



St Joseph's Catholic Primary Voluntary Academy skills progression grid

Design and technology

Our curriculum is building on the skills learned in our Early Years

- Children will safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.
 - Children will share their creations, explaining the process they have used.
- Children will make use of props and materials when role playing characters in narratives and stories

Skill	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Design	<p>Children will have own ideas</p> <p>Explain what they want to do</p> <p>Explain what the product is for, and how it will work</p> <p>Use pictures and words to plan, begin to use models</p> <p>Design a product for themselves following design criteria</p> <p>Research similar existing products</p>	<p>Children will have own ideas and plan what to do next</p> <p>Explain what want to do and describe how they may do it</p> <p>Explain purpose of product, how it will work and how it will be suitable for the user</p> <p>Describe design using pictures, words, models, diagrams, begin to use ICT</p> <p>Design products for themselves and others following design criteria</p> <p>Choose best tools and materials, and explain choices</p> <p>Use knowledge of existing products to produce ideas</p>	<p>Children will begin to research others' needs</p> <p>Show design meets a range of requirements</p> <p>Describe purpose of product</p> <p>Follow a given design criteria</p> <p>Have at least one idea about how to create product</p> <p>Create a plan which shows order, equipment and tools</p> <p>Describe design using an accurately labelled sketch and words</p> <p>Make design decisions</p> <p>Explain how product will work</p> <p>Make a prototype</p> <p>Begin to use computers to show design</p>	<p>Children will use research for design ideas</p> <p>Show design meets a range of requirements and is fit for purpose</p> <p>Begin to create own design criteria</p> <p>Have at least one idea about how to create product and suggest improvements for design.</p> <p>Produce a plan and explain it to others</p> <p>Say how realistic plan is. Include an annotated sketch</p> <p>Make and explain design decisions considering availability of resources</p> <p>Explain how product will work</p> <p>Make a prototype</p> <p>Begin to use computers to show design.</p>	<p>Children will use the internet and questionnaires for research and design ideas</p> <p>Take a user's view into account when designing</p> <p>Begin to consider needs/wants of individuals/groups when designing and ensure product is fit for purpose</p> <p>Create own design criteria</p> <p>Have a range of ideas</p> <p>Produce a logical, realistic plan and explain it to others.</p> <p>Use cross-sectional planning and annotated sketches</p> <p>Make design decisions considering time and resources.</p> <p>Clearly explain how parts of product will work.</p> <p>Model and refine design ideas by making prototypes and using pattern pieces.</p> <p>Use computer-aided designs</p>	<p>Children will draw on market research to inform design</p> <p>Use research of user's individual needs, wants, requirements for design</p> <p>Identify features of design that will appeal to the intended user</p> <p>Create own design criteria and specification</p> <p>Come up with innovative design ideas</p> <p>Follow and refine a logical plan.</p> <p>Use annotated sketches, cross-sectional planning and exploded diagrams</p> <p>Make design decisions, considering, resources and cost</p> <p>Clearly explain how parts of design will work, and how they are fit for purpose</p> <p>Independently model and refine design ideas by making prototypes and using pattern pieces</p> <p>Use computer-aided designs</p>

Make	<p>Children will explain what they making and why</p> <p>Consider what they need to do next</p> <p>Select tools/equipment to cut, shape, join, finish and explain choices</p> <p>Measure, mark out, cut and shape, with support</p> <p>Choose suitable materials and explain choices</p> <p>Try to use finishing techniques to make product look good</p> <p>Work in a safe and hygienic manner</p>	<p>Children will explain what they are making and why it fits the purpose</p> <p>Make suggestions as to what they need to do next.</p> <p>Join materials/components together in different ways</p> <p>Measure, mark out, cut and shape materials and components, with support.</p> <p>Describe which tools they are using and why</p> <p>Choose suitable materials and explain choices depending on characteristics.</p> <p>Use finishing techniques to make product look good</p> <p>Work safely and hygienically</p>	<p>Select suitable tools/equipment, explain choices; begin to use them accurately</p> <p>Select appropriate materials, fit for purpose.</p> <p>Work through plan in order</p> <p>Consider how good product will be</p> <p>Begin to measure, mark out, cut and shape materials/ components with some accuracy</p> <p>Begin to assemble, join and combine materials and components with some accuracy</p> <p>Begin to apply a range of finishing techniques with some accuracy</p>	<p>Children will select suitable tools and equipment, explain choices in relation to required techniques and use accurately</p> <p>Select appropriate materials, fit for purpose; explain choices</p> <p>Work through plan in order.</p> <p>Realise if product is going to be good quality</p> <p>Measure, mark out, cut and shape materials/components with some accuracy</p> <p>Assemble, join and combine materials and components with some accuracy</p> <p>Apply a range of finishing techniques with some accuracy</p>	<p>Children will use selected tools/equipment with good level of precision</p> <p>Produce suitable lists of tools, equipment/materials needed</p> <p>Select appropriate materials, fit for purpose; explain choices, considering functionality</p> <p>Create and follow detailed step-by-step plan</p> <p>Explain how product will appeal to an audience</p> <p>Mainly accurately measure, mark out, cut and shape materials/components</p> <p>Mainly accurately assemble, join and combine materials/components</p> <p>Mainly accurately apply a range of finishing techniques</p> <p>Use techniques that involve a small number of steps</p> <p>Begin to be resourceful with practical problems</p>	<p>Children will use selected tools and equipment precisely</p> <p>Produce suitable lists of tools, equipment, materials needed, considering constraints</p> <p>Select appropriate materials, fit for purpose; explain choices, considering functionality and aesthetics</p> <p>Create, follow, and adapt detailed step-by-step plans</p> <p>Explain how product will appeal to audience; make changes to improve quality</p> <p>Accurately measure, mark out, cut and shape materials/components</p> <p>Accurately assemble, join and combine materials/components</p> <p>Accurately apply a range of finishing techniques</p> <p>Use techniques that involve a number of steps</p> <p>Be resourceful with practical problems</p>
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Evaluate	<p>Children will talk about their work, linking it to what they were asked to do</p> <p>Talk about existing products considering: use, materials, how they work, audience, where they might be used</p> <p>Talk about existing products, and say what is and isn't good</p> <p>Talk about things that other people have made</p> <p>Begin to talk about what could make product better</p>	<p>Children will describe what went well, thinking about design criteria</p> <p>Talk about existing products considering: use, materials, how they work, audience, where they might be used; express personal opinion</p> <p>Evaluate how good existing products are</p> <p>Talk about what they would do differently if they were to do it again and why</p>	<p>Children will look at design criteria while designing and making</p> <p>Use design criteria to evaluate finished product</p> <p>Say what they would change to make design better</p> <p>Begin to evaluate existing products, considering: how well they have been made, materials, whether they work, how they have been made, fit for purpose</p> <p>Begin to understand by whom, when and where products were designed</p> <p>Learn about some inventors/ designers/ engineers/ chefs/ manufacturers of ground-breaking products</p>	<p>Children will refer to design criteria while designing and making</p> <p>Use criteria to evaluate product</p> <p>Begin to explain how they could improve original design</p> <p>Evaluate existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose</p> <p>Discuss by whom, when and where products were designed</p> <p>Research whether products can be recycled or reused</p> <p>Know about some inventors/ designers/ engineers/ chefs/manufacturers of ground-breaking products</p>	<p>Children will evaluate quality of design while designing and making</p> <p>Evaluate ideas and finished product against specification, considering purpose and appearance.</p> <p>Test and evaluate final product</p> <p>Evaluate and discuss existing products, considering: how well they've been made, materials, whether they work, how they have been made, fit for purpose</p> <p>Begin to evaluate how much products cost to make and how innovative they are</p> <p>Research how sustainable materials are</p> <p>Talk about some key inventors/ designers/ engineers/ chefs/ manufacturers of ground-breaking products</p>	<p>Children will evaluate quality of design while designing and making; is it fit for purpose?</p> <p>Keep checking design is best it can be.</p> <p>Evaluate ideas and finished product against specification, stating if it's fit for purpose</p> <p>Test and evaluate final product; explain what would improve it and the effect different resources may have had</p> <p>Do thorough evaluations of existing products considering: how well they've been made, materials, whether they work, how they've been made, fit for purpose</p> <p>Evaluate how much products cost to make and how innovative they are</p> <p>Research and discuss how sustainable materials are</p> <p>Consider the impact of products beyond their intended purpose</p> <p>Discuss some key inventors/designers/ engineers/ chefs/manufacturers of ground-breaking products</p>
Technical knowledge – Materials/structures	<p>Children will begin to measure and join materials, with some support</p> <p>Describe differences in materials</p> <p>Suggest ways to make material/product stronger</p>	<p>Children will measure materials</p> <p>Describe some different characteristics of materials</p> <p>Join materials in different ways</p> <p>Use joining, rolling or folding to make it stronger</p> <p>Use own ideas to try to make product stronger</p>	<p>Children will use appropriate materials</p> <p>Work accurately to make cuts and holes</p> <p>Join materials</p> <p>Begin to make strong structures</p>	<p>Children will measure carefully to avoid mistakes</p> <p>Attempt to make product strong</p> <p>Continue working on product even if original didn't work</p> <p>Make a strong, stiff structure</p>	<p>Children will select materials carefully, considering intended use of product and appearance</p> <p>Explain how product meets design criteria</p> <p>Measure accurately enough to ensure precision</p> <p>Ensure product is strong and fit for purpose</p> <p>Begin to reinforce and strengthen a 3D frame</p>	<p>Children will select materials carefully, considering intended use of the product, the aesthetics and functionality.</p> <p>Explain how product meets design criteria</p> <p>Reinforce and strengthen a 3D frame</p>

<p style="text-align: center;">Technical knowledge - Mechanisms</p>	<p>Children will begin to use levers or slides</p>	<p>Children will use levers or slides</p> <p>Begin to understand how to use wheels and axles</p>	<p>Children will select appropriate tools / techniques</p> <p>Alter product after checking, to make it better</p> <p>Begin to try new/different ideas</p> <p>Use simple lever and linkages to create movement</p>	<p>Children will select most appropriate tools/techniques</p> <p>Explain alterations to product after checking it</p> <p>Grow in confidence about trying new / different ideas.</p> <p>Use levers and linkages to create movement</p> <p>Use pneumatics to create movement</p>	<p>Children will refine product after testing</p> <p>Grow in confidence about trying new /different ideas</p> <p>Begin to use cams, pulleys or gears to create movement</p>	<p>Children will refine product after testing, considering aesthetics, functionality and purpose</p> <p>Incorporate hydraulics and pneumatics</p> <p>Be confident to try new/different ideas</p> <p>Use cams, pulleys and gears to create movement</p>
<p style="text-align: center;">Technical knowledge - Textiles</p>	<p>Children will measure, cut and join textiles to make a product, with some support</p> <p>Choose suitable textiles</p>	<p>Children will measure textiles</p> <p>Join textiles together to make a product, and explain how they did it</p> <p>Carefully cut textiles to produce accurate pieces</p> <p>Explain choices of textile</p> <p>Understand that a 3D textile structure can be made from two identical fabric shapes.</p>	<p>Children will join different textiles in different ways</p> <p>Choose textiles considering appearance and functionality</p> <p>Begin to understand that a simple fabric shape can be used to make a 3D textiles project</p>	<p>Children will think about user when choosing textiles</p> <p>Think about how to make product strong</p> <p>Begin to devise a template</p> <p>Explain how to join things in a different way</p> <p>Understand that a simple fabric shape can be used to make a 3D textiles project</p>	<p>Children will think about user and aesthetics when choosing textiles</p> <p>Use own template</p> <p>Think about how to make product strong and look better</p> <p>Think of a range of ways to join things</p> <p>Begin to understand that a single 3D textiles project can be made from a combination of fabric shapes.</p>	<p>Children will think about user's wants/needs and aesthetics when choosing textiles</p> <p>Make product attractive and strong</p> <p>Make a prototype</p> <p>Use a range of joining techniques</p> <p>Think about how product might be sold</p> <p>Think carefully about what would improve product</p> <p>Understand that a single 3D textiles project can be made from a combination of fabric shapes.</p>

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Technical knowledge – Food and nutrition</p>	<p>Children will describe textures</p> <p>Wash hands & clean surfaces</p> <p>Think of interesting ways to decorate food</p> <p>Say where some foods come from, (i.e. Plant or animal)</p> <p>Describe differences between some food groups (i.e. sweet, vegetable etc.)</p> <p>Discuss how fruit and vegetables are healthy</p> <p>Cut, peel and grate safely, with support</p>	<p>Children will explain hygiene and keep a hygienic kitchen</p> <p>Describe properties of ingredients and importance of varied diet</p> <p>Say where food comes from (animal, underground etc.)</p> <p>Describe how food is farmed, home-grown, caught</p> <p>Draw eat well plate; explain there are groups of food</p> <p>Describe “five a day”</p> <p>Cut, peel and grate with increasing confidence</p>	<p>Children will carefully select ingredients</p> <p>Use equipment safely</p> <p>Make product look attractive</p> <p>Think about how to grow plants to use in cooking</p> <p>Begin to understand food comes from UK and wider world</p> <p>Describe how healthy diet= variety/balance of food/drinks</p> <p>Explain how food and drink are needed for active/healthy bodies.</p> <p>Prepare and cook some dishes safely and hygienically</p> <p>Grow in confidence using some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</p>	<p>Children will explain how to be safe/hygienic</p> <p>Think about presenting product in interesting/ attractive ways</p> <p>Understand ingredients can be fresh, pre-cooked or processed</p> <p>Begin to understand about food being grown, reared or caught in the UK or wider world</p> <p>Describe eat well plate and how a healthy diet=variety / balance of food and drinks</p> <p>Explain importance of food and drink for active, healthy bodies</p> <p>Prepare and cook some dishes safely and hygienically</p> <p>Use some of the following techniques: peeling, chopping, slicing, grating, mixing, spreading, kneading and baking</p>	<p>Children will explain how to be safe / hygienic and follow own guidelines</p> <p>Present product well - interesting, attractive, fit for purpose</p> <p>Begin to understand seasonality of foods</p> <p>Understand food can be grown, reared or caught in the UK and the wider world</p> <p>Describe how recipes can be adapted to change appearance, taste, texture, aroma</p> <p>Explain how there are different substances in food / drink needed for health</p> <p>Prepare and cook some savoury dishes safely and hygienically including, where appropriate, use of heat source</p> <p>Use range of techniques such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p>	<p>Children will understand a recipe can be adapted by adding / substituting ingredients</p> <p>Explain seasonality of foods</p> <p>Learn about food processing methods</p> <p>Name some types of food that are grown, reared or caught in the UK or wider world</p> <p>Adapt recipes to change appearance, taste, texture or aroma.</p> <p>Describe some of the different substances in food and drink, and how they can affect health</p> <p>Prepare and cook a variety of savoury dishes safely and hygienically including, where appropriate, the use of heat source.</p> <p>Use a range of techniques confidently such as peeling, chopping, slicing, grating, mixing, spreading, kneading and baking.</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Technical knowledge – Electrical systems Computer control and monitoring</p>			<p>Children will use a simple circuit in product</p> <p>Learn about how to program a computer to control product.</p>	<p>Use number of components in circuit</p> <p>Program a computer to control product</p>	<p>Incorporate a switch into product</p> <p>Confidently use number of components in circuit</p> <p>Begin to be able to program a computer to monitor changes in environment and control product</p>	<p>Use different types of circuit in product</p> <p>Think of ways in which adding a circuit would improve product</p> <p>Program a computer to monitor changes in environment and control product</p>