



## Design & Technology Vertical Concepts

### Focused Practical Task

#### **Year 1**

Discuss food hygiene practices. Name and demonstrate use of simple tools. Survey favourite products and represent in bar chart. Test and categorise products – e.g by taste. Discuss how designers use models to develop and communicate their ideas. Build rectangular frames using construction kits and explore ways of making them more stable e.g. a wider base, adding further parts. Explore simple mechanisms and levers using strips of card and construction kits. Explore ways of stiffening strips of card using pipe cleaners, straws.

#### **Year 3**

Use construction kit to investigate building stable structures. Make free standing frame shape from pipe cleaners and a sheet of card/paper. Explore making a pneumatic system with either balloons or syringes and tubing. Revise making hinges. Practise using knife to cut and slice. Use a grater safely and correctly

#### **Year 5**

Experiment with making sounds using a range of containers and other resources that can be combined to create shakers, scrapers, strings, drums. Discuss the properties of the material, how they can be strengthened and the sounds made when they are combined. Try assembling different shaped cams using card and split pins and observe their movement- how does it change depending on the shape of the cam? Discuss and demonstrate safety aspects of using a bench hook, Gcramp and drill. Demonstrate need to measure accurately when mounting the mechanism, how to keep cam in place and how to use a wheel to make a handle. Experiment adding holes for fixings with opened out cardboard boxes. Experiment with different types of flour and adding different ingredients to bread dough – raisins, choc chips. Try shaping dough and adding different toppings, e.g. seeds

#### **Year 2**

Explore simple ways to add features to bring products( puppets) to life/understand how a user would interact with a product. Look at pictures in books and magazines and sort products into Venn Diagrams based on parts identified. Become familiar with paint or draw software package

#### **Year 4**

Model different types of mechanism using paper/card, split pins, paper clips, drawing pins. Practise running stitch, back stitch, starting and finishing, weaving and knitting on pieces of fabric – Which is strongest and why? Discuss the properties of different types of fabric and select one suitable for the task. Practise with different types of fastening and select one suitable for the task. Experiment with producing circuits that are triggered in some way e.g. someone treading on something or lifting something, including using a computer programme. Discuss the idea of 'feedback' in an alarm system e.g. motion sensors trigger bell to ring

#### **Year 6**

Investigate strengthening a square structure with diagonals and triangles, test. Experiment with ways of joining materials-plastic, paper, wood , fabric. Investigate a range of switches and how they work – build examples. Investigate using a motor to power a fan – how can this produce forward motion? Experiment with paper, motors to create forward motion, how can we change speed and direction? Demonstrate the use of equipment, e.g. wire cutters,/strippers, mounting clips, connector strips. Discuss how patterns, templates are used to create garments and how stencils , dyeing, and embellishments are used to decorate them. Practice sewing a button, sequins, braid, a pocket to a piece of fabric and stenciling a word by painting inside and around stencil