## Three Areas of Disciplinary and Substantive Knowledge which Underpin the Sutton Park Primary School DT Curriculum

The assessment framework is structured to set out progression in these three elements of the design technology curriculum. This framework is designed to inform how we plan for children to improve year by year and assess how well they are improving. This should be used alongside the co-design documentation, in particular the exemplars which show different ideas for projects for each year group based on this approach.
The assessment framework is structured to set out progression across a two-year timeframe (Y1 and Y2, Y3 and Y4 and Y5 and Y6). This is because pupils in different settings will not necessarily work on projects in all three of construction, textiles and mechanisms each year, although cooking and nutrition projects will be planned in each year. Progression is more a cumulative experience of solving problems and developing products and the application of disciplinary and procedural knowledge ("know-how"), less a linear hierarchy of substantive knowledge and concepts. Learning is embedded by the application of what has previously been learned and remembered into new contexts.

### Generating design ideas

Our curriculum is designed so that the generation of design ideas is rooted in solving real problems within a variety of contexts. This means that both the purpose a product serves and who it is for lie at the heart of developing ideas for designs.
Throughout the process of generating design ideas, they develop ideas into a design brief, and then refine design briefs according to further information they gather. Children research materials and methods based on exploring and analysing real products and on what they learn from seeking the views of the users or consumers. In so doing, they identify elements which will need deliberate practice. They learn to articulate their plans and explain how they have chosen materials and how to go about their work. As they become more experienced, they record and annotate these plans, using them to adapt their designs as they learn from testing, experimentation and the use of prototypes.

### Developing knowledge of materials and techniques of working with them

The techniques and methods within the design technology curriculum are separated into four elements which help teachers plan for progression in the use of tools and materials. These elements are *Construction, Textiles, Mechanisms including control technology* and *Cookery and nutrition.*
The design process within each of these elements begins with the steps outlined in Generating design ideas and is completed by Evaluating products and processes. Within each element there is disciplinary and procedural knowledge specific to each element, which is set out in the framework.

### Evaluating products and processes

The evaluation of their work in design technology is not a bolt-on which takes place after something is made, but rather an ongoing process which informs their decision making, their practice and their refinement and adaptation of their design.
Evaluation is undertaken against the design brief. The appearance of the product may be a factor in the brief but it vital that evaluation focuses principally on the purpose of the product and whether it fulfils that purpose and meets that need.
Pupils also evaluate their capabilities in handling different materials, using tools and developing techniques in order to inform their choices and what they need to practise.
In talking about and reviewing their own work and the work of others, pupils develop an appreciation of the value of revising, adapting and refining their

work, valuing the process as well as the product. Developing children's capacity and vocabulary to talk about their work is a central part of this element of the curriculum.

| | Generating design ideas | | | | | |
|---|---|---|---|---|---|---|
| | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| Constructing a design brief to solve a problem | Describe and explain the problem that they are trying to solve.<br><br>Describe and explain what they think will be important factors to consider in their design. | Describe and explain the problem that they are trying to solve.<br><br>Describe and explain what they think will be important factors to consider in their design. | Create a design brief for the problem that they are trying to solve.<br><br>List important factors to consider in their design inc. function, appearance and cost. | Create a design brief for the problem that they are trying to solve.<br><br>List important factors to consider in their design inc. function, appearance and cost. | Explain their design brief and how the product is intended to meet purpose and appeal to its users.<br><br>Explain which factors within their design brief are essential and which are optional. | Explain their design brief and how the product is intended to meet purpose and appeal to its users.<br><br>Explain which factors within their design brief are essential and which are optional. |
| Analysing and researching real products, materials, audience and techniques. | Describe real products, identifying what they think are the most important elements.<br><br>Explain why they think particular materials have been chosen.<br><br>Identify what to find out from people who will use the product to inform their plans.<br><br>Identify anything in their design which they will have to practise. | Describe real products, identifying what they think are the most important elements.<br><br>Explain why they think particular materials have been chosen.<br><br>Identify what to find out from people who will use the product to inform their plans.<br><br>Identify anything in their design which they will have to practise. | Describe real products, how they work and how they serve their purpose.<br><br>Describe materials and how their properties match the purpose and appearance of the product.<br><br>Take account of the views of people who will use the product in their design decisions.<br><br>Identify any techniques and tool use which they will have to practise. | Describe real products, how they work and how they serve their purpose.<br><br>Describe materials and how their properties match the purpose and appearance of the product.<br><br>Take account of the views of people who will use the product in their design decisions.<br><br>Identify any techniques and tool use which they will have to practise. | Explain how the design and working of real products influences their design decisions.<br><br>Explain which material properties are necessary for a design, drawing up options for which materials to explore.<br><br>Justify which options to explore based on views of people who will use the product.<br><br>Research how they can improve the technical accuracy of their work. | Explain how the design and working of real products influences their design decisions.<br><br>Explain which material properties are necessary for a design, drawing up options for which materials to explore.<br><br>Justify which options to explore based on views of people who will use the product.<br><br>Research how they can improve the technical accuracy of their work. |

| | | | | | | |
|---|---|---|---|---|---|---|
| Planning and prototypes | Plan how they will make their design showing the different elements and the steps they will take.<br><br>Experiment with ideas away from the making of a final product. | Plan how they will make their design showing the different elements and the steps they will take.<br><br>Experiment with ideas away from the making of a final product. | Record how they will make their design, annotating the different elements and the steps they will take.<br><br>Identify when to make a simple prototype of elements of the design. | Record how they will make their design, annotating the different elements and the steps they will take.<br><br>Identify when to make a simple prototype of elements of the design. | Refine their plans, annotating elements and steps and justifying decisions they are taking.<br><br>Use prototypes to make decisions about possible adaptation. | Refine their plans, annotating elements and steps and justifying decisions they are taking. |

| Developing knowledge of materials in cooking and nutrition and techniques of working with them | | | | | |
|---|---|---|---|---|---|
| Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| Know that hand hygiene and wearing clean protective clothing are important and follow safe and hygienic practice. | Know that hand hygiene and wearing clean protective clothing are important and follow safe and hygienic practice. | Work safely and hygienically. | Work safely and hygienically. | Show attention to safety and hygiene when working independently. | Show attention to safety and hygiene when working independently. |
| Show that they can use simple tools to cut, peel, grate, spread and mix food ingredients safely. | Show that they can use simple tools to cut, peel, grate, spread and mix food ingredients safely. | Select appropriate equipment to slice, chop, peel, grate, spread, mix, knead and bake food ingredients safely. | Select appropriate equipment to slice, chop, peel, grate, spread, mix, knead and bake food ingredients safely. | Use a range of tools and equipment appropriate to purpose, including safe use of a heat source. | Use a range of tools and equipment appropriate to purpose, including safe use of a heat source. |
| Follow a given recipe. | Follow a given recipe. | Construct a recipe for a simple dish. | Construct a recipe for a simple dish. | Construct recipes for different elements of a meal. | Construct recipes for different elements of a meal. |
| Select ingredients and say why they have chosen them. | Select ingredients and say why they have chosen them. | Test different ingredients for flavour and explain their choices. | Test different ingredients for flavour and explain their choices. | Choose ingredients to add, explaining how they affect the flavour and/or appearance of the product. | Choose ingredients to add, explaining how they affect the flavour and/or appearance of the product. |
| Identify healthy choices from a given range of foods. | Identify healthy choices from a given range of foods. | Identify the nutritional value of different ingredients and food groups. | Identify the nutritional value of different ingredients and food groups. | Explain the nutritional balance across a meal, identifying potential allergens. | Explain the nutritional balance across a meal, identifying potential allergens. |
| Find out which ingredients they are working with come from plants and which from animals. | Find out which ingredients they are working with come from plants and which from animals. | Find out the geographical origin of ingredients and how they are cultivated. | Find out the geographical origin of ingredients and how they are cultivated. | Find out which ingredients are seasonal and locally sourced. | Find out which ingredients are seasonal and locally sourced. |

| Developing knowledge of materials in making structures and techniques of working with them | | | | | |
|---|---|---|---|---|---|
| Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| Know the importance of working safely when handling tools and materials for construction.<br><br>Select from materials appropriate to purpose and finish, explaining their choices.<br><br>Use appropriate tools to cut, shape, join, assemble and finish.<br><br>Experiment with ideas and materials to add strength and stability to the structure. | Know the importance of working safely when handling tools and materials for construction.<br><br>Select from materials appropriate to purpose and finish, explaining their choices.<br><br>Use appropriate tools to cut, shape, join, assemble and finish.<br><br>Experiment with ideas and materials to add strength and stability to the structure. | Work safely when handling tools and materials for construction.<br><br>Select from materials appropriate to purpose and finish, explaining their choices.<br><br>Measure, fold and cut accurately using appropriate equipment.<br><br>Experiment with materials and methods to improve strength and stability including joins which support the structure. | Work safely when handling tools and materials for construction.<br><br>Select from materials appropriate to purpose and finish, explaining their choices.<br><br>Measure, fold and cut accurately using appropriate equipment.<br><br>Experiment with materials and methods to improve strength and stability including joins which support the structure. | Work safely when handling tools and materials for construction.<br><br>Select from materials appropriate to purpose and finish, explaining their choices.<br><br>Measure, fold, cut, join and fix accurately using appropriate equipment.<br><br>Select appropriate ways of joining and fixing to enhance the strength and stability of the product. | Work safely when handling tools and materials for construction.<br><br>Select from materials appropriate to purpose and finish, explaining their choices.<br><br>Measure, fold, cut, join and fix accurately using appropriate equipment.<br><br>Select appropriate ways of joining and fixing to enhance the strength and stability of the product. |

| Developing knowledge of materials in textiles and techniques of working with them | | | | | |
|---|---|---|---|---|---|
| Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| Know the importance of working safely when handling tools when working with textiles.<br><br>Select from different fabrics appropriate to purpose and appearance, explaining their choices.<br><br>Use appropriate tools to cut and shape, join and finish.<br><br>Weave and thread materials as part of a design.<br><br>Experiment with ideas and materials to add decorative qualities. | Know the importance of working safely when handling tools when working with textiles.<br><br>Select from different fabrics appropriate to purpose and appearance, explaining their choices.<br><br>Use appropriate tools to cut and shape, join and finish.<br><br>Weave and thread materials as part of a design.<br><br>Experiment with ideas and materials to add decorative qualities. | Work safely when handling tools when working with textiles.<br><br>Select suitable fabrics and threads appropriate to purpose, appearance and joins of a design.<br><br>Use appropriate tools to measure, cut and shape, join and finish accurately.<br><br>Thread a needle independently and demonstrate at least one basic stitch.<br><br>Select from ideas to create an aesthetic finish for a fabric product. | Work safely when handling tools when working with textiles.<br><br>Select suitable fabrics and threads appropriate to purpose, appearance and joins of a design.<br><br>Use appropriate tools to measure, cut and shape, join and finish accurately.<br><br>Thread a needle independently and demonstrate at least one basic stitch.<br><br>Select from ideas to create an aesthetic finish for a fabric product. | Work safely when handling tools, inks and dyes when working with textiles.<br><br>Select suitable fabrics, threads and colouring materials appropriate to purpose, appearance and joins of a design.<br><br>Use appropriate tools to measure, cut and shape, join and finish accurately.<br><br>Add appropriate stitching to join and finish a product.<br><br>Experiment with different printing and dyeing techniques to create an aesthetic quality. | Work safely when handling tools, inks and dyes when working with textiles.<br><br>Select suitable fabrics, threads and colouring materials appropriate to purpose, appearance and joins of a design.<br><br>Use appropriate tools to measure, cut and shape, join and finish accurately.<br><br>Add appropriate stitching to join and finish a product.<br><br>Experiment with different printing and dyeing techniques to create an aesthetic quality. |

| Developing knowledge of systems and materials in making mechanisms including use of control technology | | | | | |
|---|---|---|---|---|---|
| Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| Know the importance of working safely when handling tools and components for making mechanisms.<br><br>Describe, from observation, the working of a simple mechanism.<br><br>Select from components appropriate to purpose, explaining their choices.<br><br>Assemble and use appropriate tools to connect component parts of a mechanism.<br><br>Experiment with ideas to explore and improve the working of simple mechanisms. | Know the importance of working safely when handling tools and components for making mechanisms.<br><br>Describe, from observation, the working of a simple mechanism.<br><br>Select from components appropriate to purpose, explaining their choices.<br><br>Assemble and use appropriate tools to connect component parts of a mechanism.<br><br>Experiment with ideas to explore and improve the working of simple mechanisms. | Work safely when handling tools and components, including electronic components, for making mechanisms.<br><br>Explain how a simple mechanism creates movement and how a simple electrical circuit produces an outcome.<br><br>Select from components, including electronic components, appropriate to purpose, explaining their choices.<br><br>Use appropriate tools to connect component parts of a mechanism accurately.<br><br>Test the working of the mechanism and identify where improvements could be made. | Work safely when handling tools and components, including electronic components, for making mechanisms.<br><br>Explain how a simple mechanism creates movement and how a simple electrical circuit produces an outcome.<br><br>Select from components, including electronic components, appropriate to purpose, explaining their choices.<br><br>Use appropriate tools to connect component parts of a mechanism accurately.<br><br>Test the working of the mechanism and identify where improvements could be made. | Work safely when handling tools and components, including electronic components, for making mechanisms.<br><br>Explain how a mechanical system creates movement and how more complex electrical circuits can produce outcomes.<br><br>Select from components, including electronic components, appropriate to purpose and efficiency.<br><br>Use appropriate tools to connect component parts of a mechanism precisely.<br><br>Test the working of the mechanism for effectiveness and identify where improvements could be made. | Work safely when handling tools and components, including electronic components, for making mechanisms.<br><br>Explain how a mechanical system creates movement and how more complex electrical circuits can produce outcomes.<br><br>Select from components, including electronic components, appropriate to purpose and efficiency.<br><br>Use appropriate tools to connect component parts of a mechanism precisely.<br><br>Test the working of the mechanism for effectiveness and identify where improvements could be made. |

|  | **Evaluating products and processes** | | | | | |
|---|---|---|---|---|---|---|
| | Y1 | Y2 | Y3 | Y4 | Y5 | Y6 |
| Evaluate against purpose | Describe and explain what they are designing and making, using language appropriate to purpose. | Describe and explain what they are designing and making, using language appropriate to purpose. | Describe and explain how what they are designing and making fits the design brief, using language appropriate to purpose. | Describe and explain how what they are designing and making fits the design brief, using language appropriate to purpose. | Describe and explain how their own and others' product design and features fulfil the design brief, using language appropriate to purpose. | Describe and explain how their own and others' product design and features fulfil the design brief, using language appropriate to purpose. |
| Evaluate techniques | Describe what they have found straightforward and tricky in using tools and materials. | Describe what they have found straightforward and tricky in using tools and materials. | Identify techniques using tools or materials which they need to practise away from their design. | Identify techniques using tools or materials which they need to practise away from their design. | Identify techniques using tools or materials which they need to research, study and practise away from their design. | Identify techniques using tools or materials which they need to research, study and practise away from their design. |
| Identify potential adaptations | Test their work against the purpose of their design idea and make adaptations. | Test their work against the purpose of their design idea and make adaptations. | Match their work against their design criteria, identifying which elements are successful and which need adaptation. | Match their work against their design criteria, identifying which elements are successful and which need adaptation. | Match their own and others' work against agreed design criteria, identifying which elements are successful and suggest how adaptations could be made. | Match their own and others' work against agreed design criteria, identifying which elements are successful and suggest how adaptations could be made. |
| Evaluate adaptations | Describe any adaptations they have made, giving reasons for what they have chosen to do. | Describe any adaptations they have made, giving reasons for what they have chosen to do. | Describe the different steps in their design and making process, giving reasons for what they have chosen to do. | Describe the different steps in their design and making process, giving reasons for what they have chosen to do. | Identify and explain how they have developed their ideas and improved the quality of their work from initial design through to finished product. | Identify and explain how they have developed their ideas and improved the quality of their work from initial design through to finished product. |

**How learning in the Early Years Foundation Stage provides the range of experiences and a secure knowledge base, on which the KS1 curriculum in Design Technology builds.**

Planning for the curriculum and children's learning in the Early Years Foundation Stage uses the elements of the EYFS statutory framework rather than the subject disciplines of the National Curriculum. This planning is supported by the use of the non-statutory Development Matters guidance.

The EYFS curriculum starts with the child's experience in their family and in their immediate environment. The content of the curriculum is often guided by teachers in response to children's interests and planning needs to take account of the balance between deliberate teaching and spontaneous learning driven by curiosity and purpose.

Children's experiences and learning which, once they are in KS1, can be thought of as typical of work in Design Technology may in Early Years draw upon all the areas of learning – Communication and Language, Personal Social and Emotional Development, Physical Development, Literacy, Mathematics, Understanding the World and Expressive Arts and Design. There will be a strong connection between what children achieve in what is called Expressive Arts and Design and what they will develop in KS1 in Design Technology, but developmental learning for children in EYFS is not linear, it proceeds in a web of multiple strands. For example, the development of fine motor skills in the context of handling materials and using tools such as scissors and glue, do not feature in the end of EYFS assessment statements for Expressive Arts and Design, but reflect aspects of Physical Development.

In our schools, the experiences children gain across the EYFS curriculum are rich in opportunities to solve real problems, to make choices to support their ideas and to articulate their thinking within their play and within structured activities. The way in which the curriculum is designed and experienced by the children supports the development of the characteristics of effective learning in EYFS: playing and exploring, active learning and creating and thinking critically. These are foundational to what lies at the centre of the subject discipline of Design Technology: generating and experimenting with ideas which build into designs which serve an authentic purpose, practising and refining techniques with a range of materials, and evaluating work as it develops and when a product is completed.

Examples of a range of activities, planned with reference to Development Matters, enable children typically, across a range of contexts,

- To explore different materials freely, in order to develop their ideas about how to use them and what to make.
- They will develop their own ideas and then decide which materials to use to express them.
- They will learn to join different materials in the context of the choices they make.
- They will return to and build on their previous learning, refining ideas and developing their ability to represent them.
- They will create collaboratively, sharing ideas, resources and skills.

All of these experiences and knowledge gained provide a secure foundation for what they will encounter in Design Technology in KS1 and beyond.

| By the end of Y1 and Y2 | | | | | |
|---|---|---|---|---|---|
| **Generating design ideas** | **Cooking and Nutrition** | **Structures** | **Textiles** | **Mechanisms** | **Evaluating** |
| Describe and explain the problem that they are trying to solve.<br><br>Describe and explain what they think will be important factors to consider in their design.<br><br>Describe real products, identifying what they think are the most important elements.<br><br>Explain why they think particular materials have been chosen.<br><br>Identify what to find out from people who will use the product to inform their plans.<br><br>Identify anything in their design which they will have to practise.<br><br>Plan how they will make their design showing the different elements and the steps they will take.<br><br>Experiment with ideas away from the making of a final product. | Know that hand hygiene and wearing clean protective clothing are important and follow safe and hygienic practice.<br><br>Show that they can use simple tools to cut, peel, grate, spread and mix food ingredients safely.<br><br>Follow a given recipe.<br><br>Select ingredients and say why they have chosen them.<br><br>Identify healthy choices from a given range of foods.<br><br>Find out which ingredients they are working with come from plants and which from animals. | Know the importance of working safely when handling tools and materials for construction.<br><br>Select from materials appropriate to purpose and finish, explaining their choices.<br><br>Use appropriate tools to cut, shape, join, assemble and finish.<br><br>Experiment with ideas and materials to add strength and stability to the structure. | Know the importance of working safely when handling tools when working with textiles.<br><br>Select from different fabrics appropriate to purpose and appearance, explaining their choices.<br><br>Use appropriate tools to cut and shape, join and finish.<br><br>Weave and thread materials as part of a design.<br><br>Experiment with ideas and materials to add decorative qualities. | Know the importance of working safely when handling tools and components for making mechanisms.<br><br>Describe, from observation, the working of a simple mechanism.<br><br>Select from components appropriate to purpose, explaining their choices.<br><br>Assemble and use appropriate tools to connect component parts of a mechanism.<br><br>Experiment with ideas to explore and improve the working of simple mechanisms. | Describe and explain what they are designing and making, using language appropriate to purpose.<br><br>Describe what they have found straightforward and tricky in using tools and materials.<br><br>Test their work against the purpose of their design idea and make adaptations.<br><br>Describe any adaptations they have made, giving reasons for what they have chosen to do. |

| By the end of Y3 and Y4 | | | | | |
|---|---|---|---|---|---|
| **Generating design ideas** | **Cooking and Nutrition** | **Structures** | **Textiles** | **Mechanisms** | **Evaluating** |
| Create a design brief for the problem that they are trying to solve.<br><br>List important factors to consider in their design inc. function, appearance and cost.<br><br>Describe real products, how they work and how they serve their purpose.<br><br>Describe materials and how their properties match the purpose and appearance of the product.<br><br>Take account of the views of people who will use the product in their design decisions.<br><br>Identify any techniques and tool use which they will have to practise.<br><br>Record how they will make their design, annotating the different elements and the steps they will take.<br><br>Identify when to make a simple prototype of elements of the design. | Work safely and hygienically.<br><br>Select appropriate equipment to slice, chop, peel, grate, spread, mix, knead and bake food ingredients safely.<br><br>Construct a recipe for a simple dish.<br><br>Test different ingredients for flavour and explain their choices.<br><br>Identify the nutritional value of different ingredients and food groups.<br><br>Find out the geographical origin of ingredients and how they are cultivated. | Work safely when handling tools and materials for construction.<br><br>Select from materials appropriate to purpose and finish, explaining their choices.<br><br>Measure, fold and cut accurately using appropriate equipment.<br><br>Experiment with materials and methods to improve strength and stability including joins which support the structure. | Work safely when handling tools when working with textiles.<br><br>Select suitable fabrics and threads appropriate to purpose, appearance and joins of a design.<br><br>Use appropriate tools to measure, cut and shape, join and finish accurately.<br><br>Thread a needle independently and demonstrate at least one basic stitch.<br><br>Select from ideas to create an aesthetic finish for a fabric product. | Work safely when handling tools and components, including electronic components, for making mechanisms.<br><br>Explain how a simple mechanism creates movement and how a simple electrical circuit produces an outcome.<br><br>Select from components, including electronic components, appropriate to purpose, explaining their choices.<br><br>Use appropriate tools to connect component parts of a mechanism accurately.<br><br>Test the working of the mechanism and identify where improvements could be made. | Describe and explain how what they are designing and making fits the design brief, using language appropriate to purpose.<br><br>Identify techniques using tools or materials which they need to practise away from their design.<br><br>Match their work against their design criteria, identifying which elements are successful and which need adaptation.<br><br>Describe the different steps in their design and making process, giving reasons for what they have chosen to do. |

| By the end of Y5 and Y6 | | | | | |
|---|---|---|---|---|---|
| **Generating design ideas** | **Cooking and Nutrition** | **Structures** | **Textiles** | **Mechanisms** | **Evaluating** |
| Explain their design brief and how the product is intended to meet purpose and appeal to its users.<br><br>Explain which factors within their design brief are essential and which are optional.<br>Explain how the design and working of real products influences their design decisions.<br><br>Explain which material properties are necessary for a design, drawing up options for which materials to explore.<br><br>Justify which options to explore based on views of people who will use the product.<br><br>Research how they can improve the technical accuracy of their work.<br>Refine their plans, annotating elements and steps and justifying decisions they are taking.<br><br>Use prototypes to make decisions about possible adaptation. | Show attention to safety and hygiene when working independently.<br><br>Use a range of tools and equipment appropriate to purpose, including safe use of a heat source.<br><br>Construct recipes for different elements of a meal.<br><br>Choose ingredients to add, explaining how they affect the flavour and/or appearance of the product.<br><br>Explain the nutritional balance across a meal, identifying potential allergens.<br><br>Find out which ingredients are seasonal and locally sourced. | Work safely when handling tools and materials for construction.<br><br>Select from materials appropriate to purpose and finish, explaining their choices.<br><br>Measure, fold, cut, join and<br>fix accurately using appropriate equipment.<br><br>Select appropriate ways of joining and fixing to enhance the strength and stability of the product. | Work safely when handling tools, inks and dyes when working with textiles.<br><br>Select suitable fabrics, threads and colouring materials appropriate to purpose, appearance and joins of a design.<br><br>Use appropriate tools to measure, cut and shape, join and finish accurately.<br><br>Add appropriate stitching to join and finish a product.<br><br>Experiment with different printing and dyeing techniques to create an aesthetic quality. | Work safely when handling tools and components, including electronic components, for making mechanisms.<br><br>Explain how a mechanical system creates movement and how more complex electrical circuits can produce outcomes.<br><br>Select from components, including electronic components, appropriate to purpose and efficiency.<br><br>Use appropriate tools to connect component parts of a mechanism precisely.<br><br>Test the working of the mechanism for effectiveness and identify where improvements could be made. | Describe and explain how their own and others' product design and features fulfil the design brief, using language appropriate to purpose.<br><br>Identify techniques using tools or materials which they need to research, study and practise away from their design.<br><br>Match their own and others' work against agreed design criteria, identifying which elements are successful and suggest how adaptations could be made.<br><br>Identify and explain how they have developed their ideas and improved the quality of their work from initial design through to finished product. |