



Introduction

Milestones are designed to provide focus for progression points throughout a child’s journey through the school. Early Years Foundation Stage is also included in this document to highlight the links between Early Years and the National Curriculum. For Years 1 to 6, teachers refer to the [National Curriculum](#) at all planning stages.

Milestones: Early Years Foundation Stage

There are separate plans for EYFS which outline the topics covered and highlight cross-curricular links (including within the National Curriculum). Below is an explanation of how the subject links with the Areas of Learning in EYFS.

Area of Learning: Physical Development (Moving and Handling)	
Nurseries (3 and 4 years old)	<ul style="list-style-type: none"> • Use large-muscle movements to wave flags and streamers, paint and make marks. • Choose the right resources to carry out their own plan. • Use one-handed tools and equipment, for example, making snips in paper with scissors.
Reception (4 and 5 years old)	<ul style="list-style-type: none"> • Progress towards a more fluent style of moving, with developing control and grace. • Develop their small motor skills so that they can use a range of tools competently, safely and confidently. • Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor.
End of Reception: Early Learning Goal (ELG)	<ul style="list-style-type: none"> • Use a range of small tools, including scissors, paintbrushes and cutlery.

Area of Learning: Expressive Arts and Design (Exploring and Using Media and Materials) and (Being Imaginative)	
Nurseries (3 and 4 years old)	<ul style="list-style-type: none"> • Select and use activities and resources, with help when needed. This helps them to achieve a goal they have chosen or one which is suggested to them. • Explore how things work. • Make imaginative and complex ‘small worlds’ with blocks and construction kits, such as a city with different buildings and a park. • Explore different materials freely, in order to develop their ideas about how to use them and what to make. • Develop their own ideas and then decide which materials to use to express them. • Create closed shapes with continuous lines, and begin to use these shapes to represent objects.
Reception (4 and 5 years old)	<ul style="list-style-type: none"> • Explore, use and refine a variety of artistic effects to express their ideas and feelings. • Return to and build on their previous learning, refining ideas and developing their ability to represent them. • Create collaboratively, sharing ideas, resources and skills.
End of Reception: Early Learning Goal (ELG)	<ul style="list-style-type: none"> • Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function. • Share their creations, explaining the process they have used.

Building strong foundations for the years ahead (Matthew 7:24-25)

Love - Courage - Respect - Aspiration - Curiosity

Sonning Church of England Primary School

Curriculum Milestones: Design and Technology



Milestones: Years 1 to 6 (National Curriculum)

As previously stated, we follow the National Curriculum. Using the National Curriculum as our core document, we have created milestone objectives for Key Stage 1 (KS1), Lower Key Stage 2 (LKS2) and Upper Key Stage 2 (UKS2) based on our own curriculum needs and research from a range of sources.

Appraisal and Knowledge of Others' Work	
KS1	<p>KS1 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> • Children learn about designers of technology of past and present. • Children explore and evaluate a range of existing products. <p>Children can, by the end of Year 2, meet the following statements in this concept area:</p> <ol style="list-style-type: none"> Describe the work of famous designers, product developers and brands. Express opinions about these designers, product developers and brands. Know the time period in which the designer lived or the product was developed and used. Begin to describe the impact the design had on the world. Use inspiration from famous, notable designers to create their own work and compare. Explore and evaluate existing products mainly through discussions, comparisons and simple written evaluations. Explain the positives and things to improve for existing products. Explore what materials products are made from.
LKS2	<p>KS2 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> • Children investigate and analyse a range of existing products. • Children understand how key events and individuals in design and technology have helped shape the world. <p>Children can, by the end of Year 4, meet the following statements in this concept area:</p> <ol style="list-style-type: none"> Explain how historical or cultural factors may have influenced a designer. Explain what need the designer was attempting to address. Express opinions about these designers, product developers and brands, and how effectively they achieve the intention. Explore and evaluate existing products, explaining the purpose of the product and whether it is designed well to meet the intended purpose. Explore what materials/ingredients products are made from and suggest reasons for this.
UKS2	<p>KS2 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> • Children investigate and analyse a range of existing products. • Children understand how key events and individuals in design and technology have helped shape the world. <p>Children can, by the end of Year 6, meet the following statements in this concept area:</p> <ol style="list-style-type: none"> Explain how historical or cultural factors may have influenced a designer. Explain how a designer/design has influenced culture or the world, and why. Give detailed observations about notable designers' work Compare the work of different designers, articulating specific differences in the designs and how effectively the products fit different briefs Give detailed explanations and rationale for why specific materials/ingredients were used for a product.

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Curriculum Milestones: Design and Technology



Developing Ideas and Planning	
KS1	<p>KS1 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children design purposeful, functional, appealing products for themselves and other users based on design criteria. They generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology. <p>Children can, by the end of Year 2, meet the following statements in this concept area.</p> <ol style="list-style-type: none"> Use their knowledge of existing products and their own experience to help generate their ideas. Design products that have a purpose and are aimed at an intended user, using simple design criteria. Explain how their products will look and work through talking and simple annotated drawings. Plan and test ideas using templates and mock-ups. Understand and follow simple design criteria.
LKS2	<p>KS2 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children 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. They generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. <p>Children can, by the end of Year 4, meet the following statements in this concept area:</p> <ol style="list-style-type: none"> Use their knowledge of a broad range of existing products to help generate their ideas Design innovative and appealing products that have a clear purpose and are aimed at a specific user. Use annotated sketches and cross-sectional drawings to develop, communicate and explain their ideas. When designing, explore different initial ideas before coming up with a final design, using prototypes and mock-ups. When planning, start to explain their choice of materials and components including function and aesthetics. Develop and follow simple design criteria.
UKS2	<p>KS2 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children 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. They generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design. <p>Children can, by the end of Year 6, meet the following statements in this concept area:</p> <ol style="list-style-type: none"> Use their knowledge and research of a broad range of existing products to help generate their ideas. Use research to inform and develop detailed design criteria to inform the design of innovative, functional and appealing products that are fit for purpose and aimed at a target market. Design products that are innovative, functional and appealing, and are aimed at a target user/group. Use annotated sketches, cross-sectional drawings and exploded diagrams (possibly including computer-aided design) to develop, communicate and explain their ideas. Consider the availability, sustainability and costings of resources when planning out designs.

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Curriculum Milestones: Design and Technology



Making and Producing - General	
KS1	<p>KS1 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. They select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. <p>Children can, by the end of Year 2, meet the following statements in this concept area:</p> <p>Planning</p> <ol style="list-style-type: none"> With support, follow a simple plan or recipe. Begin to select from a range of hand tools and equipment, such as scissors, graters, safe knives, juicer. Select from a range of materials, textiles and components according to their characteristics. <p>Practical skills, techniques and knowledge</p> <ol style="list-style-type: none"> Learn to use hand tools and kitchen equipment safely and appropriately and learn to follow hygiene procedures. Assemble, join and combine a range of materials and components, including textiles and food ingredients. With help, measure and mark out with increasing accuracy. Cut and shape materials with some accuracy with support. Begin to use simple finishing techniques to improve the appearance of their product, such as adding simple decorations. Talk about and start to understand the simple working characteristics of materials and components.
LKS2	<p>KS2 Design and Technology National Curriculum</p> <p>Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately.</p> <p>They 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.</p> <p>Children can, by the end of Year 4, meet the following statements in this concept area:</p> <p>Planning</p> <ol style="list-style-type: none"> Follow a simple plan or recipe with minimal support for core skills required. With growing confidence, carefully select from a range of tools and equipment, explaining their choices. Select from a range of materials and components according to their functional properties and aesthetic qualities. Begin to organise the main stages of making into a systematic order. <p>Practical skills, techniques and knowledge</p> <ol style="list-style-type: none"> Learn to use a range of tools and equipment safely, appropriately and accurately and learn to follow hygiene procedures. Assemble, join and combine a wider range of materials and components, including construction materials and kits, textiles and mechanical and electrical components. With growing independence, measure and mark out to the nearest cm, ml, g. Cut, shape and score materials with some degree of accuracy and independently. Understand that materials have both functional properties and aesthetic qualities.
UKS2	<p>KS2 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. They 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.

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Children can, by the end of Year 6, meet the following statements in this concept area:

Planning

- a) Independently plan by suggesting what to do next.
- b) With growing confidence, select from a wide range of tools and equipment, explaining their choices.
- c) Select from a range of materials and components according to their functional properties and aesthetic qualities.
- d) Create step-by-step plans as a guide to making.

Practical skills and techniques

- a) Select appropriate tools and use them safely and accurately to achieve the desired finish/outcome, including considering the effect the tool will have on the finished product's aesthetics.
- b) Follow hygiene procedures effectively and consistently.
- c) Independently mark out exact measurements to within 1 millimetre.
- d) Assemble, join and combine materials and components (including construction materials and kits, textiles and mechanical components), select the appropriate materials or combination as required and be able to explain why that is the most appropriate choice.
- e) Cut, shape and score a range of materials with precision and accuracy.

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Curriculum Milestones: Design and Technology



Making and Producing - Textiles	
KS1	<p>KS1 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. <p>Children can, by the end of Year 2, meet the following statements in this concept area:</p> <p>Planning</p> <ol style="list-style-type: none"> With support, follow a simple plan or pattern. Begin to select from a range of hand tools and equipment, such as scissors (independently), and pins and needles with support. Select from a range of textiles according to their characteristics and say, in simple terms, why they have chosen those textiles. <p>Practical skills, techniques and knowledge</p> <ol style="list-style-type: none"> Demonstrate how to cut, shape and join fabric to make a simple product. Manipulate fabrics in simple ways to create the desired effect. Use a basic running stitch and cross stitch, with support.
LKS2	<p>KS2 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately. <p>Children can, by the end of Year 4, meet the following statements in this concept area.</p> <p>Planning</p> <ol style="list-style-type: none"> With growing confidence, carefully select from a range of tools and equipment, explaining their choices, e.g. which size needle, what type of thread. Select fabric according to its functional properties and aesthetic qualities. <p>Practical skills, techniques and knowledge</p> <ol style="list-style-type: none"> Learn to use a range of tools and equipment safely, appropriately and accurately. With growing independence, measure and mark out to the nearest cm. Use running stitch and over stitch Begin to select and use different and appropriate finishing techniques to improve the appearance of a product such as hemming, tie-dye, fabric paints and digital graphics
UKS2	<p>KS2 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. <p>Children can, by the end of Year 6, meet the following statements in this concept area.</p> <p>Planning</p> <ol style="list-style-type: none"> With confidence, gain experience of select from a wide range of tools and equipment (wider than LKS2), explaining their choices and the impact this is expected to have on the product. Select from a range of components according to their functional properties and aesthetic qualities (e.g. understand that stitches have different purposes: temporary, permanent and decorative). <p>Practical skills and techniques</p> <ol style="list-style-type: none"> Independently take exact measurements and mark out, to within 1 millimetre. Demonstrate how to make a seam allowance, and tape, pin, cut, shape and join fabric with precision to make a more complex product. Join textiles using a greater variety of stitches, such as backstitch, whip stitch, blanket stitch. Refine the finish using techniques to improve the appearance of their product, such as applique, embroidery.

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Curriculum Milestones: Design and Technology



Making and Producing - Mechanisms	
KS1	<p>KS1 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. They select from and use a wide range of materials and components, including construction materials, textiles and ingredients, according to their characteristics. Children explore and use mechanisms. <p>Children can, by the end of Year 2, meet the following statements in this concept area:</p> <p>Practical skills, techniques and knowledge specific to mechanisms</p> <ol style="list-style-type: none"> Have developed knowledge of some of the types of mechanisms and how they work. Use levers or slides. Begin to understand how to use wheels and axles.
LKS2	<p>KS2 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]. Children can select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. Children can 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. <p>Children can, by the end of Year 4, meet the following statements in this concept area.</p> <p>Practical skills, techniques and knowledge specific to mechanisms</p> <ol style="list-style-type: none"> Explain and (in some cases) demonstrate the techniques and knowledge specific to certain mechanisms. Use levers and linkages to create movement. Use pneumatics to create movement.
UKS2	<p>KS2 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]. Children can select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. Children can 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. <p>Children can, by the end of Year 6, meet the following statements in this concept area.</p> <p>Practical skills, techniques and knowledge specific to mechanisms</p> <ol style="list-style-type: none"> Explain and (in some cases) demonstrate the techniques and knowledge specific to certain mechanisms, using technical vocabulary and clear explanations. Understand and use hydraulics and pneumatics. Be confident to try new or different ideas. Use cams, pulleys and gears to create movement.

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Curriculum Milestones: Design and Technology



Making and Producing - Structures	
KS1	<p>KS1 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]. Children build structures, exploring how they can be made stronger, stiffer and more stable. <p>Children can, by the end of Year 2, meet the following statements in this concept area:</p> <p>Practical skills, techniques and knowledge specific to structures</p> <ol style="list-style-type: none"> Use joining, rolling or folding to make a product/structure stronger. Use own ideas to try to make product/structure stronger.
LKS2	<p>KS2 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children apply their understanding of how to strengthen, stiffen and reinforce more complex structures. Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately. <p>Children can, by the end of Year 4, meet the following statements in this concept area.</p> <p>Practical skills, techniques and knowledge specific to structures</p> <ol style="list-style-type: none"> Attempt to make a product/structure strong. Continue working on product even if the original did not work as expected. Consider the type of structure strengthening method chosen and the reasons why that this is the best choice for the product/structure. Make a strong, stiff structure. Use the vocabulary girder, rafter and strut when building structures.
UKS2	<p>KS2 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children apply their understanding of how to strengthen, stiffen and reinforce more complex structures. Children select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing] accurately. <p>Children can, by the end of Year 6, meet the following statements in this concept area.</p> <p>Practical skills, techniques and knowledge specific to structures</p> <ol style="list-style-type: none"> Reinforce and strengthen a 3D frame. Apply their understanding of how to strengthen, stiffen and reinforce more complex structures in order to create more useful characteristics of products. Discuss, with confidence, the type of structure strengthening method chosen and the reasons why that is the best for the product/structure. Use the vocabulary member, cross brace and cantilever.

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Curriculum Milestones: Design and Technology



Making and Producing – Cooking and Nutrition	
KS1	<p>KS1 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> • Children use the basic principles of a healthy and varied diet to prepare dishes. • Children understand where food comes from. <p>Children can, by the end of Year 2, meet the following statements in this concept area.</p> <ol style="list-style-type: none"> Explain where in the world some different foods originate from. Understand that all food comes from plants or animals. Understand that food has to be farmed, grown elsewhere (e.g. home) or caught. Name and sort foods into the five groups in the Eatwell Guide. Understand the concept of '5 a day' and start to explain why this is beneficial to health and wellbeing. Use what they know about the Eatwell Guide to design and prepare dishes.
LKS2	<p>KS2 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> • Children understand and apply the principles of a healthy and varied diet. • Children can prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. • Children understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. <p>Children can, by the end of Year 4, meet the following statements in this concept area.</p> <ol style="list-style-type: none"> Start to know when, where and how food is grown (such as herbs, tomatoes and strawberries) in the UK, Europe and the wider world. Prepare and cook a variety of predominantly savoury dishes safely and hygienically. With support, use a heat source in cooking, understanding of the need to control the temperature. Use a range of techniques such as mashing, whisking, grating, cutting, kneading and baking. Describe a healthy balanced diet, and apply these principles when planning and cooking dishes. Understand that nutritious food and drink are needed to be active and healthy. Prepare ingredients using appropriate cooking utensils. Measure and weigh ingredients to the nearest gram and millilitre. Start to independently follow a recipe. Start to understand seasonality.
UKS2	<p>KS2 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> • Children understand and apply the principles of a healthy and varied diet. • Children can prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques. • Children understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed. <p>Children can, by the end of Year 6, meet the following statements in this concept area.</p> <ol style="list-style-type: none"> Know, explain and give examples of food that is grown (such as pears, wheat and potatoes), reared (such as poultry and cattle) and caught (such as fish) in the UK, Europe and the wider world. Understand about seasonality, how this may affect the food availability and plan recipes according to seasonality. Understand that food is processed into ingredients that can be eaten or used in cooking. Cook a variety of predominantly savoury dishes safely and hygienically including, where appropriate, the use of a heat source. Demonstrate how to use a range of cooking techniques, such as simmering, grilling, frying and boiling.



- f) Explain that foods contain different substances, such as protein, that are needed for health and be able to apply these principles when planning and preparing dishes.
- g) Adapt and refine recipes by adding or substituting one or more ingredients to change the appearance, taste, texture and aroma.
- h) Alter methods, cooking times and/or temperatures.
- i) Measure accurately and calculate ratios of ingredients to scale up or down from a recipe.
- j) Design a simple recipe to a design brief taking account of common allergies and intolerances independently follow a recipe.

Making and Producing – Electrical systems

LKS2 **KS2 Design and Technology National Curriculum**

- Children understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- Children can apply their understanding of computing to program, monitor and control their products.

Children can, by the end of Year 4, meet the following statements in this concept area:

- a) Connect a simple series circuit, including a switch and a lightbulb, identifying its main parts.
- b) Begin to identify possible faults if a circuit does not work, and suggest reasons why.
- c) Identify whether or not a bulb will light in a simple series circuit, based on whether or not the bulb is part of a complete loop with a battery, and whether or not a switch is open or closed.
- d) Use computer programs, with adult support, to program, monitor and control a product.

UKS2 **KS2 Design and Technology National Curriculum**

- Children understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- Children can apply their understanding of computing to program, monitor and control their products.

Children can, by the end of Year 6, meet the following statements in this concept area:

- a) Connect a circuit system, including a switch and a motor/buzzer/lightbulb.
- b) Debug issues with the circuit, identifying where there could be faults.
- c) Understand and explain why particular power sources or circuits have been used, including using the terms voltage and the impact of this on the circuit's components.
- d) Explain the effect different power source sizes or number of bulbs have on a circuit and bulb brightness.
- e) Use computer programs accurately and confidently to program, monitor and control a product.

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Curriculum Milestones: Design and Technology



Evaluating	
KS1	<p>KS1 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children can evaluate their ideas and products against design criteria. <p>Children can, by the end of Year 2, meet the following statements in this concept area:</p> <ol style="list-style-type: none"> As they work, start to identify strengths and possible changes they might make to refine their existing design and explain these, in simple terms, to an adult at the time. Evaluate their products and ideas against their simple design criteria. Start to understand that the iterative process sometimes involves repeating different stages of the process.
LKS2	<p>KS2 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children can evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. <p>Children can, by the end of Year 4, meet the following statements in this concept area:</p> <ol style="list-style-type: none"> Consider their design criteria as they make progress and are willing to alter their plans, sometimes considering the views of others if this helps them to improve their product. Re-evaluate their initial plans and make simple annotations to explain what did or did not work. Evaluate their product against their original design criteria, assessing overall and specific successes. Give and receive feedback from others, making changes as necessary and reflecting on that feedback.
UKS2	<p>KS2 Design and Technology National Curriculum</p> <ul style="list-style-type: none"> Children can evaluate their ideas and products against their own design criteria and consider the views of others to improve their work. <p>Children can, by the end of Year 6, meet the following statements in this concept area:</p> <ol style="list-style-type: none"> Complete competitor analysis of other products on the market. Critically evaluate the quality of design, manufacture and fitness for purpose of products as they design and make. Evaluate their ideas and products against the original design criteria, making changes as needed. Outline the changes they would make to improve a product the next time, giving specific examples not just of what they would improve, but how and why. Consider the effectiveness of the product against others' products and well-known products already in existence. Give and receive feedback from others, making changes as necessary and reflecting on that feedback.