Newquay Junior Academy - Autumn Sequence 1 – Design and Technology

	YEAR 3	YEAR 4	YEAR 5	YEAR 6
	Prior knowledge... • I associate a structure with a building. •I can measure, cut and attach materials with some accuracy. •Materials can be fixed to each other in different ways and can be temporary or permanent. •Decoration improves a products finish.	**Prior knowledge...** • 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. • Utilise skills to build a complex structure from simple geometric shapes. • Evaluate their work by answering simple questions.	**Prior knowledge...** Pupils can: 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. 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.	**Prior knowledge...** • Understand how beef gets from the farm to our plates. • Present a subject as a poster with clear information in an easy to read format. • Contribute ideas as to what a 'healthy meal' means. • 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. • Work as a team to amend a bolognese recipe with healthy adaptations. • Follow a recipe to produce a healthy bolognese sauce. • Design packaging that promotes the ingredients of the bolognese.
INTENT	Structures: Constructing a roundhouse To design and make a roundhouse	**Structure: Volcanoes** To design and make a stable volcano frame structure which is aesthetically pleasing.	**Electrical systems: Electronic pop-up card** To design and make a electrical Christmas card with a pop-up element.	**Food: Mince pies** Pupils will design and make a mince pie.
VOCABULARY / STICKY KNOWLEDGE	2D, 3D, Roundhouse, Design, Key features, Net, Scoring, Shape, Stable, Stiff, Strong, Structure	3D shapes, Design criteria, Innovative, Natural, Reinforce, Structure	Aesthetic, design, design brief, target audience electricity, buzzer, battery, cell, component, conductor, LED, switch, series circuit, pop-up	Consistency, crumb, pastry, chill, glazing, dusting, traditional, texture, aesthetics.
SEQUENCE OF LESSONS	**Lesson 1: Features of a roundhouse** To recognise how multiple shapes (2D and 3D) are combined to form a strong and stable structure. **Lesson 2: Designing a roundhouse** To design a roundhouse **Lesson 3: Nets and structures** To construct a roundhouse **Lesson 4: Building a roundhouse** To construct and evaluate my final product	**Lesson 1: Exploring frame structures** To create a range of different shaped volcano structures **Lesson 2: Designing a volcano** To design a volcano structure **Lesson 3: Making a volcano frame** To build a frame structure **Lesson 4: Reinforcing a volcano** To reinforce the structure using paper mâché	**Lesson 1: Design brief** To identify a target audience for a greetings card and write a short specification. To research a range of cards to inform design ideas. **Lesson 2: Design** To design an electrical greetings card with a pop-up element **Lesson 3: Making the circuit** To build an LED series circuit **Lesson 4: Making the card** To make a card design which includes an inside pop-up element.	**Lesson 1: Research** To research the origin of mince pies and to compare how the recipe and ingredients have changed over the years. **Lesson 2: Designing** To develop a simple design specification by deciding on user group, ingredients/ spices, decoration and what might accompany the mince pies. To generate design ideas through discussion and detailed annotated sketches. **Lesson 3: Making** **3. To** follow a set of instructions (recipe) independently one step at a time. To use the appropriate tools and equipment to measure, cut, roll and decorate accurately. **Lesson 4: Testing and Evaluating** 4.To carry out a peer taste test against the following criteria: texture, aesthetics, smell and taste. To evaluate their mince pies against their design specification.
OUTCOME / COMPOSITE	Pupils will have designed and made their own roundhouse using a range of materials	To have designed and made a stable volcano structure which is aesthetically pleasing.	Pupils will have designed and made an electrical pop-up greetings card to sell at the Christmas fayre	Pupils will make their own mince pies taking into consideration the old and new recipes. To gift as a present.

Newquay Junior Academy - Autumn Sequence 2 – Design and Technology

	YEAR 3	YEAR 4		
	Prior knowledge... Refer to Trenance Y2 D&T SOW	**Prior knowledge...** • 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.		
INTENT	Digital world: Electric charm Children design, code, make and promote a Micro:bit electronic charm to use in low-light conditions, developing their understanding of programming to monitor and control their products.	**Textiles: fastening** Children will design and make a textile case to hold an item of their choice to sell at the Christmas fayre.		
VOCABULARY / STICKY KNOWLEDGE	Control, Electronic, Function, Initiate, Programming loop, Monitor, Program, Sensor, Simulator, User	Criteria, Fabric, Fastening, Fix, Mock-up, Stitch, Template		
SEQUENCE OF LESSONS	**Lesson 1: Smart wearables** Children learn about product development during the digital revolution, when designs started to include electronic elements. Pupils explore wearable technology before discovering how a Micro:bit can be used to problem-solve a product design scenario. **Lesson 2: Programming an eCharm** Pupils write a program to initiate a flashing LED panel using the Micro:bit light sensing, as part of their eCharm. **Lesson 3: eCharm pouches** Children create and decorate a foam pouch for their eCharm, using a template. **Lesson 4: POS displays** Children design a display badge and/or stand using CAD (computer-aided design) software for their eCharm	**Lesson 1: Evaluating fastenings** To identify and evaluate different types of fastenings **Lesson 2: Designing my fabric case** To design a product to meet design criteria **Lesson 3: Making paper template and preparing fabric** To make and test a paper template **Lesson 4: Assembling my fabric case** To assemble a textile case holder for their identified item		
OUTCOME / COMPOSITE	Pupils will have designed, coded, made and promoted a Micro:bit Christmas decoration.	Children will design and make a textile case to sell at the Christmas fayre.		