
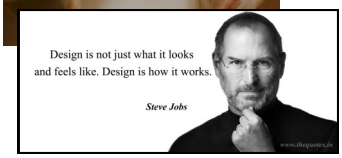


# Design and Technology- The St. John's Approach

**Design and Technology at St. John's enables all children to explore, experiment, design, create and flourish in an immersive, forward–thinking and relevant curriculum**


## Vision

Design and Technology at St. John's will prepare children for tomorrow's rapidly changing world. It will enable them to be independent, self-regulating learners who can identify problems and think creatively of how to solve them– both as individuals, and as part of teams. Through the study of inspirational people and events in the world of Design and Technology, children will themselves strive towards 'excellence'. They will be confident in reflecting and evaluating past and present creations, considering their designs, uses and impact on the wider world. This background knowledge will be the foundation of DT learning and will provide children with the platform to develop skills, experiment, design, create and flourish. Through self-regulation and self- evaluation, children will be aspirational. They will be equipped with the knowledge and skills achieve well, attain high and shine, within St. John's and beyond.

## Rationale– Why we do what we do...

**The views of our stakeholders (children, staff, governors and parents) have been at the root of all decision making.**

*All of the school's stakeholders were consulted in April 2019.
*They suggested and agreed that learning should be fun, exciting, creative, interesting, inspiring and linked to our school values.
*All stakeholders valued the immersive 'Topic' learning and enrichment opportunities– trips, visitors and 'wow' moments
*All stakeholders agreed that practical learning should be very much 'hands-on' with regular opportunities to explore, discover and captivate

**As a result of our stakeholders' views…**

1. In May 2019, we created a curriculum vision which is inclusive of all subjects.
2. From the curriculum vision, we created our vision for the teaching and learning of Design and Technology.
3. We created a knowledge, skills and vocabulary routeway for Design and Technology from Reception to Year 6, underpinned by the National Curriculum.
4. As part of this, we selected key aspects of Design and Technology (Food, Structures, Mechanisms, Electricity and Textiles) and ensured knowledge and skills for these areas were re-visited and built upon over time.
5. We developed a routeway for children to study key individuals and events linked to Design and Technology.
6. We created an enrichment overview for Design and Technology, in order to captivate children and instil a passion for lifelong learning.

Our Design and Technology curriculum is designed to equip children with important knowledge from the world of Design and Technology as well as provide them with skills such as 'resilience drive' and ' and which to flourish in tomorrow's world.

## How is Design and Technology taught?

**Timings and Timetabling**

In Reception, DT is experimented with and taught as part of 'Continuous Provision' with some adult-led learning and some child-initiated learning with sustained shared thinking. Across the rest of the school, DT is taught as part of our Topic curriculum alongside Art, History and Geography. This is a deliberate decision in response to the Stakeholder views as well as the high priority we place on deepening knowledge. In order for children to be excited and inspired, it is important they are fully immersed in the learning and can make links to other knowledge acquired– within DT and across the curriculum, rather than seeing learning in isolation. Within each year group, the timetabling of DT is flexible, depending on the topic learning journey. However, the timings average to approximately 1 hour per week. This ensures breadth and depth of knowledge and secure knowledge retention and skills progression.

**Design and Technology– An Overview**

Design and Technology at St. John's is practical and hands-on. From Reception through to Year 6, the children have the opportunity to learn new knowledge and skills in a progressive a logical journey. Reception is about exploring, discussing and improving whilst having fun. KS1 lays down the foundations of design, make and evaluate and by the end of Year 2, they begin to make links with important individuals in the DT world. In KS2, children have regular opportunities to re-visit and cement previous knowledge and skills and build upon them in a progressive way. Please see the 'Knowledge, skills and vocabulary routeway for Art' for more detail on the progression.

| Year groups | Autumn | Spring | Summer |
|---|---|---|---|
| **Reception**<br>**DT aspects are linked to the 'Creating with Materials' aspect of Expressive Arts and Design** | Develop fine motor skills for pencil control<br><br>**Textiles–** Threading with a focus on objects (e.g. beads of different shapes and sizes on string)<br>**Structures–** Shape Structures and Junk Modelling with a focus on exploring building materials and different ways to join<br>**Cooking–** Texture Kitchen/ role play– Diwali, Christmas etc. | Further develop fine motor skills for pencil control<br>**Textiles–** Threading and weaving with different materials<br>**Structures–** Shape Structures and Junk Modelling with a focus on design, make and evaluate<br>**Cooking–** Texture Kitchen/ role play<br>(Making pancakes as a group) | Refine fine motor skills for pencil control<br><br>**Textiles–** Sewing and weaving patterns with different materials<br>**Structures–** Shape Structures and Junk Modelling with a focus on evaluating and improving own designs and the designs of other children. Challenging children to create a design project for others to complete<br>**Cooking–** Chopping ingredients for the kitchen team– designing recipes for a smoothie |
| **Year 1** | Cooking (Designing and preparing a Fruit Salad) | Structures (paper and card) | Mechanisms (sliders) |
| **Year 2** | Mechanisms (wheels and axles) | Cooking<br>(Preparing a healthy savoury dish) | Textiles (Joining textiles and investigating a running stitch) |
| **Year 3** | Cooking (baking bread) | Mechanisms (pulleys) | Structures (wood and card strengthening) |
| **Year 4** | Structures (wood and strengthening struts) | Textiles<br>(Sewing a using a range of stiches) | Mechanisms (Levers, wheels and axles) |
| **Year 5** | Mechanisms (sliders, pulleys and levers | Cooking<br>(preparing a hot savoury meal) | Electrical Systems (Circuits, bulbs, switches) - building on Year 4 Science |
| **Year 6** | Electrical Systems (Motors and sensors through computer programming) | Mechanisms (cams) | Textiles (Using a range of stitches on their own design) |

# Enrichment

Enrichment opportunities within and across all areas of the curriculum are important to the stakeholders at our school. Our research shows that although lots of children have been exposed to visits, the quality of these visits vary. Therefore our enrichment opportunities for Design and Technology' have been placed carefully with plenty of opportunities for extension and challenge. Please see below the 'Design and Technology' Enrichment Overview:

| Year | Enrichment | Term | Topic |
|---|---|---|---|
| **Recep-tion** | **Visit:** Belgrade Theatre (Christmas)<br>**Purpose:** To begin to make use of props and materials when role playing characters in narratives and stories | Autumn | Twinkle, Twinkle, we are stars |
| **Year 1** | **Parental Engagement:** Time to Shine (Fire of London Exhibition)<br>**Purpose:** To celebrate a range of learning from across the curriculum | Spring | Time Travel |
| | **Parental Engagement:** Time to Shine (Book Shop)<br>**Purpose:** To evaluate and share their moving picture books | Summer | Exploring the world |
| **Year 2** | **Visit:** Coventry Transport Museum (travel by bus)<br>**Purpose:** To explore and evaluate a range of cars and identify wheels and axels<br><br>**Parental Engagement:** Time to Shine (St. John's Motofest)<br>**Purpose**: To share and evaluate their moving vehicles with parents<br><br>**Visitor:** Car Engineer<br>**Purpose:** To inspire future career aspirations | Spring | Zoom! Soar! Whizz! |
| | **Parental Engagement:** Come and Share<br>**Purpose:** To use the basic principles of a healthy and varied diet to produce savoury dishes and evaluate these | Spring | Going Global |
| | **Parental Engagement:** Time to Shine (Seaside Puppet Show)<br>**Purpose:** To present and evaluate their puppets functionality in a puppet show for parents | Summer | Happy Holidays! |
| **Year 3** | **Parental Engagement:** Time to Shine (St John's Bake Off- Taste test)<br>**Purpose:** To begin to evaluate their bread against their own design criteria | Autumn | Set in Stone |
| | **Parental Engagement:** Time to Shine (Egyptian Museum)<br>**Purpose:** To celebrate creative outcomes with parents, considering the views of others | Summer | Egyptian Discovery |
| **Year 4** | **Parental Engagement:** Come and Share<br>**Purpose:** To explore how to strengthen bridge structures | Autumn | Wild Water Adventure |
| | **Parental Engagement:** Time to Shine<br>**Purpose:** To investigate the effect of different types of stitches | Spring | Money, Money, Money |
| | **Visit:** Wroxeter : Ancient Roman City experience<br>Purpose: To investigate, evaluate and begin to analyse a range of weapons used by the Romans<br>**Parental Engagement:** Time to Shine (Catapult Demonstration)<br>**Purpose:** To present and demonstrate Roman catapults with parents | Summer | Under Attack! |
| **Year 5** | **Parental Engagement:** Come and Share<br>**Purpose:** To investigate a range of mechanisms (lever, slider and pulley) for use in a toy Viking Long-ship | Autumn | Back to the dark ages… |
| | **Visit:** Dovedale National Nature Reserve in the Peak District National Park<br>**Purpose:** To evaluate appearance and functionality of a torch against their own design criteria. | Summer | Building Our Future |
| **Year 6** | **Visitor:** Junior STEM<br>**Purpose:** To generate, develop, model and communicate their ideas through computer aided design and programming | Autumn | Catastrophe! |
| | <u>Design and Technology</u><br>**Visit:** Belgrade Theatre (travel by bus)<br>**Purpose:** To research and develop design criteria<br><br><u>Design and Technology</u><br>**Parental Engagement:** Come and Share<br>**Purpose:** To design, create and test prototypes<br><br><u>History, Art, Design and Technology</u><br>**Parental Engagement:** Time to Shine (End of Year 6 Production)<br>**Purpose:** To celebrate learning in their 'end of St John's' production | Summer | I will shine! |

## Key Individuals and Events in Design and Technology Overview

See below the 'Key Individuals' and 'Events' children learn about whilst at St. John's:

| Year Group | Key Individuals in Design and Technology | Key Events in Design and Technology | Term Studied |
|---|---|---|---|
| **Year 2** | Early Bronze Age civilians | Historians believe the 'wheel' was first invented in the late Stone Age and early Bronze age. | Autumn Term Topic: Zoom! Soar! Whizz! |
| | Karl Benz– German Engineer and Designer | It is widely recognised that Karl Benz developed the first practical automobile in 1885– the 'Benz Patent Motor Wagon' was designed and created to generate it's own power. | |
| | Henry Ford– American founder of the Ford Motor Company | Henry Ford was the chief developer of the assembly line technique of mass production. | |
| **Year 3** | Paul Hollywood– Successful British Chef | -The Gourmand World Cookbook Awards named his 2005 book *100 Great Breads* as the "Top Bread and Pastry Book" for that year.<br>-He created an almond and roquefort sourdough recipe that was said to be the most expensive bread in Britain.<br>-In 2013, he presented *Paul Hollywood's Bread* on BBC Two, in which he gave advice on recipes for different types of bread. | Autumn Term Topic: Set in Stone |
| | Archimedes of Syracuse– Historical inventor, engineer and Mathematician | Archimedes invented the first compound pulley system. | Spring Term Topic: Going Global |
| **Year 4** | James Finley– Irish designer and builder<br>Isambard Kingdom Brunel– English Civil Engineer | James Finley designed and built the first the modern suspension bridge.<br>Brunel designed and constructed a range of bridges around the U.K. | Autumn Term Topic: Wild Water Adventure |
| | The Roman Army | The Romans re-designed the Ancient Greek Ballista (catapult) by adding wheels to help with manoeuvrability during battles. | Summer Term Topic: Under Attack! |
| **Year 5** | David Misell– British Inventor | David Misell invented the flashlight torch in 1896 | Summer Term Topic: Building our Future |
| **Year 6** | William Henry Robinson— New Zealand Scientist and engineer | William David Robinson invented 'base isolation' in buildings, making them stronger and more resilient to earthquakes. | Autumn Term Topic: Catastrophe |
| | Sandy Powell– Modern British Costume Designer | Sandy Powell is an award-winning costume designer, famous for her recent costumes in Mary Poppins Returns, Cinderella and Hugo. | Summer Term Topic: I will shine! |

## Assessing Outcomes

Assessing outcomes in Design and Technology is rigorous and focused. Teachers regularly review learning and knowledge within and after lessons and adapt their teaching as a result.

In Reception, all children have a personalised 'Learning Journey' book which is used to record learning from all areas of learning across the year. Teachers use this evidence to ensure that all children are making progress and attaining well. Where children are not meeting expected standards, teachers provide additional support where appropriate.

On entry to Year 1, children discover and learn more about Design and Technology . All acquired knowledge and experimentation of skills linked to DT is recorded in topic books along with a copy of the final DT outcomes. Teachers use the outcomes in topic books to assess ongoing attainment and progress.

Progress in skills and knowledge acquired over time is assessed by the teacher, in collaboration with the DT Subject Leader. They do this by comparing the initial knowledge 'Drive' document, which is completed by the children independently, with their 'Vocabulary Glossary', 'Progress Pitstops', end of topic 'Knowledge Harvests' and 'Knowledge Quizzes'.

The DT subject leader completes regular monitoring of attainment and progress through a combination of pupil voice, book monitoring and matching actual outcomes to intended outcomes as identified in the DT 'National Curriculum– Knowledge, Skills and Vocabulary Routeway' document. From this monitoring, key actions are given to the teacher and re-visited frequently.

The DT subject leader then has a formal meeting with senior leaders to discuss outcomes and next steps. The Curriculum Senior Leaders use the information given to them to hold 'Curriculum Progress Meetings' each half term. These are in addition to the Maths and English Progress Meetings. These meetings identify and celebrate pupil progress and set agreed targets for narrowing any gaps in knowledge and skills.