

Design and Technology Subject Pathway

Design and Technology is a driving subject of our **Explore** projects in the **Spring Term**. Design and Technology objectives are also taught within other projects, deepening the learning and providing opportunities to revisit design skills and knowledge.

EYFS

Key Stage One

Reception Expressive Arts and Design: Creating with Materials

In Reception, we have lots of opportunities to learn how to use materials, tools and techniques to create products for different purposes. We draw on our imagination, our experiences and ideas from stories we have shared to develop ideas for making and creating.

Physical Development: Fine Motor Skills

We practice using small tools, including scissors and paintbrushes, to cut and shape materials for different purposes.

Year One: Discover

We get lots of opportunities to practice our cutting and joining skills, making Diva lamps and Christmas puppets. After exploring different materials, we apply what we have learnt to designing superhero capes.

Year Two: Explore Whose responsibility is it to look after the air we breathe?

In Year Two, we learn about the damage cars can do to the environment, and how electric cars are a way to reduce pollution. We research different kinds of cars, finding out what makes them useful as well as what makes them appealing, using this knowledge to design our own. We learn how to cut and join wood in order to make wooden frames for our electric cars, incorporating motors and batteries so they can be truly electric. We build our technical knowledge by learning how wheels and axles work, including them in our designs and attaching them to our cars. Once we are finished, we have lots of fun testing out our electric vehicles!

Year One

Year Two

Lower Key Stage Two

Year One: Explore What makes a house a home?

In Year One, we learn lots about the different sorts of homes that people live in, thinking about what a house needs in order to become a home. We find out about different kinds of materials and how their properties make them suited to different parts of a house. After exploring different kinds of homes, we design our own. Using cardboard and paper, we use and follow our designs, learning about different ways to cut, join and strengthen cardboard structures. We even include electrical components so our homes can have lights inside!

As well as the outside of a home, we think about the important things that happen inside them, including eating and sharing special meals. We make soup, exploring different ingredients and writing recipes.

Year Four: Explore How can our choices improve our future?

In Year Four, we find out about how renewable energy is one important way that we can protect our environment in the future. We learn lots about wind power and how wind turbines work to generate electricity. We combine what we have learnt in Geography to identify a good location for building a wind farm, thinking about how external factors can influence design needs. We communicate our understanding in designs, using annotations to explain our choices and describe our process. Our own wind turbines are built from corrugated cardboard, and we need to learn how to cut, shape and join this, working accurately from templates. We are able to include electrical components, which are powered by our turbines, demonstrating how wind power works in the real world.

Year One: Express
While learning about the story of Goldilocks and the Three Bears, we learn new sewing skills so we can make felt puppets of the characters.

Year Four: Discover
While learning about the Romans, we design and make our own Roman shields, designing them based on historical sources. We definitely look fearsome when we parade with them altogether!

Year Three: Explore How does food bring us together?

In Year Three, we celebrate all the different foods we love, thinking about why food is so important to our lives. We find out about the importance of seasonality in farming and why we have to import some foods that we can't grow here. We learn about how to make healthy food choices and discover what it means to eat a balanced diet. We explore the tastes, textures and smells of lots of different savoury ingredients before combining them into our own recipes, communicating our design ideas in writing and through drawings. We learn to measure and weigh ingredients accurately and safely in order to cook our own savoury meals. The best bit? Definitely getting to eat it all up after!

Year Three: Discover
While learning about the Ancient Greeks, we design and make Greek soldier armour including helmets and shields, using our own research to help us know what these should look like. We really enjoy testing these out in a pretend battle!

Year Four

Year Three

Upper Key Stage Two

Year Five: Explore How can we overcome challenges facing our world?

In Year Five, we learn about the problem of plastic pollution in our oceans and think about how we can contribute to solving it. We explore the UK legislation around single use plastic bags to help us understand the importance of finding alternative ways to carry our shopping. We test and evaluate existing reusable bags, learning about the costs involved in manufacturing bags from different materials. We learn to cut, shape and sew fabric, finding out about ways to strengthen textile products so they can achieve their design purpose. We create detailed designs, including exploded diagrams, in order to show how we will join materials together. Computer-aided design enables us to add aesthetic elements, making our bags even more appealing by creating iron-on transfers.

We also find out about the work of key individuals in inventing machines that can clear plastic out of the ocean.

Year Six: Discover
While learning about the cultural contribution of the Windrush generation to Britain, we explore carnival costumes. We identify aspects of our favourite examples, combining them to design our own.

Year Six: Explore How do communities work together to face adversity?

In Year Six, we think about how design solutions can create homes that are resistant to flooding as part of our learning about the changing climate. We evaluate existing flood resistant homes and innovations. We communicate our ideas through increasingly complex designs, including cross-sectional designs and exploded diagrams. We learn how to cut and join wood to form a 3D frame. We build our technical knowledge by exploring how pulleys work, testing these in order to raise and lower objects out of flood water. We finish our homes by waterproofing them, working out how to solve problems such as maintaining clear entry and exit ways without letting water inside.

We also learn how designers and engineers are helping parts of the world that don't have enough water. We research innovations in drills and have a go at designing our own. Each year, we send our designs to the makers of the Village Drill in Utah, who have created a drill that has brought water to over 100 communities across the world. We really value the amazing feedback they give us on our designs!

Year Five: Express:
We learn how our diet can affect our wellbeing, planning and cooking a healthy meal, using what we know about different food groups.

Year Five

Year Six