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| | Design and Technology<br>Progression of Skills |

The EYFS framework is structured very differently to the national curriculum as it is organised across seven areas of learning rather than subject areas. The aim of this document is to help subject leaders to understand how the skills taught across EYFS feed into national curriculum subjects. This document demonstrates which statements from the 2020 Development Matters are prerequisite skills for DT within the national curriculum. The table below outlines the most relevant statements taken from the Early Learning Goals in the EYFS statutory framework and the Development Matters age ranges for Three and Four-Year-Olds and Reception to match the programme of study for DT.

The most relevant statements for DT are taken from the following areas of learning:

- Physical Development
- Expressive Arts and Design

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| Three and Four-Year-Olds | Personal, Social and Emotional Development | • 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. |
| | Physical Development | • Use large-muscle movements to wave flags and streamers, paint and make marks.<br>• Choose the right resources to carry out their own plan.<br>• Use one-handed tools and equipment, for example, making snips in paper with scissors. |
| | Understanding the World | • Explore how things work. |
| | Expressive Arts and Design | • Make imaginative and complex 'small worlds' with blocks and construction kits, such as a city with different buildings and a park.<br>• Explore different materials freely, in order to develop their ideas about how to use them and what to make.<br>• Develop their own ideas and then decide which materials to use to express them.<br>• Create closed shapes with continuous lines and begin to use these shapes to represent objects. |
| Reception | Physical Development | • Progress towards a more fluent style of moving, with developing control and grace.<br>• Develop their small motor skills so that they can use a range of tools competently, safely and confidently.<br>• Use their core muscle strength to achieve a good posture when sitting at a table or sitting on the floor. |
| | Expressive Arts and Design | • Explore, use and refine a variety of artistic effects to express their ideas and feelings.<br>• Return to and build on their previous learning, refining ideas and developing their ability to represent them.<br>• Create collaboratively, sharing ideas, resources and skills. |

Year 1- 6

National Curriculum aims:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world
- build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users
- critique, evaluate and test their ideas and products and the work of others
- understand and apply the principles of nutrition and learn how to cook.

Key Stage 1 – Design and Technology

National Curriculum subject content KS1:

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.

Cooking and Nutrition

- use the basic principles of a healthy and varied diet to prepare dishes
- understand where food comes from.

| Structures | | |
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| Year 1 and 2 | Year A – Constructing a Windmill | Year B – Baby bear's chair |
| Design | • Learning the importance of a clear design criteria<br>• Including individual preferences and requirements in a design | • Generating and communicating ideas using sketching and modelling |
| Make | • 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 | • Making a structure according to design criteria<br>• Creating joints and structures from paper/card and tape<br>• Building a strong and stiff structure by folding paper |

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| Evaluate | • Evaluating a windmill according to the design criteria, testing whether the structure is strong and stable and altering it if it isn't<br>• Suggest points for improvements | | • Exploring the features of structures<br>• Comparing the stability of different shapes<br>• Testing the strength of own structures<br>• Identifying the weakest part of a structure<br>• Evaluating the strength, stiffness and stability of own structure | |
| Mechanisms/Mechanical Systems | | | | |
| Year 1 and 2 | Year A | | Year B | |
| | Making a moving story book | Wheels and axles | Making a moving monster | Fairground wheel |
| Design | • Explaining how to adapt mechanisms, using bridges or guides to control the movement<br>• Designing a moving story book for a given audience | • 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 | • Creating a class design criteria for a moving monster<br>• Designing a moving monster for a specific audience in accordance with a design criteria | • Selecting a suitable linkage system to produce the desired motions<br>• Designing a wheel<br>• Selecting appropriate materials based on their properties |
| Make | • Following a design to create moving models that use levers and sliders | • Adapting mechanisms | • Making linkages using card for levers and split pins for pivots<br>• Experimenting with linkages adjusting the widths, lengths and thicknesses of card used<br>• Cutting and assembling components neatly | • Selecting materials according to their characteristics<br>• Following a design brief |
| Evaluate | • Testing a finished product, seeing whether it moves as planned and if not, explaining why and how it can be fixed | • Testing mechanisms, identifying what stops wheels from turning, knowing that a wheel needs an axle in order to move | • Evaluating own designs against design criteria<br>• Using peer feedback to modify a final design | • Evaluating different designs<br>• Testing and adapting a design |
| Cooking and Nutrition | | | | |
| Year 1 and 2 | Year A – Fruits and vegetables | | Year B – A balanced diet | |
| Design | • Designing smoothie carton packaging by-hand or on ICT software | | • Designing a healthy wrap based on a food combination which work well together | |
| Make | • 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 | | • Slicing food safely using the bridge or claw grip<br>• Constructing a wrap that meets a design brief | |
| Evaluate | • Tasting and evaluating different food combinations<br>• Describing appearance, smell and taste | | • Describing the taste, texture and smell of fruit and vegetables<br>• Taste testing food combinations and final products | |

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| | • Suggesting information to be included on packaging | • Describing the information that should be included on a label<br>• Evaluating which grip was most effective |
| Textiles | | |
| Year 1 and 2 | Year A – Puppets | Year B – Pouches |
| Design | • Using a template to create a design for a puppet | • Designing a pouch |
| Make | • Cutting fabric neatly with scissors<br>• Using joining methods to decorate a puppet<br>• Sequencing steps for construction | • Selecting and cutting fabrics for sewing<br>• Decorating a pouch using fabric glue or running stitch<br>• Threading a needle<br>• Sewing running stitch, with evenly spaced, neat, even stitches to join fabric<br>• Neatly pinning and cutting fabric using a template |
| Evaluate | • Reflecting on a finished product, explaining likes and dislikes | • Troubleshooting scenarios posed by teacher<br>• Evaluating the quality of the stitching on others' work<br>• Discussing as a class, the success of their stitching against the success criteria<br>• Identifying aspects of their peers' work that they particularly like and why |

Key Stage 2 – Design and Technology

National Curriculum subject content KS2:

Design

- 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
- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

- select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately
- 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

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work
- understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

- apply their understanding of how to strengthen, stiffen and reinforce more complex structures
- understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]
- apply their understanding of computing to program, monitor and control their products.

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| Cooking and Nutrition<br>• understand and apply the principles of a healthy and varied diet<br>• prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques<br>• understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed | | |
| Lower Key Stage 2 | | |
| Structures | | |
| Year 3 and 4 | Year A – Constructing a castle | Year B – Pavilions |
| Design | • Designing a castle with key features to appeal to a specific person/purpose<br>• Drawing and labelling a castle design using 2D shapes, labelling: -the 3D shapes that will create the features - materials needed and colours<br>• Designing and/or decorating a castle tower on CAD software | • Designing a stable pavilion structure that is aesthetically pleasing and selecting materials to create a desired effect<br>• Building frame structures designed to support weight |
| Make | • Constructing a range of 3D geometric shapes using nets<br>• Creating special features for individual designs<br>• Making facades from a range of recycled materials | • Creating a range of different shaped frame structures<br>• Making a variety of free-standing frame structures of different shapes and sizes<br>• Selecting appropriate materials to build a strong structure and for the cladding<br>• Reinforcing corners to strengthen a structure<br>• Creating a design in accordance with a plan<br>• Learning to create different textural effects with materials |
| Evaluate | • Evaluating own work and the work of others based on the aesthetic of the finished product and in comparison, to the original design<br>• Suggesting points for modification of the individual designs | • Evaluating structures made by the class<br>• Describing what characteristics of a design and construction made it the most effective<br>• Considering effective and ineffective designs |
| Mechanisms/Mechanical systems | | |
| Year 3 and 4 | Year A – Pneumatic toys | Year B – Making a slingshot car |
| Design | • Designing a toy which uses a pneumatic system<br>• Developing design criteria from a design brief<br>• Generating ideas using thumbnail sketches and exploded diagrams<br>• Learning that different types of drawings are used in design to explain ideas clearly | • Designing a shape that reduces air resistance<br>• Drawing a net to create a structure from<br>• Choosing shapes that increase or decrease speed as a result of air resistance<br>• Personalising a design |
| Make | • Creating a pneumatic system to create a desired motion<br>• Building secure housing for a pneumatic system<br>• Using syringes and balloons to create different types of pneumatic systems<br>to make a functional and appealing pneumatic toy<br>• Selecting materials due to their functional and aesthetic characteristics | • Measuring, marking, cutting and assembling with increasing accuracy<br>• Making a model based on a chosen design |

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| | • Manipulating materials to create different effects by cutting, creasing, folding, weaving | |
| Evaluate | • Using the views of others to improve designs<br>• Testing and modifying the outcome, suggesting improvements<br>• Understanding the purpose of exploded diagrams through the eyes of a designer and their client | • Evaluating the speed of a final product based on the effect of shape on speed and the accuracy of workmanship on performance |
| Electrical systems | | |
| Year 3 and 4 | Year A – Electric Poster | Year B – Torches |
| Design | • Carry out research based on a given topic (e.g. The Romans) to develop a range of initial ideas<br>• Generate a final design for the electric poster with consideration to the client's needs and design criteria<br>• Design an electric poster that fits the requirements of a given brief<br>• Plan the positioning of the bulb (circuit component) and its purpose | • Designing a torch, considering the target audience and creating both design and success criteria focusing on features of individual design ideas |
| Make | • Create a final design for the electric poster<br>• Mount the poster onto corrugated card to improve its strength and withstand the weight of the circuit on the rear<br>• Measure and mark materials out using a template or ruler<br>• Fit an electrical component (bulb)<br>• Learn ways to give the final product a higher quality finish (e.g., framing to conceal a roughly cut edge) | • Making a torch with a working electrical circuit and switch<br>• Using appropriate equipment to cut and attach materials<br>• Assembling a torch according to the design and success criteria |
| Evaluate | • Learning to give and accept constructive criticism on own work and the work of others<br>• Testing the success of initial ideas against the design criteria and justifying opinions<br>• Revisiting the requirements of the client to review developing design ideas and check that they fulfil their needs | • Evaluating electrical products<br>• Testing and evaluating the success of a final product |
| Cooking and Nutrition | | |
| Year 3 and 4 | Year A – Eating seasonally | Year B – Adapting a recipe |
| Design | • Creating a healthy and nutritious recipe for a savoury tart using seasonal ingredients, considering the taste, texture, smell and appearance of the dish | • Designing a biscuit within a given budget, drawing upon previous taste testing |
| Make | • Knowing how to prepare themselves and a workspace to cook safely in, learning the basic rules to avoid food contamination<br>• Following the instructions within a recipe | • Following a baking recipe<br>• Cooking safely, following basic hygiene rules<br>• Adapting a recipe |
| Evaluate | • Establishing and using design criteria to help test and review dishes | • Evaluating a recipe, considering taste, smell, texture and appearance |

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| | • Describing the benefits of seasonal fruits and vegetables and the impact on the environment<br>• Suggesting points for improvement when making a seasonal tart | • Describing the impact of the budget on the selection of ingredients<br>• Evaluating and comparing a range of products<br>• Suggesting modifications |
| | Textiles | |
| Year 3 and 4 | Year A – Cross-stitch and appliqué (Egyptian collars) | Year B - Fastenings |
| Design | • Designing and making a template and applying individual design criteria | • Writing design criteria for a product, articulating decisions made<br>• Designing a personalised book sleeve |
| Make | • Following design criteria to create a cushion or Egyptian collar<br>• Selecting and cutting fabrics with ease using fabric scissors<br>• Threading needles with greater independence<br>• Tying knots with greater independence<br>• Sewing cross stitch to join fabric<br>• Decorating fabric using appliqué<br>• Completing design ideas with embellishing the collars based on design ideas | • Making and testing a paper template with accuracy and in keeping with the design criteria<br>• Measuring, marking and cutting fabric using a paper template<br>• Selecting a stitch style to join fabric, working neatly sewing small, neat stitches<br>• Incorporating fastening to a design |
| Evaluate | • Evaluating an end product and thinking of other ways in which to create similar items | • Testing and evaluating an end product against the original design criteria<br>• Deciding how many of the criteria should be met for the product to be considered successful<br>• Suggesting modifications for improvement<br>• Articulating the advantages and disadvantages of different fastening types |
| | Digital World | |
| Year 3 and 4 | Year A – Electronic charm | Year B – Mindful moments timer |
| Design | • Problem solving by suggesting potential features on a Micro: bit and justifying my ideas<br>• Developing design ideas for a technology pouch<br>• Drawing and manipulating 2D shapes, using computer-aided design, to produce a point-of-sale badge | • Writing design criteria for a programmed timer (Micro:bit)<br>• Exploring different mindfulness strategies<br>• Applying the results of my research to further inform my design criteria<br>• Developing a prototype case for my mindful moment timer<br>• Using and manipulating shapes and clipart, using computer-aided design (CAD), to produce a logo<br>• Following a list of design requirements |
| Make | • Using a template when cutting and assembling the pouch<br>• Following a list of design requirements<br>• Selecting and using the appropriate tools and equipment for cutting, joining, shaping and decorating a foam pouch<br>• Applying functional features such as using foam to create soft buttons | • Developing a prototype case for my mindful moment timer<br>• Creating a 3D structure using a net<br>• Programming a micro:bit in the Microsoft micro:bit editor, to time a set number of<br>seconds/minutes upon button press |

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| Evaluate | • Analysing and evaluating an existing product<br>• Identifying the key features of a pouch | • Investigating and analysing a range of timers by identifying and comparing their advantages and disadvantages<br>• Evaluating my micro:bit program against points on my design criteria and amending them to include any changes I made<br>• Documenting and evaluating my project<br>• Understanding what a logo is and why they are important in the world of design and business<br>• Testing my program for bugs (errors in the code)<br>• Finding and fixing the bugs (debug) in my code |

| Upper Key Stage 2 | | |
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| Structures | | |
| Year 5 and 6 | Year A – Bridges | Year B – Playgrounds |
| Design | • Designing a stable structure that is able to support weight<br>• Creating frame structure with focus on triangulation | • Designing a playground featuring a variety of different structures, giving careful consideration to how the structures will be used, considering effective and ineffective designs |
| Make | • Making a range of different shaped beam bridges<br>• Using triangles to create truss bridges that span a given distance and supports a load<br>• Building a wooden bridge structure<br>• Independently measuring and marking wood accurately<br>• Selecting appropriate tools and equipment for particular tasks<br>• Using the correct techniques to saws safely<br>• Identifying where a structure needs reinforcement and using card corners for support<br>• Explaining why selecting appropriating materials is an important part of the design process<br>• Understanding basic wood functional properties | • Building a range of play apparatus structures drawing upon new and prior knowledge of structures<br>• Measuring, marking and cutting wood to create a range of structures<br>• Using a range of materials to reinforce and add decoration to structures |
| Evaluate | • Adapting and improving own bridge structure by identifying points of weakness and reinforcing them as necessary<br>• Suggesting points for improvements for own bridges and those designed by others | • Improving a design plan based on peer evaluation<br>• Testing and adapting a design to improve it as it is developed<br>• Identifying what makes a successful structure |
| Mechanisms/Mechanical systems | | |
| Year 5 and 6 | Year A – Making a pop-up book | Year B – Automata toys |
| Design | • Designing a pop-up book which uses a mixture of structures and mechanisms<br>• Naming each mechanism, input and output accurately | •Experimenting with a range of cams, creating a design for an automata toy based<br>on a choice of cam to create a desired movement |

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| | • Storyboarding ideas for a book | • Understanding how linkages change the direction of a force<br>• Making things move at the same time<br>• Understanding and drawing cross-sectional diagrams to show the inner-working |
| Make | • Following a design brief to make a pop up book, neatly and with focus on accuracy<br>• Making mechanisms and/or structures using sliders, pivots and folds to produce movement<br>• Using layers and spacers to hide the workings of mechanical parts for an aesthetically pleasing result | • Measuring, marking and checking the accuracy of the jelutong and dowel pieces required<br>• Measuring, marking and cutting components accurately using a ruler and scissors<br>• Assembling components accurately to make a stable frame<br>• Understanding that for the frame to function effectively the components must be cut accurately and the joints of the frame secured at right angles<br>• Selecting appropriate materials based on the materials being joined and the speed at which the glue needs to dry/set |
| Evaluate | • Evaluating the work of others and receiving feedback on own work<br>• Suggesting points for improvement | • Evaluating the work of others and receiving feedback on own work<br>• Applying points of improvements<br>• Describing changes they would make/do if they were to do the project again |
| Electrical systems | | |
| Year 5 and 6 | Year A – Doodlers | Year B – Steady hand game |
| Design | • Identifying factors that could be changed on existing products and explaining how these would alter the form and function of the product<br>• Developing design criteria based on finding from investigating existing products<br>• Developing design criteria that clarifies the target user | • Designing a steady hand game - identifying and naming the components required<br>• Drawing a design from three different perspectives<br>• Generating ideas through sketching and discussion<br>• Modelling ideas through prototypes<br>• Understanding the purpose of products (toys), including what is meant by ‘fit for purpose’ and ‘form over function’ |
| Make | • Altering a product’s form and function by tinkering with its configuration.<br>• Making a functional series circuit, incorporating a motor<br>• Constructing a product with consideration for the design criteria<br>• Breaking down the construction process into steps so that others can make the product | • Constructing a stable base for a game<br>• Accurately cutting, folding and assembling a net<br>• Decorating the base of the game to a high quality finish<br>• Making and testing a circuit Incorporating a circuit into a base |
| Evaluate | • Carry out a product analysis to look at the purpose of a product along with its strengths and weaknesses<br>• Determining which parts of a product affect its function and which parts affect its form | • Testing own and others finished games, identifying what went well and making suggestions for improvement<br>• Gathering images and information about existing children’s toys<br>• Analysing a selection of existing children’s toys |

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| | • Analysing whether changes in configuration positively or negatively affect an existing product<br>• Peer evaluating a set of instructions to build a product | |
| Cooking and Nutrition | | |
| Year 5 and 6 | Year A – What could be healthier? | Year B – Come dine with me |
| Design | • Adapting a traditional recipe, understanding that the nutritional value of a recipe alters if you remove, substitute or add additional ingredients<br>• Writing an amended method for a recipe to incorporate the relevant changes to ingredients<br>• Designing appealing packaging to reflect a recipe | • Writing a recipe, explaining the key steps, method and ingredients<br>• Including facts and drawings from research undertaken |
| Make | • Cutting and preparing vegetables safely<br>• Using equipment safely, including knives, hot pans and hobs<br>• Knowing how to avoid cross-contamination<br>• Following a step-by-step method carefully to make a recipe | • Following a recipe, including using the correct quantities of each ingredient<br>• Adapting a recipe based on research<br>• Working to a given timescale<br>• Working safely and hygienically with independence |
| Evaluate | • Identifying the nutritional differences between different products and recipes<br>• Identifying and describing healthy benefits of food groups | • Evaluating a recipe, considering taste, smell, texture and origin of the food group<br>• Taste testing and scoring final products<br>• Suggesting and writing up points of improvements in productions<br>• Evaluating health and safety in production to minimise cross contamination |
| Textiles | | |
| Year 5 and 6 | Year A – Stuffed toys | Year B - Waistcoats |
| Design | • Designing a stuffed toy considering the main component shapes required and creating an appropriate template<br>• Considering the proportions of individual components | • Designing a waistcoat in accordance to specification linked to set of design criteria to fit a specific theme<br>• Annotating designs |
| Make | • Creating a 3D stuffed toy from a 2D design<br>• Measuring, marking and cutting fabric accurately and independently<br>• Creating strong and secure blanket stitches when joining fabric<br>• Threading needles independently<br>• Using applique to attach pieces of fabric decoration<br>• Sewing blanket stitch to join fabric<br>• Applying blanket stitch so the space between the stitches are even and regular | • Using a template when pinning panels onto fabric<br>• Marking and cutting fabric accurately, in accordance with a design<br>• Sewing a strong running stitch, making small, neat stitches and following the edge<br>• Tying strong knots<br>• Decorating a waistcoat -attaching objects using thread and adding a secure fastening<br>• Learning different decorative stitches<br>• Sewing accurately with even regularity of stitches |
| Evaluate | • Testing and evaluating an end product and giving point for further improvements | • Evaluating work continually as it is created |

| Digital World | | |
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| Year 5 and 6 | Year A – Monitoring devices | Year B – Navigating the world |
| Design | • Researching (books, internet) for a particular (user's) animal's needs<br>• Developing design criteria based on research<br>• Generating multiple housing ideas using building bricks<br>• Understanding what a virtual model is and the pros and cons of traditional and CAD modelling<br>• Placing and manoeuvring 3D objects, using CAD<br>• Changing the properties of, or combine one or more 3D objects, using CAD | • Writing a design brief from information submitted by a client<br>• Developing design criteria to fulfil the client's request<br>• Considering and suggesting additional functions for my navigation tool<br>• Developing a product idea through annotated sketches<br>• Placing and manoeuvring 3D objects, using CAD<br>• Changing the properties of, or combine one or more 3D objects, using CAD |
| Make | • Understanding the functional and aesthetic properties of plastics<br>• Programming to monitor the ambient temperature and coding an (audible or visual) alert when the temperature rises above or falls below a specified range | • Considering materials and their functional properties, especially those that are sustainable and recyclable (for example, cork and bamboo)<br>• Explaining material choices and why they were chosen as part of a product concept<br>• Programming an N,E, S,W cardinal compass |
| Evaluate | • Stating an event or fact from the last 100 years of plastic history<br>• Explaining how plastic is affecting planet Earth and suggesting ways to make more sustainable choices<br>• Explaining key functions in my program (audible alert, visuals)<br>• Explaining how my product would be useful for an animal carer including programmed features | • Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool<br>• Developing an awareness of sustainable design<br>• Identifying key industries that utilise 3D CAD modelling and explain why<br>• Describing how the product concept fits the client's request and how it will benefit the customers<br>• Explaining the key functions in my program, including any additions<br>• Explaining how my program fits the design criteria and how it would be useful as part of a navigation tool<br>• Explaining the key functions and features of my navigation tool to the client as part of a product concept pitch<br>• Demonstrating a functional program as part of a product concept |