**Newquay Junior Academy - Spring Sequence – Design and Technology.**

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| Logo  Description automatically generated |  | **YEAR 3**  **Prior knowledge...**  The parts of an object that move together as mart of a machine is called a mechanism.  A lever is something that turns on a pivot and that a linkage is a system of levers that are connected by pivots. |  | **YEAR 4**  **Prior knowledge...**  Electricity is the flow of electrical power or charge.  An electrical circuit comprises of electrical components.  A battery is an electrical power source  A circuit must form a loop for electrical current to flow. |  | **YEAR 5**  **Prior knowledge...**  **Pupils can:**  **Follow a recipe, with some support.**  **Describe some of the features of sushi based on taste, smell, texture and appearance.**  **Adapt a recipe by adding extra ingredients to it.**  **Plan a sushi recipe within a budget.** |  | **YEAR 6**  **Prior knowledge...**  **Pupils can:**  A structure is something which stands, usually on its own.  The strength of structures can be affected by the shapes used.  Forces can change the shape of objects, they can also make objects begin to move, speed up or slow down.  I can measure, saw and join wood accurately. |
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| **INTENT** |  | **Mechanical Systems: Pneumatic toys**  **Pupils design and create a toy with a pneumatic system, learning how trapped air can be used to create a product with moving parts while also building on their design knowledge.** |  | **Electrical systems: Torches**  **Pupils design and build an electrical circuit of a torch made from easily available materials and objects.** |  | **Food: What could be healthier?**  **South American stew**  **Pupils will learn where food comes from (from farm to fork) and understand the term ‘healthy’. Pupils will adapt a recipe to be healthier, prepare ingredients (chop, measure) and cook their meal over a campfire.** |  | **Structures: Anderson shelter**  **Pupils understand the historical significance of an Anderson shelter, including how they were constructed and what materials they were made from. Children will research, design and make their own air raid shelter selecting from arrange of materials. Pupils will carry out a series of tests in order to evaluate the effectiveness of their shelter.** |
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| **VOCABULARY / STICKY KNOWLEDGE** |  | **Exploded diagram, function, input, linkage, mechanism, motion, net, output, pivot, pneumatic system, thumbnail sketch** |  | **Battery, bulb, buzzer, cell conductor, copper, design criteria, electrical item, electricity, electrical item, insulator, series circuit, switch, test, torch, wire** |  | **Beef, reared, processed, ethical, diet, ingredients, supermarket, farm, balanced, healthy, adapt, nutrition** |  | **Anderson Shelter, Construction, structure, strength, compressive force, resist, sheet metal**  **, corrugated metal, steel, iron , rust, galvanized , modelling, tin snips, file, wet and dry paper** |
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| **SEQUENCE OF LESSONS** |  | **Lesson 1: Exploring pneumatics**  **In this practical lesson, children investigate and explore different pneumatic systems.**  **Lesson 2: Designing a pneumatic toy**  **The children use their understanding of pneumatics to design their own pneumatics toys through thumbnail sketches and exploded diagrams.**  **Lesson 3: Making pneumatic toys**  **Children create a working pneumatic system and casing for their toys.**  **Lesson 4: Decorating and assembling my toy**  **Pupils add decorations and assemble the final components to complete their pneumatic toys.** |  | **Lesson 1: Electrical products**  Pupils explore the difference between 'electrical' and 'electronic' and revisit how to create a simple circuit.  **Lesson 2: Evaluating torches.**  Pupils evaluate a range of different torches and identify the features of a torch: housing, reflector, circuit and switch.  **Lesson 3: Torch design**  Pupils create a torch design, building on their understanding from and incorporating features they have identified in previous lessons.  **Lesson 4: Torch assembly**  The children build the circuit and housing for their torches, closely following their designs from the previous lesson. |  | **Lesson 1: From farm to fork**  To understand where food comes from  **Lesson 2: What does healthy look like?**  To understand the term ‘healthy’  **Lesson 3: Adapting and improving a recipe**  To adapt a recipe with healthy adaptations  **Lesson 4: Mamma mia! What a tasty, healthy stew!**  Pupils build their own campfire, prepare and cook their healthy South American stew |  | **Lesson 1: Research**  To understand the significance of the Anderson Shelter and identify their key features.  **Lesson 2: Design**  To design their own shelter following a strict specification and drawing on their understanding of structures.  **Lesson 3: Making**  To construct an air raid shelter selecting the most appropriate materials and tools for the job.  **Lesson 4: Testing and evaluating.**  To carry out a series of tests to test their shelter and suggest improvements. |
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| **OUTCOME / COMPOSITE** |  | To create a pneumatic toy of a dragon. |  | **Children make a torch using an electrical circuit and a housing made from recycled materials.** |  | **To have adapted a recipe to make it healthier.** |  | **To have made a prototype of a robust aid raid shelter.** |

**Newquay Junior Academy - Spring Sequence 2 – Design and Technology.**

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| Logo  Description automatically generated |  | **YEAR 3**  **Prior knowledge...**  Pupils can:  Sew a running stitch with regular-sized stitches and understand that both ends must be knotted.  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. |  |  |  |  |  |  |
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| **INTENT** |  | **Textiles: Cushions - making a cushion out of recycled materials.**  **Pupils will learn to use cross-stitch and**  **appliqué to design and make their own cushion.** |  |  |  |  |  |  |
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| **VOCABULARY / STICKY KNOWLEDGE** |  | **Appliqué, cross-stitch, design, equipment, fabric, patch, running stitch, thread, seam, texture, knot** |  |  |  |  |  |  |
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| **SEQUENCE OF LESSONS** |  | **Lesson 1: Cross-stitch and appliqué**  **To learn how to sew cross-stitch and appliqué**  **Lesson 2: Cushion design**  **To design a product and its template**  **Lesson 3: Decorating my cushion**  **To decorate fabric using appliqué and cross stitch**  **Lesson 4: Assembling my cushion**  **To assemble your cushion** |  |  |  |  |  |  |
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| **OUTCOME / COMPOSITE** |  | Pupils will have designed and made a cushion out of recycled fabric which they will gift as a present to their target audience. |  |  |  |  |  |  |