



# Knowledge, Skills and Understanding breakdown for Design and Technology

## Year 1

**Developing, planning and communicating ideas**

- Can they think of some ideas of their own?
- Can they explain what they want to do?
- Can they use pictures and words to plan?

**Working with tools, equipment, materials and components to make quality products**

- Can they explain what they are making?
- Which tools are they using?

**Evaluating processes and products**

- Can they describe how something works?
- Can they talk about their own work and things that other people have done?

## Breadth of study

### Cooking and nutrition

- Can they cut food safely?
- Can they describe the texture of foods?
- Do they wash their hands and make sure that surfaces are clean?
- Can they think of interesting ways of decorating food they have made, eg, cakes?

### Textiles

- Can they describe how different textiles feel?
- Can they make a product from textile by gluing?

### Mechanisms

- Can they make a product which moves?
- Can they cut materials using scissors?
- Can they describe the materials using different words?
- Can they say why they have chosen moving parts?

### Use of materials

- Can they make a structure/model using different materials?
- Is their work tidy?
- Can they make their model stronger if it needs to be?

### Construction

- Can they talk with others about how they want to construct their product?
- Can they select appropriate resources and tools for their building projects?
- Can they make simple plans before making objects, e.g. drawings, arranging pieces of construction before building?

## Year 2

### Developing, planning and communicating ideas

- Can they think of ideas and plan what to do next?
- Can they choose the best tools and materials? Can they give a reason why these are best?
- Can they describe their design by using pictures, diagrams, models and words?

### Breadth of study

#### Cooking and nutrition

- Can they describe the properties of the ingredients they are using?
- Can they explain what it means to be hygienic?
- Are they hygienic in the kitchen?

#### Textiles

- Can they measure textile?
- Can they join textiles together to make something?
- Can they cut textiles?
- Can they explain why they chose a certain textile?

### Working with tools, equipment, materials and components to make quality products

- Can they join things (materials/ components) together in different ways?

#### Mechanisms

- Can they join materials together as part of a moving product?
- Can they add some kind of design to their product?

#### Use of materials

- Can they measure materials to use in a model or structure?
- Can they join material in different ways?
- Can they use joining, folding or rolling to make it stronger?

### Evaluating processes and products

- What went well with their work?
- If they did it again, what would they want to improve?

#### Construction

- Can they make sensible choices as to which material to use for their constructions?
- Can they develop their own ideas from initial starting points?
- Can they incorporate some type of movement into models?
- Can they consider how to improve their construction?

# Year 3

## Developing, planning and communicating ideas

- Can they show that their design meets a range of requirements?
- Can they put together a step-by-step plan which shows the order and also what equipment and tools they need?
- Can they describe their design using an accurately labelled sketch and words?
- How realistic is their plan?

## Breadth of study

### Cooking and nutrition

- Can they choose the right ingredients for a product?
- Can they use equipment safely?
- Can they make sure that their product looks attractive?
- Can they describe how their combined ingredients come together?
- Can they set out to grow plants such as cress and herbs from seed with the intention of using them for their food product?

### Textiles

- Can they join textiles of different types in different ways?
- Can they choose textiles both for their appearance and also qualities?

### Electrical and mechanical components

- Do they select the most appropriate tools and techniques to use for a given task?
- Can they make a product which uses both electrical and mechanical components?
- Can they use a simple circuit?
- Can they use a number of components?

## Working with tools, equipment, materials and components to make quality products

- Can they use equipment and tools accurately?

## Evaluating processes and products

- What did they change which made their design even better?

### Stiff and flexible sheet materials

- Do they use the most appropriate materials?
- Can they work accurately to make cuts and holes?
- Can they join materials?

### Mouldable materials

- Do they select the most appropriate materials?
- Can they use a range of techniques to shape and mould?
- Do they use finishing techniques?

## Year 4

### Developing, planning and communicating ideas

- Can they come up with at least one idea about how to create their product?
- Do they take account of the ideas of others when designing?
- Can they produce a plan and explain it to others?
- Can they suggest some improvements and say what was good and not so good about their original design?

### Breadth of study

#### Cooking and nutrition

- Do they know what to do to be hygienic and safe?
- Have they thought what they can do to present their product in an interesting way?

#### Textiles

- Do they think what the user would want when choosing textiles?
- Have they thought about how to make their product strong?
- Can they devise a template?
- Can they explain how to join things in a different way?

### Working with tools, equipment, materials and components to make quality products

- Can they tell if their finished product is going to be good quality?
- Are they conscience of the need to produce something that will be liked by others?
- Can they show a good level of expertise when using a range of tools and equipment?

#### Electrical and mechanical components

- Can they add things to their circuits?
- How have they altered their product after checking it?
- Are they confident about trying out new and different ideas?

### Evaluating processes and products

- Have they thought of how they will check if their design is successful?
- Can they begin to explain how they can improve their original design?
- Can they evaluate their product, thinking of both appearance and the way it works?

#### Stiff and flexible sheet materials

- Can they measure carefully so as to make sure they have not made mistakes?
- How have they attempted to make their product strong?

#### Mouldable materials

- Do they take time to consider how they could have made their idea better?
- Do they work at their product even though their original idea might not have worked?

# Year 5

## Developing, planning and communicating ideas

- Can they come up with a range of ideas after they have collected information?
- Do they take a user's view into account when designing?
- Can they produce a detailed step-by-step plan?
- Can they suggest some alternative plans and say what the good points and drawbacks are about each?

## Breadth of study

### Cooking and nutrition

- Can they describe what they do to be both hygienic and safe?
- How have they presented their product well?

### Textiles

- Do they think what the user would want when choosing textiles?
- How have they made their product attractive and strong?
- Can they make up a prototype first?
- Can they use a range of joining techniques?

### Electrical and mechanical components

- Can they incorporate a switch into their product?
- Can they refine their product after testing it?
- Can they incorporate hydraulics and pneumatics?

### Stiff and flexible sheet materials

- Are their measurements accurate enough to ensure that everything is precise?
- How have they ensured that their product is strong and fit for purpose?

### Mouldable materials

- Are they motivated enough to refine and improve their product?
- Do they persevere through different stages of the making process?

## Working with tools, equipment, materials and components to make quality products

- Can they explain why their finished product is going to be of good quality?
- Can they explain how their product will appeal to the audience?
- Can they use a range of tools and equipment expertly?

## Evaluating processes and products

- Do they keep checking that their design is the best it can be?
- Do they check whether anything could be improved?
- Can they evaluate appearance and function against the original criteria?

## Year 6

### Developing, planning and communicating ideas

- Can they use a range of information to inform their design?
- Can they use market research to inform plans?
- Can they work within constraints?
- Can they follow and refine their plan if necessary?
- Can they justify their plan to someone else?
- Do they consider culture and society in their designs?

### Breadth of study

#### Cooking and nutrition

- Can they explain how their product should be stored with reasons?
- Can they set out to grow their own products with a view to making a salad, taking account of time required to grow different foods?

#### Textiles

- Have they thought about how their product could be sold?
- Have they given considered thought about what would improve their product even more?

#### Electrical and mechanical components

- Can they use different kinds of circuit in their product?
- Can they think of ways in which adding a circuit would improve their product?

#### Stiff and flexible sheet materials

- Can they justify why they selected specific materials?
- Can they work within a budget?
- How have they ensured that their work is precise and accurate?
- Can they hide joints so as to improve the look of their product?

#### Mouldable materials

- Did they consider the use of the product when selecting materials?
- Does their product meet all design criteria?

### Working with tools, equipment, materials and components to make quality products

- Can they use tools and materials precisely?
- Do they change the way they are working if needed?

### Evaluating processes and products

- How well do they test and evaluate their final product?
- Is it fit for purpose?
- What would improve it?
- Would different resources have improved their product?
- Would they need more or different information to make it even better?