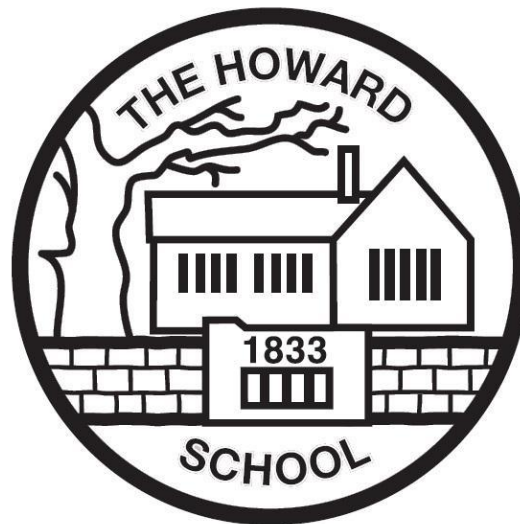


# Ackworth Howard C of E School

Educating for 'life in all its fullness.'



## Design and Technology Policy



# ACKWORTH HOWARD POLICY DESIGN AND TECHNOLOGY



'Providing opportunities for growth  
in mind, body and spirit.'

## DT Policy

| Date          | Review Date   | Subject Leader |
|---------------|---------------|----------------|
| December 2020 | December 2022 | Michael Walker |

## INTENT

At Ackworth Howard J&I School, we believe that design and technology (DT) should develop: the mind (creativity, imagination, resourcefulness, innovation and enterprise); body (consideration of others, risk taking); and spirit (understanding of the impact on the wider world and the contribution to culture, wealth and well-being of the nation) of each child.



### Mind

DT at our school is an inspiring, rigorous and practical subject that encourages children to learn to think and intervene creatively to solve problems, both as individuals and as members of a team. We encourage children to use their creativity and imagination, to design and make products that solve real and relevant problems within a variety of contexts. We also aim to make links to designs and designers throughout history, providing opportunities for children to critically reflect upon and evaluate their designs. Wherever possible, we link work to other disciplines such as mathematics, science, engineering, computing and art. This gives the learning purpose and relevance to the children.



### Body

Children learn to take risks in a safe environment, becoming resourceful, innovative, enterprising and capable citizens considering their own and others' needs, wants and values. The unique talents of every child are embraced.



### Spirit

Through the evaluation of past and present design and technology, children develop a critical understanding of its impact on daily life and the wider world and the impact it has on the contribution to the creativity, culture, wealth and well-being of the nation.

## Christian Distinctiveness

Design and Technology can easily be recognised and developed within a Christian ethos. The Bible speaks of God the Creator and as we were made in his image, each human being shares creative qualities and talents to some degree or another. In Design Technology we can encourage pupils to both think and construct creatively for both themselves and a wider audience.



# ACKWORTH HOWARD POLICY DESIGN AND TECHNOLOGY



**'Providing opportunities for growth  
in mind, body and spirit.'**

## Strategic Aim

**To build a Design and Technology curriculum which develops learning and results in the acquisition of knowledge and skills. Children will know more, remember more and understand more.**

To design a Design and Technology curriculum with appropriate subject knowledge, skills and understanding as set out in the National Curriculum Design and Technology programme of study, to fulfil the duties of the National Curriculum whereby schools must provide a balanced and broadly-based curriculum which promotes the spiritual, moral, cultural, mental and physical development of pupils and prepares them for the opportunities and responsibilities and experiences for later life.

## Research Link

Enhancement – Education Endowment Fund research indicates that given the complex nature, and limited evidence of impact on attainment of enrichment activities, it is important to think carefully about what you are intending to achieve. It is also important to consider carefully whether such activities should replace curriculum linked activities, as this might have a negative impact on attainment.

Education Endowment Fund research stresses the importance of developing character / essential life skills in childhood and the association with a range of positive outcomes at school and beyond.

School: questionnaires (parents and pupils) indicate that children positively engage in practical tasks. Pupils' written work indicates that clearly planned activities provide a scaffold for language consolidation. Parents support the need for frequent DT projects to be undertaken.

## Essential for DT

- All children have an opportunity to think creatively about how to solve design problems.
- All children have the opportunity to acquire a broad range of subject knowledge and draw on other disciplines.
- All children can evaluate and test their own and the work of others critically and make suggestions for improvements.
- All children know how to use equipment in a safe way and manage risk.
- All children have been taught the relevant technological skills to build their design.
- All children have an appreciation of innovative technological design that they have seen or experienced in their everyday lives.
- All children have an understanding and apply the principles of nutrition and learn how to cook.



# ACKWORTH HOWARD POLICY DESIGN AND TECHNOLOGY



'Providing opportunities for growth  
in mind, body and spirit.'

## IMPLEMENTATION

- Clear and comprehensive 'knowledge essentials' provide a road map to rigor and inform a progressive and aspirational scheme of work. The Design and Technology National Curriculum and EYFS is planned for and covered in full within the EYFS, KS1 and KS2 school curriculum. Whilst the EYFS and National Curriculum forms the foundation of our curriculum, we ensure that learning goes deeper, and within a local context where possible.
- The promotion of a language rich Design and Technology curriculum is essential to the successful acquisition of knowledge and understanding in Design and Technology. The promotion and use of an accurate and rich vocabulary throughout school is planned in Design Technology within the knowledge essentials document.
- The subject leader produces medium term plans utilising the Design and Technology knowledge essentials. This ensures continuity and progression throughout school.
- Alongside medium term plans, knowledge organisers are also developed for each unit of work. Children have access to these and they are used in a variety of ways within the classroom and at home where appropriate. They include key knowledge, language and definitions to understand Design and Technology and to use this knowledge across the curriculum.
- Utilising the documents produced by the subject leaders ensures that teachers have the required information they need in order to develop their year group long term plans and deliver an aspirational curriculum. This is monitored by the subject leader. Activities include:
  - Activities in which children investigate, disassemble and evaluate products (IDEAs). – This means that children will examine and test the products of others (either commercial or of their peers) to make judgements about the quality or the methods by which it was produced.
  - Focused practical tasks in which children practice particular skills (FPTs) - This means that children are set tasks which enable them to practise a particular skill. This should not be undertaken in isolation, children can still produce an object even though the main aim is skill development. E.g. Children produce a Christmas card but the main intention was to provide an opportunity for children to practise folding card accurately and in using adhesive for small-scale work.
  - Assignments in which children design and make products (DMAs) - This means that children are set a design task or brief from which there will be a variety of outcomes, i.e. an open ended task. Younger children can be set design tasks in which the teacher has specified the outcome but the children should be provided with some individual choice or decisions. Older children can work on a task in which the teacher has not given any indication of what the outcome might be, but assistance/feedback is given on an individual basis in response to their own design.
- Design and Technology displays, where evident throughout school, focus on key aspects of Design and Technology and exemplify the terminology used throughout the teaching of the subject. They also link back to the school vision and enable pupils to make links across the wider curriculum.
- Independent learning: In design and technology children may well be asked to solve problems and develop their learning independently. This allows the children to have ownership over their curriculum and lead their own learning in Design and Technology.
- Basic skills - English, Maths and ICT skills are taught during discrete lessons but are revisited in Design and Technology so children can apply and embed the knowledge and skills they have learnt in a purposeful context.



# ACKWORTH HOWARD POLICY DESIGN AND TECHNOLOGY



**'Providing opportunities for growth  
in mind, body and spirit.'**

- Enhancement – Regular enrichment is planned throughout the academic year and can include, visits, visitors and involvement in community activity to provide first-hand experiences for the children to support and develop their learning. This can be linked to Design and Technology. We recognise that to have impact planned cultural capital must be clearly linked to the statutory Design and Technology skills and knowledge to be acquired and provide the opportunity for children to better understand the knowledge or apply what they already know.
- Makerspace – Our Makerspace is used to provide a bespoke facility for the teaching and learning of STEM subjects.

## **Foundation Stage**

We encourage the development of creativity, skills; knowledge and understanding that help children make sense of their world as an integral part of the school's work. We relate the development of the children's arts and design to the objectives set out in the Early Learning Goals. These underpin the curriculum planning for children aged three to five. This learning forms the foundations for later work in design and technology. These early experiences include asking questions about how things work, investigating, using and being creative with a variety of construction kits, materials, tools and products, developing making skills and handling appropriate tools and construction material safely and with increasing control. We provide a range of experiences that encourage creativity, exploration, observation, problem solving, critical thinking and discussion. These activities, indoors and outdoors, attract the children's interest and curiosity.

## **Teaching and Learning Strategies**

The school uses a variety of teaching and learning styles in design and technology sessions. The principal aim is to develop children's knowledge, skills and understanding in Design and Technology. Teachers ensure that the children apply their knowledge and understanding when developing ideas, planning and making products and then evaluating them. We do this through a mixture of whole-class teaching and individual/group activities. Within lessons, we give children the opportunity both to work on their own and to collaborate with others, listening to other children's ideas and treating these with respect. Children critically evaluate existing products, their own work and that of others. They have the opportunity to use a wide range of materials and resources, including computing. In all classes there are children of differing ability and we recognise this, providing suitable learning opportunities for all children by matching the challenge of the task to the ability of the child.

## **Teaching design and technology to children with special educational needs**

At Ackworth Howard we teach Design and Technology to all children, whatever their ability. Design and Technology forms part of the school's Delivering the Curriculum policy to provide a broad and balanced, local education to all children. Through our Design and Technology teaching we provide learning opportunities that enable all pupils to make progress. We do this by setting suitable learning challenges and responding to each child's different needs. Assessment against the National Curriculum allows us to consider each child's attainment and progress against age related expectations. We try to enable pupils to have access to the full range of activities involved in learning design and technology. All enrichment activities are inclusive.



# ACKWORTH HOWARD POLICY DESIGN AND TECHNOLOGY



'Providing opportunities for growth  
in mind, body and spirit.'

## Reasonable Adjustments in Design Technology

The curriculum leader in Design and Technology recognises the importance of ensuring that children with identified Special Educational Needs and/or Disabilities have access to an ambitious Design and Technology curriculum. Within the curriculum area of Design and Technology, SEND children will be provided with reasonable adjustments through their tasks and level of challenge provided. Advice can be sought from the school's SENDCO where applicable.

## Resources

Our school has a wide range of resources to support the teaching of Design and Technology across the school. Classrooms have a range of basic resources, with the more specialised equipment being kept in the Makerspace and resource room.

## Health and Safety

- All children should be made aware of the need to use equipment safely and take responsibility for safe working, handling and storage of tools and equipment. Guidelines for safe food handling are in school. The LA Health and Safety procedures are followed.
- A list of children with specific allergies is available from the office. Teachers should familiarise themselves with this and avoid using foods such as nuts or foods high in colouring etc., which might cause an adverse reaction. Staff should also be sensitive to any cultural food taboos of children within their class.
- An oven is available in school for food based DT.

## Equal Opportunities

- All pupils should have equal access to the Design and Technology curriculum irrespective of race, gender or ability. Examples of technology from other cultures can be a rich resource in the curriculum.
- Pupils with special needs should be considered when planning units of work and opportunities for differentiation should be considered for both more able and less able pupils.
- Design and Technology provides opportunities to address some of the gender stereotypes children may have. Steps should be taken in classroom organisation to ensure that all pupils experience all activities, tools and materials.



# ACKWORTH HOWARD POLICY DESIGN AND TECHNOLOGY



'Providing opportunities for growth  
in mind, body and spirit.'

## Pedagogy

In Design and Technology, like all other subjects, we recognise the importance of the methods and practice of teaching (the pedagogy) we choose to use in enabling pupils to know more, understand more and remember more. In Design and Technology, the following approaches will be used, and be evident in pupils' books, in order to ensure that the Design Technology learning opportunities are as effective as possible and that pupils progress throughout the year and across year groups during their Design Technology experiences in school.

## Teaching Sequence in Design Technology

- Big picture: Placing of the Design and Technology being studied in the context of similar past learning in the subject.
- Daily review: Brief review of learning covered in previous lesson/s.
- Lesson questions: Posing a problem to be solved in a context the children understand.
- Planning: Experimenting and investigating with different techniques and media.
- Design Process: Creating own design work, applying new techniques, skills and media to own design work.
- Evaluation: Critically evaluating their own design work.
- Improving: Improving work after evaluation.

## Possible pedagogical approaches used in Design and Technology

- Behaviourism - Direct teacher instruction; modelling of skills and techniques; demonstration.
- Constructivism - Inquiry-based learning; outdoor learning.
- Social Constructivism - Teacher modelling; questioning; mix of individual, paired and group instruction.
- Liberationism - Pupil-led learning; opportunities to showcase learning.
- Learning, working and talking like a designer - Being introduced to the key vocabulary that a designer would use; defining the key vocabulary that a designer would use; high expectations of pupils 'talking' like a designer.

All teaching approaches currently being developed in school are based on evidenced based research. All developments in teaching and learning identified with the School Development Plan and Delivering the Curriculum Policy should be applied to the teaching and learning of Design and Technology also.



# ACKWORTH HOWARD POLICY DESIGN AND TECHNOLOGY



'Providing opportunities for growth  
in mind, body and spirit.'

## Contribution to other areas of the Curriculum

**English:** Design and Technology contributes to the teaching of English in our school by providing valuable opportunities to reinforce what the children have been learning during their English lessons. Discussion, drama and role-play are important ways that we employ for the children to develop an understanding of the fact that people have different views about Design and Technology. The evaluation of products requires children to articulate their ideas and to compare and contrast their views with those of other people. Through discussion, children learn to justify their own views and clarify their design ideas.

**Mathematics:** In Design and Technology, there are many opportunities for children to apply their mathematical skills through choosing and using appropriate ways of calculating measurements and distances. They learn how to check the results of calculations for reasonableness, and learn how to use an appropriate degree of accuracy for different contexts. Children learn to measure and use equipment correctly. They apply their knowledge of fractions and percentages to describe quantities and calculate proportions. The children will carry out investigations, and in doing so, they will learn to read and interpret scales, collect and present data, and draw their own conclusions. They will learn about size and shape, and make practical use of their mathematical knowledge, in order to be creative and practical in their designs and modelling.

**Science:** There are also many opportunities to link DT with Science. Children will be given opportunities to use their design skills when conducting investigations. There is also a strong link when using textiles, changing/mixing colours, choosing appropriate materials for a task when selecting insulators, or waterproofing a design etc.

**Computing and E-Safety:** We use computing to support Design and Technology teaching when appropriate. Children use software to enhance their skills in designing and making and use technology to collect information. Children will be made aware of suitable websites and how to filter specific images. During DT lessons children will have access to laptops and other equipment when needed but this will be monitored by the staff in the classroom and ensure that appropriate websites are being accessed. Children will not use the internet without supervision and all websites will be checked first for suitability.

**Personal, social and health education (PSHE) and citizenship:** Design and technology contributes to the teaching of personal, social and health education and citizenship. We encourage the children to develop a sense of responsibility in following safe procedures when making things. They also learn about health and healthy diets. Their work encourages them to be responsible and to set targets to meet deadlines, and they also learn through their understanding of personal hygiene, how to prevent disease from spreading when working with food.

**Spiritual, moral, social and cultural development:** The teaching of Design and Technology offers opportunities to support the social development of our children through the way we expect them to work with each other in lessons. Our groupings allow children to work together, and give them the chance to discuss their ideas and feelings about their own work and the work of others. Through their collaborative and cooperative work across a range of activities and experiences in Design and Technology, the children develop respect for the abilities of other children and a better understanding of themselves. They also develop a respect for the environment, for their own health and safety and for that of others. They develop their cultural awareness and understanding, and they learn to appreciate the value of differences and similarities. A variety of experiences teaches them to appreciate that all people are equally important, and that the needs of individuals are not the same as the needs of groups.

**Cross Curricular links are made wherever possible.**





# **ACKWORTH HOWARD POLICY DESIGN AND TECHNOLOGY**



**'Providing opportunities for growth  
in mind, body and spirit.'**

## **Community Links**

Opportunities to use the community as a resource for lessons are encouraged. Parents are welcomed into the school to talk to children about aspects of this subject. Reference to the agricultural and horticultural nature of the county should be made when dealing with food topics and agricultural machinery viewed.

## **Assessment and Recording**

Teachers assess children's work in Design and Technology by making assessments as they observe them working during lessons. They record the progress that children make by assessing the children's work against the knowledge essentials. Attainment against the knowledge essentials is continually imputed into our Insight Tracking system to ensure ongoing formative assessment and teacher judgements are made on summative attainment at each data collection point.

## **Professional Development**

Whole school INSET and staff meetings will be arranged when D&T is a main focus on the SDP. Staff will be invited to attend courses according to the prioritised needs of the school.

## **Policy and Curriculum Development**

The policy and scheme of work will be reviewed by the staff and adjustments made in response to staff evaluations. The monitoring of the standards of children's work and of the quality of teaching in Design and Technology is the responsibility of the Design and Technology subject leader. The work of the subject leader also involves supporting colleagues in the teaching of Design and Technology, being informed about current developments in the subject, and providing a strategic lead and direction for the subject in the school.



# ACKWORTH HOWARD POLICY DESIGN AND TECHNOLOGY



'Providing opportunities for growth  
in mind, body and spirit.'

## What is a makerspace?

Makerspaces are creative spaces. These areas are designed to engage participants in hands-on activities that teach twenty-first-century skills. The emphasis in makerspaces is placed upon educating in STEAM (science, technology, engineering, art and mathematics) subjects as well as digital and information literacy.

Makerspaces are increasingly being looked to as a method for engaging learners in creative, higher-order problem-solving through hands-on design, construction, and iteration.

## How does a makerspace benefit children?

Makerspaces benefit children by allowing them to:

- Be responsible for their own self-directed learning. Makerspaces allow children to explore topics that are of interest to them.
- Get creative. In the modern era, the ability to solve problems in an innovative way is critical to success. Makerspaces teach children to think creatively while also seeing the real-world impact of their work.
- Explore new ideas in a safe space. Because of the nature of the makerspace environment, children can feel more comfortable asking questions they may not have asked in the classroom. This exposes them to new ideas and ways to think.
- Learn how to fail and try again. Because of the focus on trial and error, makerspaces are an excellent place for children to test a hypothesis. If it doesn't work, they have the freedom to question why and try again.
- Learn how to focus. Excessive sitting is proven to reduce attention in schools. Makerspaces allow children to focus on an idea or problem.
- Express themselves and collaborate. Expression and collaboration are critical skills to have in business. Makerspaces are an excellent way for children to learn how to share their ideas and get feedback.
- Develop a sense of self and a sense of community that empowers them to engage with and shape the designed dimension of their world.

## How will the makerspace be used?

Our makerspace will serve as a gathering point for tools, projects, mentors and expertise. A collection of tools does not define a makerspace. Rather, we define it by what it enables: making.

Our makerspace will be a learning environment rich with possibilities. The children will connect to work on real and personally meaningful projects, informed by helpful mentors and expertise, using new technologies and traditional tools.



# ACKWORTH HOWARD POLICY DESIGN AND TECHNOLOGY



'Providing opportunities for growth  
in mind, body and spirit.'

The makerspace will provide children with opportunities to use a number of tools such as saws, glue guns, drills, 3-D printers etc to undertake projects involving joinery, mechanical and electronic works.

Our curriculum will be further developed to make specific links to the use of the makerspace and teachers will work together to develop skills and expertise to ensure children are provided with opportunities to use this unique space.

The children will be taught how to use tools correctly and how to keep themselves safe.

During activities the children will also have the opportunity to develop leadership skills undertaking roles such as project managers etc.

## How does the makerspace link to our vision?

### Developing the Mind:

- Opportunities to develop leadership skills, confidence and resilience.
- A broad and balanced curriculum is proudly promoted.
- Creativity is nurtured across the curriculum.
- Learners are encouraged to flourish, shaping aspirations. Talents are developed in all areas of life.

### Developing the Body:

- The unique talents of every child are embraced.
- Within a welcoming environment, personal progression is enabled.
- Learners are allowed to falter; to get things wrong and try again as they work out how to be in a relationship with themselves and others. They see modelled a community of compassion that makes this possible.

### Developing the Spirit:

- Learners thrive in a shared society.
- Learners are supported to be the change they want to see in the world.
- Learners become agents of change.
- Learners are ambassadors who can make a positive contribution.
- Character development impacts on wider society enabling people to flourish together.



# ACKWORTH HOWARD POLICY DESIGN AND TECHNOLOGY



'Providing opportunities for growth  
in mind, body and spirit.'

## IMPACT

We ensure that children:

- Will know more, remember more and understand more about Design Technology.
- Will develop competence in the key concepts and knowledge essentials within the school's curriculum.
- Develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world.
- Build and apply a repertoire of knowledge, understanding and skills in order to design and make high-quality prototypes and products for a wide range of users and critique, evaluate and test their ideas and products and the work of others.
- Understand and apply the principles of nutrition and learn how to cook. Children will design and make a range of products. A good quality finish will be expected in all design and activities made appropriate to the age and ability of the child.
- Children learn how to take risks, becoming resourceful, innovative, enterprising and capable citizens. Through the evaluation of past and present design and technology, they develop a critical understanding of its impact on daily life and the wider world. High-quality design and technology education makes an essential contribution to the creativity, culture, wealth and well-being of the nation.