Demonstrate skills in the following techniques: peeling, chopping, slicing, grating, mixing, spreading.
- Use a timer accurately.
- Use an oven safely, knowing and reducing risks.

#### **Electrical Systems.**

- Use simple circuit within product

### **Year 5**

#### **Design**

- Use research for design ideas
- Create their own design criteria
- Have a range of ideas to design from
- Use cross-sectional planning and annotated sketches
- Make design decisions considering time and resources.
- Clearly explain how parts of product will work.
- Model and refine design ideas by making prototypes and using pattern pieces.
- Use computer-aided designs as part of the planning process

#### **Make**

- Use selected tools and equipment with good level of precision
- Select appropriate materials, fit for purpose; explain choices, considering functionality
- Create and follow a detailed step-by-step plan
- Mainly accurately measure, mark out, cut and shape materials and components
- Mainly accurately assemble, join and combine materials and components
- Mainly accurately apply a range of finishing techniques
- Begin to be resourceful with practical problems

#### **Evaluate**

- Evaluate quality of design while designing and making
- Evaluate ideas and finished product against specification, considering purpose and appearance.
- Test and evaluate final product
- Evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose
- Begin to evaluate how much products cost to make and how innovative they are
- Research how sustainable materials are
- Talk about some key inventors/designers/ engineers/ chefs/manufacturers of ground-breaking products

### **Technical Knowledge**

#### **Structure and Materials**

- Measure accurately to increase precision
- Ensure product is strong using strengthening techniques, folding, layering, rolling.
- Reinforce and strengthen structures
- *Join materials, screwing, nailing, hammering, cutting. (swapped from Y3)*

#### **Mechanisms.**

- *Use simple linkages and hinges to create movement. (swapped from Y3)*

#### **Textiles**

- Use a template to accurately mark-up a design.
- Use joining techniques including: gluing and a range of stitching.
- Use strengthening techniques: layering, stuffing and sewing
- Use applique techniques to develop their design

#### **Electrical Systems.**

- Use number of components within circuit, with support
- Incorporate switch into a product

### **Year 6**

#### **Design**

- Draw on market research to inform design
- Use research of user's individual needs, wants, requirements for design
- Identify features of design that will appeal to the intended user
- Create their own design criteria and specification
- Follow and refine a logical plan.  
Use annotated sketches, cross-sectional planning and exploded diagrams
- Clearly explain how parts of design will work, and how they are fit for purpose

- Independently model and refine design ideas by making prototypes and using pattern pieces
- Use computer-aided designs as part of the planning process

### **Make**

- Use selected tools and equipment precisely
- Select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics
- Create, follow, and adapt detailed step-by-step plans
- Make changes to improve quality
- Accurately measure, mark out, cut and shape materials and components
- Accurately assemble, join and combine materials and components
- Accurately apply a range of finishing techniques
- Be resourceful with practical problems

### **Evaluate**

- Evaluate quality of design while designing and making; is it fit for purpose?
- Keep checking design is best it can be.
- Evaluate ideas and finished product against specification, stating if it's fit for purpose
- Test and evaluate final product; explain what would improve it and the effect different resources may have had
- Carry out thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose
- Evaluate how much products cost to make and how innovative they are
- Research and discuss how sustainable materials are
- Consider the impact of products beyond their intended purpose
- Discuss some key inventors/designers/ engineers/ chefs/manufacturers of ground-breaking products

## **Technical Knowledge**

### **Structure and Materials**

- Reinforce and strengthen structures confidently
- Measure accurately to ensure precision

### **Mechanisms.**

- Use a wind-up mechanism within a product
- Name the mechanism they have used
- Strengthen the mechanism to ensure it works effectively within the product

### **Food and Nutrition**

- Use safety and hygiene methods throughout the process.
- Use a heat source confidently and safely.
- Demonstrate skills in the following techniques: peeling, chopping, slicing, grating, mixing, carving, blending, dicing.