A Guide to Design and Technology at HSA School

Intent: What is it like to be a designer and a maker at HSA school ?

SKILLS

At HSA School, our bespoke Design and Technology curriculum is designed to inspire all pupils to become creative, resourceful, and reflective problem-solvers. We aim to encourage children to contribute positively to society as productive citizens as they grow up. Through a carefully sequenced, knowledge and skills rich curriculum we intend to develop children's cultural capital to ensure that they have a breadth of knowledge and leave Hertford St Andrew as more informed world citizens who understand their responsibility to the environment and future generations.

Our DT curriculum follows the National Curriculum guidelines for Design and Technology, ensuring comprehensive coverage whilst being tailored specifically to the needs and context of HSA School. We develop technical knowledge and practical skills progressively across all year groups, enabling children to design, make, and evaluate products that solve real and relevant problems.

CREATIVITY

At HSA School we enable our children to be confident, creative designers and makers. We teach the creative aspects of DT so that our children can be creative thinkers and problem-solvers. They learn to generate original ideas, explore different ways to make them work, and design solutions for real-life needs that are both innovative and environmentally responsible. Pupils develop creative skills by experimenting with materials, tools, and techniques, and by adapting their ideas as they design and make. We encourage imaginative thinking, curiosity, and innovation, helping children understand that creativity involves both ideas and practical action, and that sustainable design can be both beautiful and functional.

ENJOYMENT

We encourage a love of learning in DT by nurturing curiosity and enthusiasm for exploring how things are designed, made, and improved. Our pupils will be developing their key skills and knowledge through our carefully mapped curriculum which goes across the year groups to ensure clear progression. This structured approach provides both an enjoyable experience of DT learning and a meaningful context for children's work, helping them understand real-life structures and products, their purpose, the processes involved in making them, and their environmental impact, while steadily building their technical expertise.

PURPOSE

Our curriculum is fully aligned with the National Curriculum for Design and Technology and aims to encourage creativity, curiosity, and problem-solving through meaningful, hands-on learning. Pupils design, make, and evaluate products for real purposes, developing confidence, resilience, and enjoyment in the process. DT helps children understand how things work and inspires them to become innovative, practical thinkers who can shape and improve the world around them.

How we design and make

At HSA Primary School, our bespoke Design and Technology (DT) curriculum is implemented through rich, engaging, and purposeful learning experiences that reflect our school vision: Love Learning, Aim High, Love God.

Our curriculum follows the National Curriculum guidelines for Design and Technology, ensuring all statutory requirements are met whilst being carefully adapted to meet the specific needs of our pupils and school community.

We have a blocked curriculum approach for teaching Design and Technology, giving our children a more focused and immersive learning experience, one which enables their knowledge to become more deeply embedded as part of our curriculum. Each block provides opportunities for children to explore existing products, deconstruct and evaluate them, and discover the processes involved in creating functional and appealing designs. Using this knowledge, children then design and make their own products, developing creativity, problem-solving, and innovation. They are encouraged to become risk-takers and innovators, learning that design often involves experimentation, reflection, and refinement.

Design and making everywhere

At HSA we work hard to promote high standards of design and making across the curriculum. We work to do this in a number of ways:

A Design and Making Rich Environment

Within each classroom, high levels of design thinking and technical knowledge are promoted using working walls and resources. Models of products and design processes support children's learning. Classrooms are design-rich, to help teach children new technical vocabulary, as well as apply them in context. There are age-appropriate resources scaffolding key learning, including tools, materials, and visual guides for techniques.

Around the school we also showcase and draw attention to design and technology across the curriculum. This may take the form of class displays of current projects and learning, cross-year group work on a particular theme to show progression through the school, or other displays and exhibitions sharing exciting products and designs that have been created by our children.

Cross - Curricular Opportunities

It is expected that children will apply the skills taught in DT across the curriculum. Children will produce products that evidence new skills and understanding in Science, Humanities, or Computing. They also learn new ways of applying design thinking when creating models in Geography, structures in History topics, or when considering aesthetics in Art.

Enrichment Opportunities

Within school we capitalise on exciting events and trips to inspire children's designing and making. Where possible, links are also made to other topics being studied currently to help learning stick and give meaning to their products. This reinforces our key concepts of designing for a purpose and being effective problem-solvers. Events such as our Christmas Craft Morning reinforce a love and appreciation of good design and give children a chance to come together as a whole school to create design projects. During the year, children are encouraged to design and make for a purpose in whole school events, for example creating products for our International Week or designing solutions for real problems in our local community.

Meeting our designers and makers where they are

The design and making process at HSA School enables children to design based on their own experiences, interests and understanding of the world. Children are not expected to replicate designs they may have no experience of, but to bring their own ideas and lived experience to their designing. By seeing teachers as designers and makers, children learn to value themselves as designers and makers. DT at HSA is accessible for everyone and children are encouraged to value design and making as enjoyable and meaningful whilst being taught the skills to create functional and appealing products.

Implementation: What do we do ?

Our bespoke curriculum at HSA School follows the National Curriculum guidelines across five key areas:

In EYFS, design and making is taught through continuous provision with a strong focus on supporting each child towards a good level of development. There are daily opportunities to explore materials, tools, and construction in enhanced provision. Children develop fine motor skills and begin to understand how things are made and how they work.

In KS1, all DT teaching is underpinned by development of basic making skills, safe tool use, and simple design processes. Children learn to design purposeful, functional products based on design criteria, and begin to evaluate their products against these criteria.

In KS2, children develop more sophisticated design and making skills. By this stage, technical knowledge is developing to a degree that enables children to create more complex products

and use more advanced techniques, materials, and tools, as well as applying mechanical and electrical systems.

The Teaching Sequence for DT at HSA School

Each unit follows the basic structure below, with teachers using ongoing assessment, as well as formal DT evaluations, to inform planning to meet the needs of individual classes and children:

Investigate and Explore	The start of the sequence involves exploring existing products, taking them apart where appropriate, watching demonstrations and immersing the children in the design context and purpose. Children are taught to analyse products at this stage, with teachers directing children towards and explaining key features of design, materials, and construction methods, before children find examples within real products. Technical vocabulary should also be discussed and displayed throughout the unit to be referred back to. *Feedback: work at this stage can include photographs, annotations, and verbal feedback as appropriate.*
Research and Analyse	Children explore a range of existing products, looking for design features, materials used, construction methods, and how products meet user needs. A list of design criteria is created. This outlines what each final product needs to have. Teachers model the research process and provide examples of products, including those made by previous pupils.
Generating Design Ideas	A range of techniques are used to help children come up with ideas for their products: design discussions, teacher modelling, user research, and consideration of materials and techniques available. Children think about what will make their product functional and appealing, what the purpose is, and who will use it. It is important that all teachers model this stage of the design process – how to generate, record and organise design ideas through sketches, diagrams and annotations.
Planning and Designing	Planning happens through design sheets that include sketches, diagrams, labels, and lists of materials and tools needed. Some children need more scaffolds and planning tools to support executive functioning. Children's planning should be relevant and useful and meet the needs of the product they are making. Design criteria should be clearly referenced.

Making	This is where children begin to create their products. Making may happen in lots of small steps, one extended session, or everything in between. Teachers should model making techniques and think out loud to help children see the process of construction, including problem-solving when things don't work as planned. Children have opportunities to share techniques and learn from others.
Refining and Improving	Refining is the process of making improvements during the making process. Teachers should make sure that any changes improve the functionality or appeal of the product. Discussion with children, either 1:1 or in small groups, is important at this point. As children get older and more confident with techniques, they will be able to make refinements more independently. Refinements can happen at any stage of making and should be explicitly linked to the design criteria and technical aspects of construction.
Testing	Testing is checking that products work as intended and meet the design criteria. Children test their products, identifying what works well and what could be improved. This can happen during making (formative testing) and with completed products (summative testing).
Evaluating	The important final stage! This is a celebration of, and reflection on, skills learned and products created. Children's talk about their finished products develops metacognitive skills around design and making. Sharing sessions with parents establish the school's high regard for DT. Children evaluate their products against design criteria. They discuss what worked well, what they would change, and what they learned. In KS2, they may also evaluate the views of users and suggest improvements for future versions. All products are shared through presentations, evaluation sessions, displays, or use in school.

Sometimes, it will be appropriate to change the order or revisit certain elements many times. Throughout the process, teachers will be delivering linked lessons on technical knowledge, including materials, structures, mechanisms, electrical systems, and food technology, to develop children's understanding.

DT opportunities should also be built in across the curriculum to give children opportunities to apply their new knowledge in different contexts. This should be detailed in science/humanities planning as appropriate.

Technical Skills Development

Structures: Children learn to create stable structures using a variety of materials and techniques, progressing from simple paper constructions in KS1 to more complex frameworks using wood and other materials in KS2.

Mechanisms: Pupils explore and create products with moving parts, from simple sliders and levers in KS1 to more complex gear systems and cams in KS2.

Textiles: Children develop skills in cutting, joining, and decorating fabrics, progressing from simple running stitch in KS1 to more complex stitches and techniques in KS2.

Food Technology: Pupils learn about healthy eating, food preparation, and cooking techniques, with increasing complexity and independence as they progress through school.

Electrical Systems: In KS2, children learn to incorporate simple circuits and switches into their products, and in upper KS2, may use programmable components.

Tools and Safety

Children are taught to use tools safely and with increasing precision. In EYFS and KS1, this includes scissors, glue guns (with supervision), and simple construction tools. In KS2, children progress to using saws, drills, and other tools appropriate to their age and ability always with proper safety instruction and supervision.

Adjustments in tool use and expectations are made for children with additional needs in this area. Also adapted tools and equipment that support all children to access DT learning safely are provided.

Additional Needs

For children who experience additional challenges, including EAL difficulties and SEND, support takes place in the lesson. Planning shows that scaffolds and resources, as well as adult support, enable children to access the learning with the whole class. Adapted resources are also used to support children in developing cutting skills, including special pencil grips and loop scissors.

For children who have significant challenges in accessing learning, an individual plan may be needed. This is developed by the class teacher with the support of the SENCo.

Impact: What are our outcomes ?

Our desired impact for our children at HSA School is that they become confident designers and skilled makers, ready for the challenges of secondary school and life beyond. We want to see that all children are designing and making for enjoyment and innovation as well as knowing and understanding the value and importance of design and technology for everyday life. Children should all recognise that DT sometimes has a practical purpose but should also value design and making for enjoyment and creative expression.

Formative assessment and adaptation are key features of every lesson at HSA School.

Formal assessments enable teachers to see progress in all aspects of DT. Children are expected to make progress against their year group expectations in line with the National Curriculum or for children working towards age related expectations or pre-Key Stage, an

appropriate set of expectations. Teachers make informed judgements each term about children's design, making and evaluation skills.

Where children are not working at the expectations of their year group, the appropriate assessments are used so that teachers can fully understand the child's starting points, gaps and progress. Where needed to help teachers plan for a child, specialist assessment tools are used.

End Points

We have clear expectations for each end point within HSA School, aligned with National Curriculum guidelines for Design and Technology.

In EYFS we provide as many exploring and making opportunities as possible to get children ready for DT. Children are expected to achieve a good level of development.

The KS1 curriculum is focused on the basics. Children are expected to secure the fundamentals of design, making and evaluation to prepare them for KS2. In KS2 children learn more sophisticated design and making techniques and are expected by the time they leave HSA School to be able to design and create products that are functional, appealing and fit for purpose across a broad range of contexts.

End point	What will children achieve ?
End of Reception (GLD)	By the end of Reception, children's design and technology experiences will contribute to them achieving a Good Level of Development, particularly in: - Expressive Arts and Design (creating with materials) - Physical Development (using tools and equipment) - Understanding the World (exploring and talking about materials)
End of KS1	By the end of Key Stage 1, children should have developed the foundational skills, knowledge and understanding in Design and Technology that will prepare them for KS2. The endpoints below are based on the National Curriculum requirements for KS1 Design and Technology. **What children will achieve at HSA School by the end of KS1:** **Design** - Children can design purposeful, functional, appealing products for themselves and other users based on design criteria - Children can generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology **Make** - Children can select from and use a range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing) - Children can select from and use a wide range of materials and components, including construction materials, textiles and food ingredients, according to their characteristics **Evaluate**

	- Children can explore and evaluate a range of existing products - Children can evaluate their ideas and products against design criteria **Technical Knowledge** - Children can build structures, exploring how they can be made stronger, stiffer and more stable - Children can explore and use mechanisms (for example, levers, sliders, wheels and axles) in their products **Food Technology** - Children understand where food comes from - Children can use the basic principles of a healthy and varied diet to prepare dishes - Children can prepare simple dishes safely and hygienically **Knowledge of Designers and Design** - Children know about the work of a range of designers, craft makers and engineers - Children can talk about how products are designed and made - Children can identify what makes a product successful
End of KS2	By the end of Key Stage 2, children should have developed sophisticated design and making skills, comprehensive technical knowledge, and the ability to work independently on design projects. The endpoints below are based on the National Curriculum requirements for KS2 Design and Technology. **What children will achieve at HSA School by the end of KS2:** **Design** - Children can 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 - Children can generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design **Make** - Children can select from and use a wider range of tools and equipment to perform practical tasks accurately - Children can 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 **Evaluate** - Children can investigate and analyse a range of existing products - Children can evaluate their ideas and products against their own design criteria and consider the views of others to improve their work - Children understand how key events and individuals in design and technology have helped shape the world **Technical Knowledge – Structures** - Children can apply their understanding of how to strengthen, stiffen and reinforce more complex structures

	Technical Knowledge - Mechanical Systems - Children understand and use mechanical systems in their products (levers, linkages, pulleys, gears, cams) **Technical Knowledge - Electrical Systems** - Children understand and use electrical systems in their products (series circuits incorporating switches, bulbs, buzzers and motors) - Children can apply their understanding of computing to program, monitor and control their products **Food Technology** - Children can prepare and cook a variety of predominantly savoury dishes using a range of cooking techniques - Children understand the principles of a healthy and varied diet and can apply the principles of nutrition and health

Aside from progress shown in internal data, we know that we are achieving our aims at HSA School when:

- Children see themselves as designers and makers and take pleasure in sharing their products
- Children design and make for enjoyment in a wide range of personal projects
- All children see DT as for them and are fully included in DT lessons
- We see high quality products on display in classrooms and around HSA School
- We see high quality modelled designs and making techniques in classrooms
- We see evidence that children are using provided resources and technical vocabulary when they design and make
- The development of skills and knowledge as children move through HSA School enables each teacher's planning to build on the skillset of the previous year
- Children move towards using independent design and making methods as they get older
- There is good presentation in all design work and careful finishing of products
- Adults have high quality conversations with children about design, designers, and their own design and making journey
- Children with EAL develop strong technical vocabulary in DT, as well as practical making skills
- Children with additional needs reach their potential in DT, including using provision in class that scaffolds learning effectively
- Children demonstrate the values of HSA School - Love Learning, Aim High, Love God through their enthusiasm for design challenges, their ambition to create high-quality products, and their care and attention in their making
- Products created by children at HSA School are functional, well-made and show clear evidence of the design process
- Children can articulate their design decisions and explain how their products meet the needs of users
- Our bespoke DT curriculum, which follows National Curriculum guidelines, enables all children to leave HSA School as confident, creative designers and makers ready for the next stage of their education