Long Term Plan for Design and Technology

Havannah First Design and Technology Topic Coverage

	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2
R	**Magnificent Me!** **Our World**	**Let's celebrate!**	**Winter and the Polar Regions**	**People who help us!**	**Marvellous Minibeasts**	**Traditional Tales** **Seaside** **Pirates**

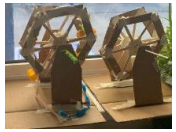
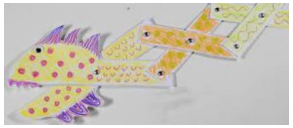
Design and Technology in the Early years:

Across these topic children will be provided with opportunities to create models using **junk modelling**:

Examples of objectives: Explore and investigate tools, cutting different materials, selecting the correct resources and verbally plan and create a junk model.

Children will also be provided with the opportunities to be to explore **food and cooking**:

Examples of objectives: Explore fruits and vegetables and the differences between them, to explore a pumpkin using their 5 senses and to safely use tools to prepare ingredients.

Y1	**Aut 2** **Food: Fruit and Vegetables (4 lessons)**  Unit outcomes: 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. Prepare fruits and vegetables to make a smoothie.	**Aut 2** **Structures: Constructing Windmills (3 lessons)**  Unit outcomes: 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.	**Spr 2** **Mechanisms: Moving Story Book (4 lessons)**  Unit outcomes: 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.	**Sum 2** **Mechanisms: Wheels and axels (4 lessons)**  Unit outcomes: 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. Identify and explain vehicle design flaws using the correct vocabulary. Design a vehicle that includes functioning wheels, axles and axle holders.	**Sum 2** **Textiles: Puppets (3-4 lessons)**  Unit outcomes: Join fabrics together using pins, staples or glue. Design a puppet and use a template. Join their two puppets' faces together as one. Decorate a puppet to match their design.
Y2	**Aut 2** **Mechanisms: Fairground wheel (4 lessons)**  Unit outcomes: Design and label a wheel. Consider the designs of others and make	**Aut 2** **Food: A balanced diet (4 lessons)**  Unit outcomes: Name the main food groups and identify foods that belong to each group.	**Spr 2** **Structures: Baby bear's chair (4 lessons)**  Unit outcomes: Identify man-made and natural structures. Identify stable and unstable structural shapes.	**Sum 2** **Textiles: Pouches (3 lessons)**  Unit outcomes: Sew a running stitch with regular-sized stitches and understand that both ends must be knotted.	**Sum 2** **Mechanisms: Moving monster (4 lessons)**  Unit outcomes: Identify the correct terms for levers, linkages and pivots. Analyse popular toys with the correct terminology.

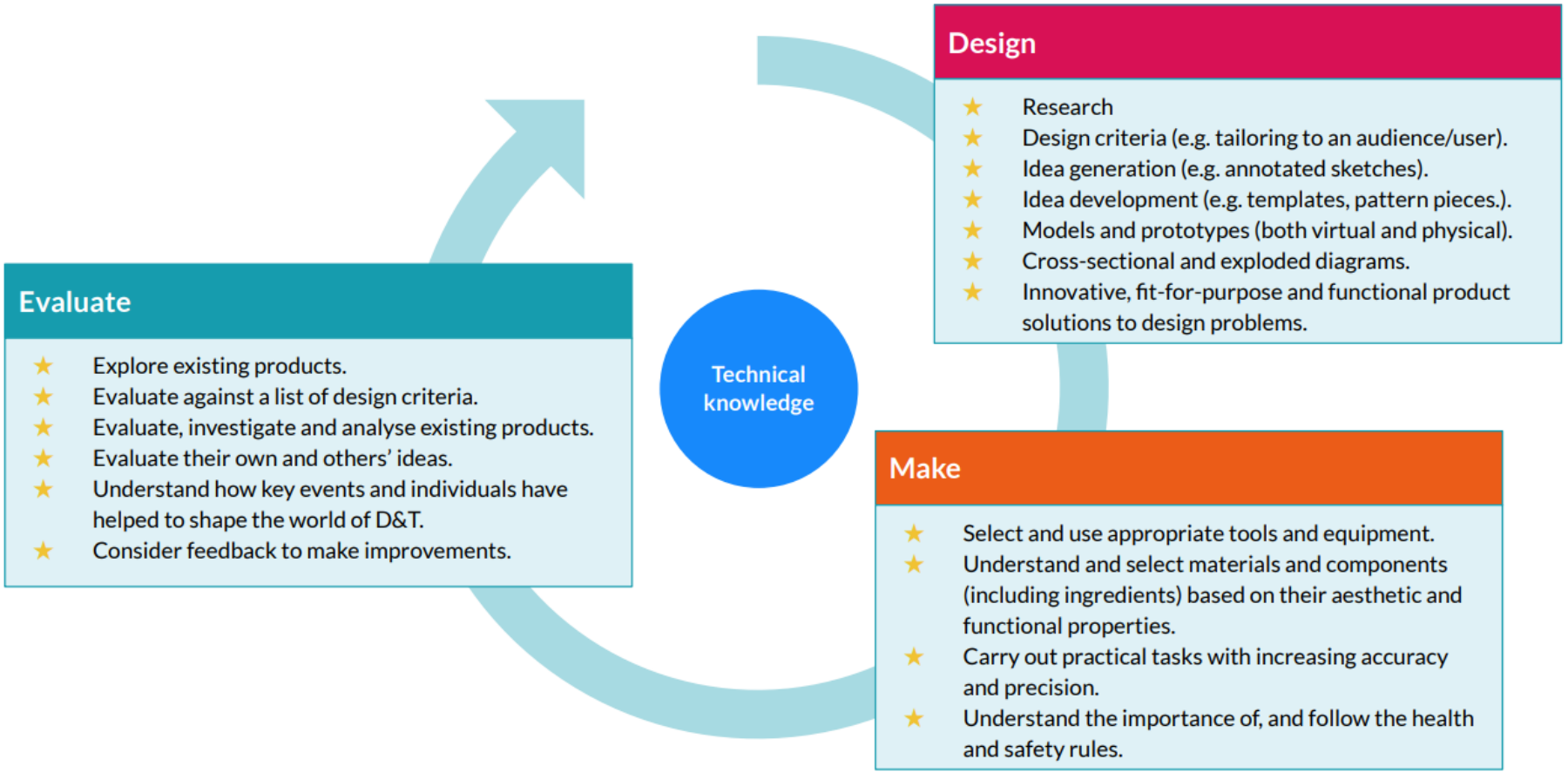
	comments about their practicality or appeal. Consider the materials, shape, construction and mechanisms of their wheel. Label their designs. Build a stable structure with a rotating wheel. Test and adapt their designs as necessary.	Describe the taste, texture and smell of a given food. Think of four different wrap ideas, considering flavour combinations. Construct a wrap that meets the design brief and their plan.	Contribute to discussions. Identify features that make a chair stable. Work independently to make a stable structure, following a demonstration. Explain how their ideas would be suitable for Baby Bear. Produce a model that supports a teddy, using the appropriate materials and construction techniques. Explain how they made their model strong, stiff and stable.	Prepare and cut fabric to make a pouch from a template. Use a running stitch to join the two pieces of fabric together. Decorate their pouch using the materials provided.	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.
Y3	**Aut 2** **Textiles: Cross stich and applique: Cushions (4 lessons)**  Unit outcomes: Use a cross-stitch to join two pieces of fabric together. Design and cut the template for a cushion. Use cross-stitch and appliqué to decorate a cushion face. Make a cushion that includes appliqué and cross-stitch.	**Aut 2** **Structures: Constructing a castle (3 lessons)**  Unit outcomes: 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. Score or cut along lines on the net of a 2D shape. Use glue to securely assemble geometric shapes.	**Spr 2** **Food: Eating seasonally (4 lessons)**  Unit outcomes: Explain that fruits and vegetables grow in different countries based on their climates. Understand that 'seasonal' fruits and vegetables are those that grow in a given season and taste best then. Know that eating seasonal fruit and vegetables has a positive effect on the environment. Design their own tart recipe using seasonal ingredients. Understand the basic rules of food hygiene and safety. Follow the instructions within a recipe.	**Sum 2** **Digital world: Electronic charm (4 lessons)**  Unit outcomes: Give a brief explanation of the digital revolution and/or remember key examples. Suggest a feature from the Micro:bit that is suitable for an eCharm. Write a program that initiates a flashing LED panel, or another pattern, on the Micro:bit when a button is pressed. Identify errors, if testing is unsuccessful, by comparing their code to a correct example.	**Sum 2** **Mechanical systems: Pneumatic toys (3 lessons)**  Unit outcomes: Draw accurate diagrams with correct labels, arrows and explanations. Correctly identify definitions for key terms. Identify five appropriate design criteria. Communicate two ideas using thumbnail sketches. Communicate and develop one idea using an exploded diagram. Select appropriate equipment and materials to

		Utilise skills to build a complex structure from simple geometric shapes. Evaluate their work by answering simple questions.		Explain the basic functionality of their finished program. Suggest key features for a pouch, with some consideration for the overall theme and the user. Use a template when cutting and assembling a pouch, with some support. Describe what is meant by 'point of sale display' with an example. Follow basic design requirements using computer-aided design, drawing at least one shape with a text box and bright colours, following a demonstration. Evaluate their design.	build a working pneumatic system. Assemble their pneumatic system within the housing to create the desired motion. Create a finished pneumatic toy that fulfills the design brief.
Y4	**Aut 2** **Mechanical systems: Making a sling shot car (4 lessons)**  Unit outcomes: Work independently to produce an accurate, functioning car chassis. Design a shape that is suitable for the project. Attempt to reduce air resistance through the design of the shape.	**Aut 2** **Textiles: Fastenings (3 lessons)**  Unit outcomes: Identify the features, benefits and disadvantages of a range of fastening types.	**Spr 2** **Structures: Pavilions (4 lessons)**  Unit outcomes: 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.	**Sum 2** **Food: Adapting a recipe (4 lessons)**  Unit outcomes: 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.	**Sum 2** **Electrical systems: Torches (3 lessons)**  Unit outcomes: Identify electrical products and explain why they are useful. Help to make a working switch. Identify the features of a torch and how it works.

	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.	Write design criteria and design a sleeve that satisfies the criteria. Make a template for their book sleeve. Assemble their case using any stitch they are comfortable with.	Select appropriate materials and techniques to add cladding to their pavilion.	Plan a biscuit recipe within a budget.	Describe what makes a torch successful. Create suitable designs that fit the success criteria and their own design criteria. Create a functioning torch with a switch according to their design criteria.

The Design Process

The Design and technology national curriculum outlines the three main stages of the design process: design, make and evaluate. Each Kapow Primary unit follows these stages, to form a full project. Each stage of the design process is underpinned by technical knowledge which encompasses the contextual, historical and technical understanding, required for each strand.



Cooking and nutrition* has a separate section in the D&T national curriculum, with additional focus on specific principles, skills and techniques in food, including where food comes from, diet and seasonality. Food units still follow the design process summarised above, for example by tasking the pupils to develop recipes for a specific set of requirements (design criteria) and to suggest methods of packaging the food product including the nutritional information.