St John's CE Middle School
Design & Technology Key Performance Indicators

Pupils who are working at age related expectations at the end of the year will have a secure knowledge of these Key Performance Indicators.

KS2 Year 5 Design and Technology

DESIGN – Research and Design
Pupils can research existing mechanical products and identify features that make them functional and appealing.
Pupils can generate and communicate ideas using annotated sketches
Pupils can model ideas using prototypes or pattern pieces before making the final product.
MAKE
Pupils can select and safely use a range of tools (e.g., saws, drills, files, glue guns) to cut, shape, join, and finish wood and card accurately
Pupils can choose appropriate materials (wood, dowel, card, fixings) based on functional and aesthetic qualities.
Pupils can construct a working cam mechanism and assemble linkages and levers with accuracy.
EVALUATE
Pupils can analyse mechanical toys or devices, identifying how movement is created and controlled.
Pupils can evaluate their design and final product against their design criteria. Pupils can use peer and teacher feedback to refine their work
Pupils can describe how key designers, inventions, or mechanical innovations have shaped modern products (e.g., automata, early engineering mechanisms).
TECHNICAL KNOWLEDGE
Pupils can strengthen, stiffen, and reinforce wooden structures to support a moving mechanism.
Pupils can understand and use mechanical systems, including: • Cams (snail, eccentric, pear, circular) • Followers • Linkages • Levers • Four types of motion (rotary, linear, reciprocating, oscillating)
COOKING & NUTRITION
Understand the importance of safety and hygiene when using a kitchen in the preparation of food.
Use the 'Claw' and 'Bridge' technique effectively for cutting and preparing a delicious ingredients
Understand and apply the principles of a healthy and varied diet.
Understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.

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KS2 Year 6 Design and Technology

DESIGN – Research and Design
Pupils can **research existing desk tidies**, identifying features that make them functional and appealing
Pupils can **create clear design criteria** for their own desk tidy, ensuring it is **fit for purpose** and tailored to the needs of a specific user
Pupils can **generate and develop ideas** using a range of methods, including isometric and sketching.
MAKE
Pupils can **select and safely use a wider range of tools** (e.g., saws, files, bench hooks, sanding blocks) to cut, shape, join and finish wood **accurately.**
Pupils can **select appropriate woods** (e.g., MDF, pine, plywood) based on their **functional properties** (strength, durability) and **aesthetic qualities** (grain, colour).
Pupils can explain why certain materials are more suitable for the desk tidy.
EVALUATE
Pupils can **investigate and analyse existing wooden products**, identifying strengths, weaknesses, and design features that influence their own ideas
Pupils can **evaluate their own desk tidy** throughout the making process and at the end, comparing it to their design criteria
Pupils can **use feedback from others** to refine and improve their work
TECHNICAL KNOWLEDGE
Pupils can **work safely and independently** in a workshop environment, following routines and using PPE appropriately
Pupils can demonstrate accurate **measuring, marking out, cutting, joining, and finishing** techniques when working with wood
COOKING & NUTRITION
Pupils can **explain the principles of a healthy, balanced diet**, including the roles of carbohydrates, proteins, dairy, fruit and vegetables, and fats
Pupils can **adapt recipes** to make them healthier (e.g., reducing sugar in crumble, adding vegetables to pizza pinwheels, choosing lower-fat dairy options).
Pupils can **prepare and cook savoury dishes** (cheese and potato pie, pizza pinwheels) using a range of techniques such as: • peeling * mixing • kneading or rolling * chopping • grating * baking • seasoning and tasting Pupils can **follow a recipe accurately**, working safely and hygienically
Pupils can **explain what seasonality means** and identify when key ingredients (e.g., apples, potatoes) are in season in the UK.

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Key Performance Indicators

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KS3 Year 7 Design and Technology

DESIGN – Research & Design
Can research and analyse Alessi products to identify key design characteristics such as playfulness, emotional design, and cultural influences.
Can use research (including cultural references and user profiling) to identify and understand the needs of a chosen target user for the clock
Can produce design ideas that clearly show influence from Alessi's design philosophy while still being original and purposeful. Creative ideas made using approaches such as biomimicry, user-centred design, or character-driven design to avoid stereotypical outcome
MAKE
Can select appropriate materials (e.g., acrylic thickness, colours, finishes) based on their properties and suitability for the design
Can prepare CAD files correctly for computer-aided manufacture, using appropriate line types, layers, and tolerances
Can achieve a high-quality finish through careful handling, edge finishing, and attention to detail
EVALUATE
Can analyse the work of past and present designers—especially Alessi—to broaden understanding of aesthetics, function, and emotional design
Can gather and respond to feedback from intended users or peers to refine the design or manufacturing process
Can explain how design and technology developments impact individuals, society, and the environment, including responsible material use and sustainability.
TECHNICAL KNOWLEDGE
Can explain the properties of acrylic (e.g., rigidity, finish, machinability) and justify its use for a laser-cut clock.
Can apply computing skills to create accurate CAD files for manufacture.
COOKING & NUTRITION
Can explain the principles of a healthy, balanced diet and apply them when preparing savoury dishes such as ratatouille.
Can identify the key nutrients in each dish (e.g., vitamins in vegetables, fibre in dried fruit, carbohydrates in muffins and bars) and explain their functions in the body and adapt recipes to improve nutritional value (e.g., reducing sugar in muffins, increasing vegetables in ratatouille, adding seeds to breakfast bars).
Can explain the source and characteristics of key ingredients used in the project, such as: • **Seasonal vegetables** (courgettes, peppers, tomatoes for ratatouille) • **Fresh fruits** (apple, pear, blueberries, carrot) • **Dried fruits** (raisins, apricots, dates) • **Flour, oats, eggs, dairy** used in muffins and bars
Can identify seasonal ingredients and explain how seasonality affects cost, flavour etc. and can choose ingredients based on their functional properties (e.g., oats for structure, spices for flavour, vegetables for moisture and nutrients).

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Key Performance Indicators

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KS3 Year 8 Design and Technology

DESIGN – Research & Design
Can research and analyse existing wooden products (e.g., boxes, storage items) to identify features, functions, and user needs.
Can communicate design ideas using annotated sketches that explain materials, joints, construction methods, and intended use
Can generate creative design ideas using approaches such as biomimicry, user-centred design, or form inspiration from existing products.
MAKE
Can select and use specialist tools and equipment precisely (e.g., tenon saw, bench hook, chisels, pillar drill, sanding tools) to create accurate wood joints.
Can select appropriate types of wood (e.g., softwood, manufactured boards) based on their properties and suitability for the box.
Can ensure the final product functions as intended (e.g., lid fits, joints align, box is structurally sound).
EVALUATE
Can test and evaluate their wooden box against the design specification, identifying strengths and areas for improvement.
*Critically evaluate existing products and suggest with clarity how the product, or user experience could be improved. Respond to feedback from intended users or peers to refine the design or construction.
Can explain how design and technology developments impact individuals, society, and the environment, including responsible timber sourcing and sustainability.
TECHNICAL KNOWLEDGE
Can explain the properties of different woods (e.g., grain direction, hardness, stability) and justify material choices for the box.
Can understand how structural elements—such as joints, fixings, and reinforcements—contribute to a strong, functioning product.
COOKING & NUTRITION
Can explain the principles of a healthy, balanced diet and apply them when preparing savoury dishes such as macaroni cheese with leeks, to feed themselves and others a varied and healthy diet.
Can use a range of cooking techniques confidently, including: • **Boiling and simmering** (pasta, cheese sauce) • **Roux-based sauce making** (macaroni cheese) • **Kneading, proving, and baking** (focaccia) • **Mixing, folding, and baking** (carrot cake
Can describe how ingredients behave during cooking (e.g., gluten formation in bread, gelatinisation in cheese sauce, aeration in cake).
Can apply heat in different ways and judge using sensory cues such as texture, aroma, and colour. Can season and flavour dishes appropriately, adjusting taste and texture where needed