

# Newquay Junior Academy - Summer Sequence – Design and Technology. Kapow Scheme of Work



## YEAR 3

**Prior knowledge.** Pupils can:

Name the main food groups and 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.

## YEAR 4

**Prior knowledge...**

Pupils can:  
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.

## YEAR 5

**Prior knowledge.** Pupils can:

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 when constructing

## YEAR 6

**Prior knowledge...**

Pupils can:  
Design to meet a brief and develop ideas.  
Understand that a mechanism is a system of parts working together to control a motion.  
Work safely when handling tools  
Measure accuracy using mm.  
Cut with a good degree of accuracy.  
Finish a product to a good standard.

INTENT

**Food: Eating seasonally**  
Pupils who are secure will be able to:  
  
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.

**Food: Adapting a recipe - Sushi**  
Pupils will:  
**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.**

**Structures: Bridges**  
  
In this topic, children learn and investigate the different types of bridges and what features allow them to support a large amount of weight. Children design, make and evaluate their own truss bridge.

**Mechanical systems: Automata toys**  
  
Mark, saw and cut out the components with a varying degree of accuracy to the intended measurements.  
Follow health and safety rules, taking care with the equipment.  
Attempt a partial assembly of their toys using an exploded-diagram, following a teacher's demonstration.  
Develop a design idea with some descriptive notes.  
Explore different cam profiles and choose three for their follower toppers with an explanation of their choices.  
Create neat, decorated follower toppers with some accuracy.  
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.

VOCABULARY / STICKY KNOWLEDGE

Climate, dry climate, exported, imported, mediterranean climate, nationality, nutrients, polar climate, recipe, seasonal food, seasons, temperate climate, tropical climate

design criteria, research, texture, innovative, aesthetic, measure, cross-contamination, diet, packaging, sushi

beam bridge, arch bridge, truss bridge, strength, technique, corrugation, lamination, stiffness, rigid, factors, stability, visual appeal, aesthetics, joints, mark out, hardwood, softwood, sandpaper/glass paper, bench hook/vice, tenon saw/coping saw, assemble, material properties, reinforce, evaluate, quality of finish, accuracy

Accurate, assembly-diagram, automata, axle, bench hook, cam, clamp, component, cutting list, diagram, dowel, drill bits, exploded-diagram, finish, follower, frame, function, hand drill, linkage, mark out, measure, mechanism, model, right-angle, try square, tenon saw

**Lesson 1: Where in the world?**  
To know that climate affects food growth  
**Lesson 2: British seasonal foods**  
To understand the advantages of eating

**Lesson 1: Following a recipe**  
To follow a sushi recipe  
**Lesson 2: Testing ingredients**  
To make and test a prototype

**Lesson 1: Arch and beam bridges**  
To explore how to reinforce a beam (structure) to improve its strength  
**Lesson 2: Spaghetti truss bridges**

**Lesson 1: Automatas**  
To prepare wood for assembly by measuring, marking and cutting each piece  
**Lesson 2: Frame assembly**

SEQUENCE OF LESSONS	<p>seasonal foods grown in the UK</p> <p><u>Lesson 3: Rainbow food</u></p> <p>To create a recipe that is healthy and nutritious using seasonal vegetables</p> <p><u>Lesson 4: Making tarts</u></p> <p>To safely follow a recipe when cooking</p>	<p><u>Lesson 3: Final design and budget</u> To design sushi to a given budget</p> <p><u>Lesson 4: Biscuit bake off</u></p> <p>To make a biscuit that meets a given design brief.</p>	<p>To build a spaghetti truss bridge</p> <p><u>Lesson 3: Building bridges</u></p> <p>To build a wooden truss bridge</p> <p><u>Lesson 4: Finalising bridges</u></p> <p>To complete, reinforce and evaluate my truss bridge</p>	<p>To assemble the automata frame components and supports with the help of an exploded-diagram</p> <p><u>Lesson 3: Experimenting with cams</u></p> <p>To explore the relationship between cam profiles and follower movement, to inform a design decision</p> <p><u>Lesson 4: Finishing touches</u></p> <p>To apply the housing and finishing touches to the automata frame</p>
OUTCOME / COMPOSITE		To have adapted a recipe to make sushi.	Children make a truss bridge out of softwood. Children test and evaluate their structure.	To have designed and made an automata toy with moving mechanisms.

# Newquay Junior Academy - Summer Sequence 2 – Design and Technology. Kapow Scheme of Work



	YEAR 3	YEAR 4	YEAR 5	YEAR 6
INTENT	Prior knowledge...	<p>Prior knowledge. Pupils can:</p> <ul style="list-style-type: none"> <li>Draw accurate diagrams with correct labels, arrows and explanations.</li> <li>Correctly identify definitions for key terms.</li> <li>Identify five appropriate design criteria.</li> <li>Communicate two ideas using thumbnail sketches.</li> <li>Communicate and develop one idea using an exploded diagram.</li> <li>Select appropriate equipment and materials to build a working pneumatic system.</li> <li>Assemble their pneumatic system within the housing to create the desired motion.</li> <li>Create a finished pneumatic toy that fulfills the design brief.</li> </ul>	Prior knowledge...	Prior knowledge...
VOCABULARY / STICKY KNOWLEDGE		<p><u>Mechanical systems: making a slingshot car.</u></p> <p>Pupils who are secure will be able to:</p> <ul style="list-style-type: none"> <li>Work independently to produce an accurate, functioning car chassis.</li> <li>Design a shape that is suitable for the project.</li> <li>Attempt to reduce air resistance through the design of the shape.</li> <li>Produce panels that will fit the chassis and can be assembled effectively using the tabs they have designed.</li> <li>Construct car bodies effectively.</li> <li>Conduct a trial accurately and draw conclusions and improvements from the results.</li> </ul>		

SEQUENCE OF LESSONS

Lesson 1: Chassis and launch mechanism

To build a car chassis

Lesson 2: Designing the car body

To design a shape that reduces air resistance

Lesson 3: Making the car body

To make a model based on a chosen design

Lesson 4: Assembly and testing

To assemble and test my completed product

OUTCOME / COMPOSITE

To design and make an aerodynamic slingshot car