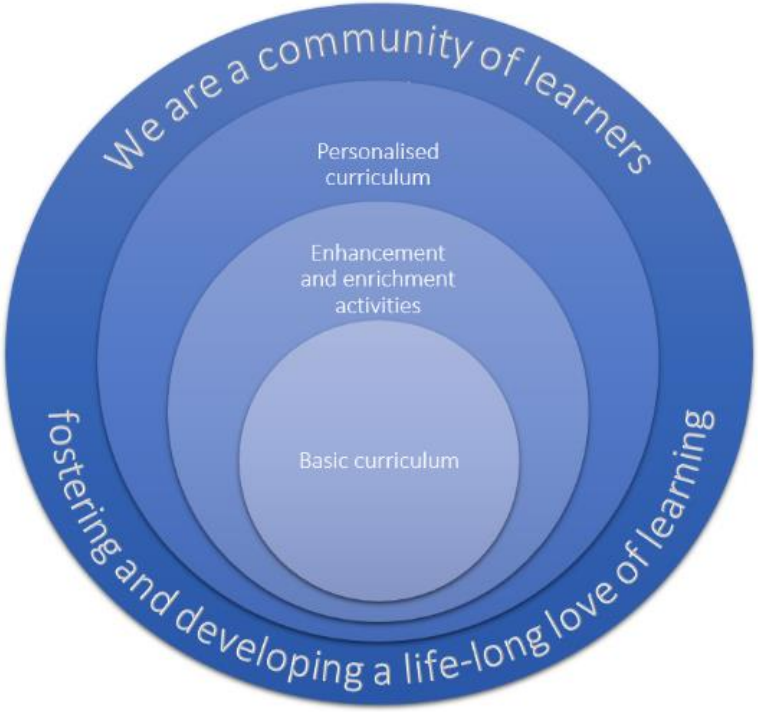

DESIGN AND TECHNOLOGY CURRICULUM

Design is not just what it looks like and feels like.

Design is how it works.

Steve Jobs

Design and Technology: Intent

At our school, we believe that Design and Technology is an integral part of the curriculum that we offer. The design and Technology association describe it as 'giv(ing) young people the skills and abilities to engage positively with the designed and made world and to harness the benefits of technology. They learn how products and systems are designed and manufactured, how to be innovative and to make creative use of a variety of resources including digital technologies, to improve the world around them.'

We are proud of the high quality design and technology curriculum, which is an integral part of the whole school curriculum. It enables pupils to explore design and technology as well as relate it to other core and foundation subjects. Our design technology curriculum inspires pupils to develop their creativity and share this with others.

We want every child to leave Nascot Wood Junior School with an understanding of the importance of design and technology and recognising its significance for the UK economy.

Implementation

We have designed our curriculum with a technical knowledge focus for each year group. In addition to a design and make project, each year group will have a cooking and nutrition project to ensure that the KS2 curriculum requirements are met.

We recognise that Design and Technology has natural cross-curricular links, and therefore Class Teachers build on this in their planning and teaching.

When designing our curriculum, we have been informed by the STEM learning Primary Design and Technology resources, which includes resources designed by the Institute of Mechanical Engineers (IMechE).

What do we teach?	*Year 3*
Technical knowledge focus: Apply their understanding of how to strengthen, stiffen and reinforce more complex structures	
Criteria	*How the criteria will be met*
<u>Design</u> *Pupils should be taught to:* ▪ *use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups;* ▪ *generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.*	Use research and develop design criteria to inform the design of a Shadoof (linked to History topic).
<u>Make</u> *Pupils should be taught to:* ▪ *select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately;* ▪ *select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.*	Select appropriate materials and tools to make a Shadoof.
<u>Evaluate</u> *Pupils should be taught to:* ▪ *investigate and analyse a range of existing products;* ▪ *evaluate their ideas and products against their own design criteria and consider the views of others to improve their work;* ▪ *understand how key events and individuals in design and technology have helped shape the world.*	Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work.
<u>Cooking and Nutrition</u> *Pupils should be taught to:* ▪ *understand and apply the principles of a healthy and varied diet;* ▪ *prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques;* ▪ *understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.*	Design and prepare a smoothie understanding and applying the principles of a healthy and varied diet.

What do we teach?	*Year 4*
Technical knowledge focus: understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages);	
Criteria	*How the criteria will be met*
Design *Pupils should be taught to:* ▪ *use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups;* ▪ *generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.*	Use research and design criteria to develop a design for a catapult.
Make *Pupils should be taught to:* ▪ *select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately;* ▪ *select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.*	Select appropriate materials and tools to make a catapult.
Evaluate *Pupils should be taught to:* ▪ *investigate and analyse a range of existing products;* ▪ *evaluate their ideas and products against their own design criteria and consider the views of others to improve their work;* ▪ *understand how key events and individuals in design and technology have helped shape the world.*	▪ Evaluate the design in terms of how far they can launch small objects. ▪ What they have learnt from the project? ▪ How can they build on this knowledge to inform future projects?
Cooking and Nutrition *Pupils should be taught to:* ▪ *understand and apply the principles of a healthy and varied diet;* ▪ *prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques;* ▪ *understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.*	To prepare a healthy pasta dish.

What do we teach?	*Year 5*
Technical knowledge focus: understand and use electrical systems in their products (for example, series circuits incorporating switches, bulbs, buzzers and motors)	
Design *Pupils should be taught to:* ▪ *use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups;* ▪ *generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.*	To research into children's toy vehicles, producing a design criteria for a toy that will appeal to a primary school children.
Make *Pupils should be taught to:* ▪ *select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately;* ▪ *select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.*	Children to manufacture a car. Chassis frame, electrical circuit (so the car can go in reverse as well as forward) to power the vehicle. Then to create the upper frame work and body to attract the target audience.
Evaluate *Pupils should be taught to:* ▪ *investigate and analyse a range of existing products;* ▪ *evaluate their ideas and products against their own design criteria and consider the views of others to improve their work;* ▪ *understand how key events and individuals in design and technology have helped shape the world.*	Children to evaluate their vehicle against the criteria, for speed and ease of use. Children to then suggest ways to improve the car.
Cooking and Nutrition *Pupils should be taught to:* ▪ *understand and apply the principles of a healthy and varied diet;* ▪ *prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques;* ▪ *understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.*	To design and prepare a healthy pizza, understanding and applying the principles flavours and textures of ingredients. Look at the farm to fork process of key ingredients – cheese, tomatoes and dough.

What do we teach?	*Year 6*
Technical knowledge aspect: apply their understanding of computing to program, monitor and control their products.	
Design *Pupils should be taught to:* ▪ *use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups;* ▪ *generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design.*	Use research to develop and design a steady hand game.
Make *Pupils should be taught to:* ▪ *select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately;* ▪ *select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.*	Develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose aimed at particular individuals or groups.
Evaluate *Pupils should be taught to:* ▪ *investigate and analyse a range of existing products;* ▪ *evaluate their ideas and products against their own design criteria and consider the views of others to improve their work;* ▪ *understand how key events and individuals in design and technology have helped shape the world.*	Evaluate their ideas and products against design criteria and consider the views of others to improve their work
Cooking and Nutrition *Pupils should be taught to:* ▪ *understand and apply the principles of a healthy and varied diet;* ▪ *prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques;* ▪ *understand seasonality, and know where and how a variety of ingredients are grown, reared, caught and processed.*	Indulgent to healthy: To design and prepare a healthy alternative muffin.

Impact

- Our children are confident and curious to explore Design and Technology
- Our children are highly engaged and interested in the foundation subjects, understanding their importance and future application
- Termly assessment and professional dialogue in pupil progress meetings demonstrates that a high percentage of children achieve the expected standard and above in the foundation subjects
- KS2 results are consistently above national and Hertfordshire measures, indicating a broad knowledge base
- Our children have awareness and aspirations for STEM-related study and careers
- The school is consistently graded as outstanding by our Hertfordshire Improvement Partner
- Anecdotal evidence suggests that our past pupils do well at GCSE and A level, and are highly valued by secondary colleagues
- There is a large percentage of children each year who gain places at high performing secondary schools, both in the state and private sector

How we achieve this

- We carefully monitor and report on the progress and attainment of individual children and groups of children, and ensure that staff have access to this information to inform their planning
- We identify gaps between disadvantaged children and other children, and find ways to address gaps if they occur
- We regularly consult with children
- We listen to Teachers
- We work in partnership with parents