



## In Design and Technology, a Roundwood leaver will know...

...the process of design relates to every item pupils use or see and design is not just about functionality but also form, creativity and innovation. Through careful consideration of the purpose of the end product, pupils act as researchers and designers, selecting criteria for success, refining their designs and ensuring their final piece is fit for purpose. Exploiting their scientific and mathematical skills to aid the design process enables a more successful product to be made.

Design and Technology is an inspiring, practical subject, one that allows children to be creative and innovative whilst developing as a problem-solver, finding solutions for relevant problems in an ever-changing world. Design and Technology at Roundwood Primary develops children as empathetic learners, one who considers others' needs, wants and values and encompasses the children's prior mathematical, scientific, computing and art knowledge and builds on each of these areas extending their skills.

The first step in a child's Design and Technology journey at Roundwood starts in Foundation Stage. A junk-modelling area is provided equipped with various tools, materials and ideas to allow children's to innovate. Children are encouraged to build for a purpose and to discuss who the model is for and how it benefits them. Discussions such as these are crucial in children developing as a designer. Children are exposed to the benefits of recycling old pieces of 'junk' and creating it into something purposeful or meaningful to them. This supports their understanding of recycling and helps their development into eco-friendly citizens. Furthermore, children in the unit are encouraged to explore how things work in the world, exploring 'why' and 'how' things work in a certain way and are encouraging to question how they could be made even better.

As children move through to Key Stage 1 the concept of designing for a set purpose and a targeted audience is reinforced. They are encouraged to be purposeful, creating functional, appealing products for themselves and others taking into account their needs. They generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and information and communication technology. They begin to develop the concept of assembling and joining materials, thinking about how to strengthen materials, as well as being introduced to tools needed for sewing. They select from a wide range of materials and components including construction materials, textiles and ingredients for food technology where there is a focus on safety and hygiene.

In Lower Key Stage 2, children are exposed to various inventors and designers to spark innovation. They are encouraged to make prototypes, allowing them to critique their own work to improve it always linking back to the success criteria and target audience. Children plan out their work, create it then reflect on the whole process completing an evaluation. They are encouraged to explain why they are using particular tools and equipment in relation to the skills and techniques learnt. The link between science and technology is taught with children encouraged to use their scientific knowledge when designing. In food technology, children measure to the nearest gram whilst following a recipe controlling the temperature of the oven or hob if necessary. More ownership is placed on the child to ensure the timings are accurate.

In Upper Key Stage 2, children are encouraged to carry out research prior to beginning their project, using surveys, interviews, questionnaires and web-based resources. The onus is on the child to make decisions related to their design including potential constraints such as time, resources and cost. Children are expected to become more accurate with their measurements, applying a range of finishing techniques linking into their art learning. A range of practical skills are taught to create products such as cutting, drilling and sanding. With regards to food technology, children are able to discuss how a recipe can be adapted or altered either by substitution of ingredients or by recalculating the ratio for various reasons including to change the aroma, appearance, taste or amount baked. Computing links in to D&T in Upper Key Stage 2 with children taught how to program and to monitor changes in the environment using an innovative combination of electronics and mechanics in product design.