|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Design Technology**  **Skills Document** | | | | | | | | |
|  | **EYFS** | **Year 1** | **Year 2** | **Year 3** | **Year 4** | **Year 5** | **Year 6** |
| **Food** |  | Describe fruits and vegetables and explain why they are a fruit or a vegetable.  Name a range of places that fruits and vegetables grow.  Describe basic characteristics of fruit and vegetables.  Know how to prepare fruits and vegetables to make a smoothie.  Know the importance of food hygiene. | Name the main food groups.  Identify foods that belong to each group.  Describe the taste, texture and smell of a given food.  Think of four different wrap ideas, considering flavour combinations.  Construct a wrap that meets the design brief and their plan. | Explain that fruits and vegetables grow in different countries based on their climates.  Know that eating seasonal fruit and vegetables has a positive effect on the environment.  Design their own tart recipe using seasonal ingredients.  To understand the basic rules of food hygiene and safety.  Follow the instructions within a recipe. | Follow a recipe, with some support.  Describe some of the features of a biscuit based on taste, smell, texture and appearance.  Adapt a recipe by adding extra ingredients to it.  Plan a biscuit recipe within a budget.  Know the importance of food hygiene. | Understand how beef gets from the farm to our plates.  Notice the nutritional differences between different products and recipes.  Recognise nutritional differences between two similar recipes and give some justification as to why this is.  Follow a recipe to produce a healthy Bolognese sauce.  Design packaging that promotes the ingredients of the Bolognese. | Find a suitable recipe for their course.  Record the relevant ingredients and equipment needed.  Follow a recipe, including using the correct quantities of each ingredient.  Write a recipe, explaining the process taken.  Explain where certain key foods come from before they appear on the supermarket shelf. |
| **Mechanisms** |  | Identify whether a mechanism is a side-to-side slider or an up-and-down slider and determine what movement the mechanism will make.  Clearly label drawings to show which parts of their design will move and in which direction.  Make a picture, which meets the design criteria, with parts that move purposefully as planned.  Evaluate the main strengths of their design and suggest alterations.  Evaluate the main weaknesses of their design and suggest alterations.  Explain that wheels move because they are attached to an axle.  Recognise that wheels and axles are used in everyday life, not just in cars.  Design a vehicle that includes functioning wheels, axles and axle holders.  Make a moving vehicle with working wheels and axles.  Explain what must be changed if there are any operational issues. | Design and label a wheel.  Consider the designs of others, materials, shape, construction and mechanisms of their wheel.  Build a stable structure with a rotating wheel.  Test and adapt their designs as necessary.  Follow a design plan to make a completed model of the wheel.  Create functional linkages that produce the desired input and output motions.  Design monsters suitable for children, which satisfy most of the design criteria.  Evaluate their two designs against the design criteria, using this information and the feedback of their peers to choose their best design.  Select and assemble materials to create their planned monster features.  Assemble the monster to their linkages without affecting their functionality. | Draw accurate diagrams with correct labels, arrows and explanations.  Communicate and develop one idea using an exploded diagram.  Select appropriate equipment and materials to build a working pneumatic system.  Assemble their pneumatic system within the housing to create the desired motion.  Create a finished pneumatic toy that fulfils the design brief. | Work independently to produce an accurate, functioning car chassis.  Attempt to reduce air resistance through the design of the shape.  Produce panels that will fit the chassis and can be assembled effectively using the tabs they have designed.  Construct car bodies effectively.  Conduct a trial accurately and draw conclusions and improvements from the results. | Recognise that supporting shapes can help increase the strength of a bridge, allowing it to hold more weight.  Identify beam, arch and truss bridges and describe their differences.  Use triangles to create simple truss bridges that support a load (weight).  Complete a bridge, with varying ranges of accuracy and finish, supported by the teacher.  Identify some areas for improvement, reinforcing their bridges as necessary. | Mark, saw and cut out the components and supports of their toy with a varying degree of accuracy to the intended measurements.  Explore different cam profiles and choose three for their follower toppers with an explanation of their choices.  Measure and cut panels that fit with some inaccuracies to conceal the inner workings of the automata.  Decorate and finish the automata to meet the design criteria and brief.  Evaluate their finished product, making descriptive and reflective points on function and form. |
| **Structures** |  | Identify some features that would appeal to the client (a mouse) and create a suitable design.  Explain how their design appeals to the mouse.  Make stable structures, which will eventually support the turbine, out of card, tape and glue.  Make functioning turbines and axles that are assembled into the main supporting structure.  Say what is good about their windmill and what they could do better. | Identify man-made and natural structures.  Identify stable and unstable structural shapes.  Work independently to make a stable structure, following a demonstration.  Produce a model that supports a teddy, using the appropriate materials and construction techniques.  Explain how they made their model strong, stiff and stable. | Draw and label a simple castle that includes the most common features.  Recognise that a castle is made up of multiple 3D shapes.  Design a castle with key features which satisfy a given purpose.  Utilise skills to build a complex structure from simple geometric shapes.  Evaluate their learning by answering simple questions. | Produce a range of free-standing frame structures of different shapes and sizes.  Design a pavilion that is strong, stable and aesthetically pleasing.  Select appropriate materials and construction techniques to create a stable, free-standing frame structure.  Select appropriate materials and techniques to add cladding to their pavilion.  Conduct a trial accurately and draw conclusions and improvements from the results. | Recognise that supporting shapes can help increase the strength of a bridge, allowing it to hold more weight.  Identify beam, arch and truss bridges and describe their differences.  Use triangles to create simple truss bridges that support a load (weight).  Complete a bridge, with varying ranges of accuracy and finish, supported by the teacher.  Identify some areas for improvement, reinforcing their bridges as necessary. | Create five apparatus designs, applying the design criteria to their learning.  Make suitable changes to their learning after peer evaluation.  Complete their structures, improving the quality of their rough versions and applying some cladding to a few areas.  Secure their apparatus to a base.  Make a range of landscape features using a variety of materials which will enhance their apparatus. |