Design and Technology at Longford

Design and technology is an inspiring, rigorous and practical subject. Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values.
National Curriculum 2014

Intent

At Longford Primary School, we intend to build a Design and technology curriculum to engage, inspire and challenge pupils. It will equip them with the knowledge and skills to experiment, invent and create their own works of craft and design. As pupils progress, they should be able to think critically and develop a more rigorous understanding of the design process. They should also know how art and design both reflect and shape our history, and contribute to the culture, creativity and wealth of our nation. We believe that by developing the skills taught in Design and technology, we can contribute to the quality of our children's lives, both within and beyond school. We see design and technology as a means to support learning in a range of ways. The skills that are developed in these subjects can be transferred across the curriculum and therefore aid learning.

Implementation

As a school and in accordance with the National Curriculum's expectations, we aim to ensure that all pupils will produce creative work, explore ideas and record their experiences. They will evaluate critically and analyse creative works using the language of craft and design. They will know about great craft makers and designers to understand the historical and cultural development. This will be undertaken in a cross- curricular project, which will follow the design process of research, design, make and evaluate.

Impact

Longford's children will enjoy the self-expression that they experience in Design and technology. They will be challenged and inspired to experiment, giving them confidence in core and non-core subjects to excel beyond their own experiences. Our curriculum is high quality, well thought out and is planned to demonstrate progression through each key stage. The children's Design and technology is very often cross-curricular and helps them to express themselves as well as show their depth of knowledge and understanding in history, geography and science.

Knowledge, Understanding & Skills

Year group	KS1	Lower KS2	Upper KS2
Developing, Planning and Communicating Ideas	• Follow verbal instructions • Explain what they are making and which materials they are using • Name the tools they are using • Describe what they need to do next • Select materials from a limited range that will meet the design criteria • Select and name the tools needed to work the materials • Select appropriate technique explaining First.....Next.....Last.... • Explore ideas by rearranging materials • Model ideas with kits, reclaimed materials • Select pictures to help develop ideas • Use pictures and words to convey what they want to design and make • Describe their models and drawings of ideas and intentions • Use kits/reclaimed materials to develop an idea • Use drawings to record ideas as they are developed • Discuss their work as it progresses • Add notes to drawings to help explanations	• Investigate similar products to the one to be made to give starting points for a design • Draw/sketch products to help analyse and understand how products are made •Think ahead about the order of their work and decide upon tools and materials • Plan a sequence of actions to make a product • Record the plan by drawing (labelled sketches) or writing • Develop more than one design or adaptation of an initial design. • Propose realistic suggestions as to how they can achieve their design ideas • Add notes to drawings to help explanations	• Investigate products/images to collect ideas • Sketch and model alternative ideas • Develop one idea in depth • Combine modelling and drawing to refine ideas • Plan the sequence of work using a storyboard • Record ideas using annotated diagrams • Use models, kits and drawings to help formulate design ideas • Make prototypes • Use found information to inform decisions • Use a computer to model ideas • Draw plans which can be read/followed by someone else. • Give a report using correct technical vocabulary

Food	• Develop a food vocabulary using taste, smell, texture and feel • Group familiar food products e.g. fruit and vegetables • Cut, peel, grate, chop a range of ingredients • Work safely and hygienically • Understand the need for a variety of foods in a diet • Measure and weigh food items, non-statutory measures e.g. spoons, cups	• Develop sensory vocabulary/knowledge using, smell, taste, texture and feel • Analyse the taste, texture, smell and appearance of a range of foods. • Follow instructions • Make healthy eating choices from and understanding of a balanced diet • Join and combine a range of ingredients e.g. snack foods • Work safely and hygienically • Measure and weigh ingredients appropriately	• Prepare food products taking into account the properties of ingredients and sensory characteristics • Select and prepare foods for a particular purpose • Taste a range of ingredients, food items to develop a sensory food vocabulary for use when designing. • Weigh and measure using scales • Cut and shape ingredients using appropriate tools and equipment e.g. grating • Join and combine food ingredients appropriately e.g. beating, rubbing in • Decorate appropriately • Work safely and hygienically • Show awareness of a healthy diet from an understanding of a balanced diet
Textiles	• Colour fabrics using a range of techniques e.g. fabric paints, printing, painting • Cut out shapes which have been created by drawing round a template onto the fabric • Join fabrics by using running stitch, glue, staples, over sewing, tape • Decorate fabrics with buttons, beads, sequins, braids, ribbons	• Understand seam allowance • Join fabrics using running stitch, over sewing, back stitch • Explore fastenings and recreate some e.g. sew on buttons and make loops • Prototype a product using J cloths • Use appropriate decoration techniques e.g. appliqué (glued or simple stitches) • Create a simple pattern • Understand the need for patterns	• Create 3D products using pattern pieces and seam allowance • Understand pattern layout • Decorate textiles appropriately often before joining components • Pin and tack fabric pieces together • Join fabrics using over sewing, back stitch, blanket stitch or machine stitching (closer supervision) • Combine fabrics to create more useful properties • Make quality products
Construction	• Make vehicles with construction kits which contain free running wheels • Use a range of materials to create models with wheels and axles e.g. tubes, dowel, cotton reels • Attach wheels to a chassis using an axle • Join appropriately for different materials and situations e.g. glue, tape • Mark out materials to be cut using a template • Cut strip wood/dowel using hacksaw and bench hook • See glue gun used by an adult	• Incorporate a circuit with a bulb or buzzer into a model • Create shell or frame structures, strengthen frames with diagonal struts • Make structures more stable by giving them a wide base • Prototype frame and shell structures • Measure and mark square selection, strip and dowel accordingly to 1cm • Use glue gun with close supervision (one to one)	• Use bradawl to mark hole positions • Use hand drill to drill tight and loose fit holes • Cut strip wood, dowel, square section wood accurately to 1mm • Join materials using appropriate methods • Incorporate motor and a switch into a model • Control a model using an ICT control programme • Use a cam to make an up and down mechanism. • Build frameworks using a range of materials e.g. wood, card corrugated plastic to support mechanisms • Use glue gun with close supervision

Sheet Materials	• Fold, tear and cut paper and card • Roll paper to create tubes • Cut along lines, straight and curved • Curl paper • Use hole punch • Insert paper fasteners for card linkages • Create hinges • Use simple pop ups • Investigate strengthening sheet materials • Investigate joinings temporary, fixed and moving	• Cut slots • Cut internal shapes • Use lolly sticks/card to make levers and linkages • Use linkages to make movement larger or more varied. • Use and explore complex pop ups • Create nets	• Cut slots • Cut accurately and safely to a marked line • Join and combing materials with temporary, fixed or moving joinings. • Use craft knife, cutting mat and safety ruler under one to one supervision if. appropriate • Choose an appropriate sheet material for the purpose
Evaluating	• Say what they like and do not like about items they have made and attempt to say why • Talk about their designs as they develop and identify good and bad points • Talk about changes made during the making process • Discuss how closely their finished products meet their design criteria	• Identify the strengths and weaknesses of their design ideas • Decide which design idea to develop • Consider and explain how the finished product could be improved • Discuss how well the finished product meets the design criteria and how well it meets the needs the needs of the user.	• Use the design criteria to inform their decisions about ways to proceed • Justify their decisions about materials and methods of construction • Reflect on their work using design criteria stating how well the design fits the needs of the user • Identify what does and does not work in the product. • Make suggestions as how their design could be improved