Intent Implementation Impact

DT Intent, Implement and Impact

Intent

The Design and Technology (DT curriculum at Our Lady and St Rose of Lima Primary school has been designed to inspire our children to be innovative and creative thinkers who have an appreciation for the product design cycle through ideation, creation and evaluation. Our 'knowledge rich' and 'practical' curriculum enables our children to develop key skills in designing, making and evaluating as they continue along their educational journey at our school. We want our children to be inspired by engineers, designers, chefs and architects and therefore our curriculum provides them with opportunities to explore and create a range of structures, mechanisms, textiles, electrical systems and food products.

Our DT curriculum follows the National Curriculum of years one to six and is also a fundamental part of our EYFS curriculum, providing opportunities for our children to design and make products through the topics taught in both Understanding the World and Expressive Arts. We believe it is vital this this exposure begins at an early age so that they can understand what it means to design and make products and, as they continue through school, recognise how to solve real and relevant problems within a variety of contexts.

In Early Years, DT is explored throughout Understanding of the World, Expressive Arts and Forest School rather than being a distinct lesson. They are able to explore elements of structural construction through junk modelling, mechanisms through vehicle design along with food and technical knowledge or some tools through their forest school experience. This early exposure allows them to then draw on this understanding as they move into Key stage 1.

Through Key Stage 1 and Key Stage 2, the key concepts of design and construction explored in EYFS are developed and challenged further through the following six key areas:

- Mechanisms
- Structures
- Textiles
- Electrical Systems (KS2)
- Digital World (KS2)
- Cooking and Nutrition (Spade to Fork)

Our curriculum ensures that, through each unit, our children are taught to:

- Design
- Make
- Evaluate
- Use technical knowledge

Through teaching progressively, our children are able to build on their knowledge and develop their skills in DT as key concepts are revisited and skills extended throughout their education journey

here at St Rose. For example, the children will explore mechanisms in Nursery through their 'All About Me' unit where they construct emergency vehicles. As they move into Reception, they investigate toys through their 'Transport Past and Present' unit where they begin looking at wheels and axles. In Year 1, the children build upon this knowledge of mechanisms through their 'Wheels and Axles' unit and develop this further through the use of Lego Spike in Year 2 in their Amazing Amusement Park unit.

Whilst we use Kapow for many of our lessons, we have also incorporated opportunities to learn outside through Forest School and Spade to Fork. We believe it is vital our children are given opportunities to learn outside, particularly as some of our children will not have a lot of outdoor space at home. Our Forest School and Spade to Fork units therefore provide them with the chance to use tools in a safe, outdoor environment whilst also designing and making nutritious meals that incorporates the food we have grown at our school and teach about diet and seasonality. We have also deliberately linked our computing curriculum to provide practical computing in the classroom and enhance the children's programming skills. We have invested heavily in new technology to enhance our teaching and provide our children with the best opportunities to learn with the most up-to-date technology. Our curriculum therefore provides them with the chance to learn 3D drawing through the use of Tinkercad and print their structures with our 3D printer. They are able to develop their computing skills in programming through the use of Micro:bits and are able to create mechanical systems that are programmable with our Lego Spike kits. We believe this technology will enable our children to leave our school with transferable skills that they can build upon as they continue their educational journey and in future careers.

A fundamental part of the curriculum is the way in which our children's knowledge is retained and assessed. The use of knowledge organisers within each topic provides the children with the key vocabulary and learning points that they will encounter during the topic. These are accessed during each lesson and help form part of their prior learning activities. We believe prior learning and regular reassessment are a core element of our curriculum design as they not only provide the children with the tools to facilitate their knowledge recall, but also the teachers with a mechanism to assess their long term retention of key information.

Our curriculum has been designed so that all children are able to access the rich knowledge taught throughout each year group. We recognise the need to expose our children, particularly those from disadvantaged backgrounds to an extensive range of high quality vocabulary. Each lesson has therefore been designed to introduce and explain new vocabulary, including the origins of the words, to enhance their vocabulary. DT lessons provide not only practical opportunities to make a range of products but also to evaluate and reflect on their own designs and improvements that could be made. Our use of technology throughout the curriculum, ensures that our children have immediate access to resources that will assist them with their learning and understanding.

It is our intention that our curriculum will enable all our children to fully appreciate the important role that DT plays in the ever changing world that God has created for us through their primary education. By the end of Year 6, we want our children to be equipped with a creative imagination that enables them to confidently design and make products that solve real problems so that they may, in the future, become future architects, engineers, designers and chefs who will be able to make an impact on God's world.

Implementation

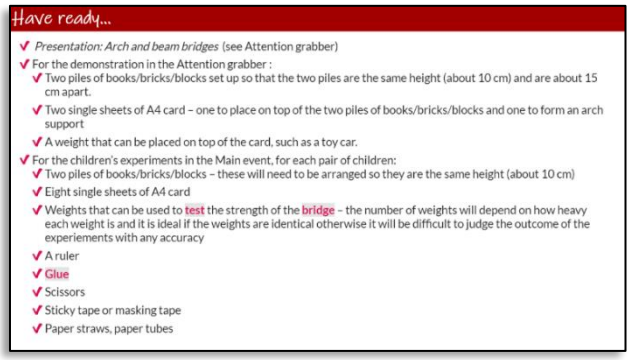
Our children begin their exposed to the practical elements of DT in the Early Years Foundation stage through the 'Understanding the World,' 'Expressive Arts' and 'Forest School' unit. The variety of topics studied in both Nursery and Reception allow them to explore partaking in a variety of different practical activities that help them to begin designing and making different constructions and mechanisms. Even at this early age, the children are exposed to challenging vocabulary and topics that are engaging and exciting for the children. Our teachers recognise the need to creative a positive attitude and excitement for this subject and each lesson includes a range of activities, designed to create a sense of wonder and awe.

Our DT curriculum is taught using a knowledge based approach using key principles from Rosenshine's approach to learning. The structure of each lesson follows a specific format and delivered through high quality lesson powerpoints. Each lesson is designed to revisit prior learning, introduce new vocabulary and provide opportunities for discussion whilst also offering the ability to build on the key concepts taught through design, making and evaluating their own work.

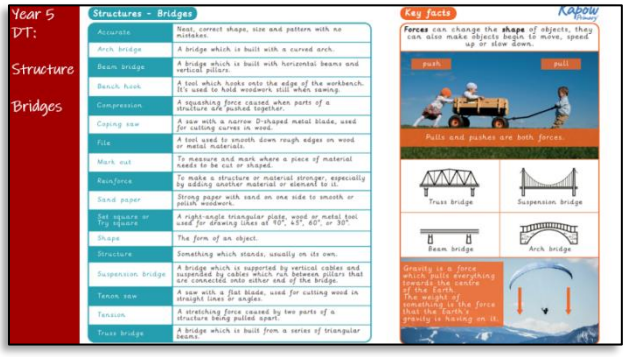
As part of our curriculum design, in KS1 and KS2 our DT lessons are taught in unit blocks as we believe this further enhances the children's enthusiasm for the subject and embeds the knowledge rich learning that takes place within each lesson. The children build on the practical opportunities provided in EYFS and have more formal DT lessons where they are taught to design, make and evaluate a range of products. Each stage of the design process is underpinned by technical knowledge which encompasses the contextual, historical and technical understanding required for each strand of the curriculum. Our teaching staff share their passion for the subject and provide a range of strategies to ensure all of our children, including SEND and those from a disadvantaged background, are able to access the curriculum and achieve their full potential.

Lesson structure

Each lesson powerpoint features a resource list for each unit; an essential tool to ensure the necessary practical equipment is ready in advance for the lesson.

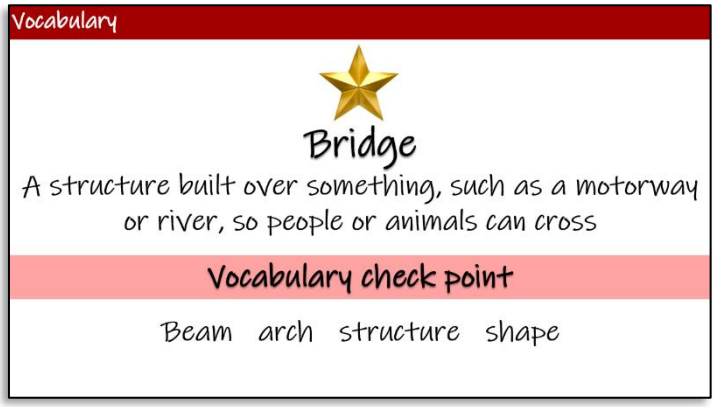


Knowledge organisers are referred to regularly throughout the unit and provide the children with a constant resource that they can refer back to during their lessons and at home. The knowledge organiser provides key vocabulary, the definitions along with any other important information that are essential for the unit being taught.

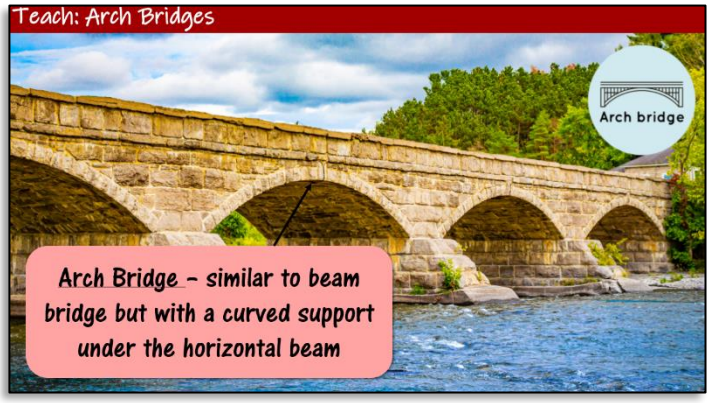


Prior learning is a fundamental part of our curriculum and enables the children to revisit learning from previous units taught in earlier year groups or in lessons prior to the current lesson. This is assessed through a range of activities including big questions and retrieval games; all of which are designed to quickly assess the children's understanding of a previous concept.

Key vocabulary is introduced each lesson. The vocabulary is referred to as a 'star' word and the children are taught the definition and, where appropriate, the origin of the word. The vocabulary chosen, is an important part of the lesson and the children will recognise it through the use of the star during the lesson. The children are encouraged to explain the word and the meaning as part of the lesson and this further enhances and develops their vocabulary and understanding.

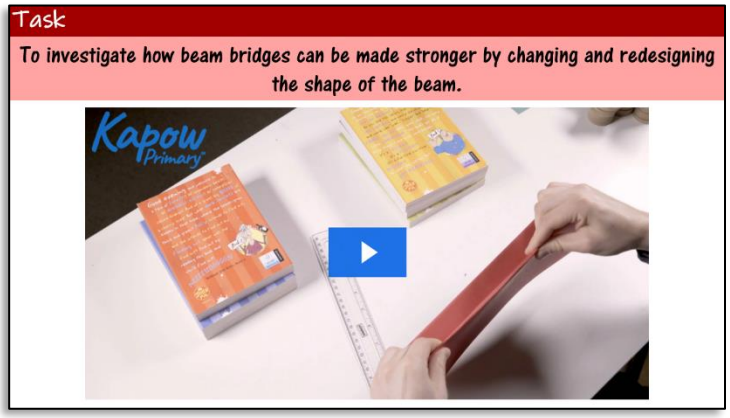


Our **lessons** provide high quality images and key facts to engage the children throughout the lesson. We pride ourselves that we do not overload our slides with text as we believe it is important that our teachers deliver the knowledge in an engaging and exciting way.

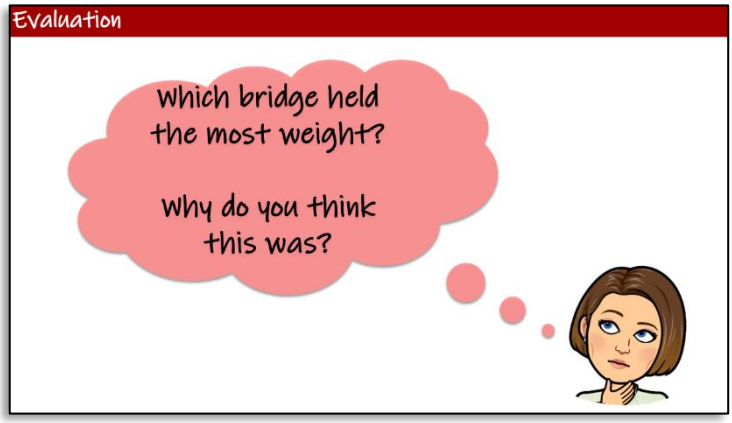


Before each task, the children are given the chance to **talk** to their partner and questions are posed that not only consolidate their learning from the lesson but also prepare them for the task ahead. We believe this is a fundamental part of the lesson as it provides an opportunity to address any misconceptions that children may have whilst also enabling them to discuss the key concepts in a child-friendly way.

Each lesson includes a **task** that has been specifically chosen to help them design, make or evaluate a product for the specific topic. There is always an opportunity for the teacher to demonstrate first either practically or through the use of an easy to follow video. During practical lessons, photographs are taken and added to a whole class 'STEM' journey file. These practical lessons are collated throughout their primary DT journey to further demonstrate the progress in their learning and to celebrate what has been done. Designs and evaluations are then recorded at the back of the children's individual 'STEM' books as this celebrates the initial design stages and reflections on their products.



At the end of each lesson, the children have the opportunity to **evaluate** what they have completed in the lesson and reflect on whether any improvements could be made to their product.



Assessment is vital part of our curriculum. Through a clear progression of skills and the emphasis on prior learning throughout the curriculum, our children and staff are able to pre-empt or address any misconceptions that may have occurred in previous year groups. We recognise that continual assessment throughout a unit is essential and is far more effective than a simple test at the end. At the end of each unit, the children complete a multiple choice quiz, designed to assess their understanding from the lessons. These quizzes are then reassessed throughout the year, along with other retrieval activities through timetabled retrieval practise sessions and homework. We believe this is a fundamental part of our curriculum to ensure our children are able to retain the information taught and build on them as they move through the school. Teachers use these to assess the children's understanding against the National Curriculum requirements.

Our intention, to cater for all children's learning, including the lowest 20%, disadvantaged and SEND, is ensured through delivery of the content from the class teachers, but careful, meticulous adaptions are made to enhance the learning for these children and to cater to their needs; through adaptions of tasks and supportive, accessible resources including the use of Seesaw to enable the children to record answers orally and to help capture the design and practical evidence process.

Our DT curriculum enables the children to recognise the links made with other subjects. Topics are further explored through Science lessons where they explore scientific discoveries made in the past; links are made within Maths lessons through 3D shapes and their practical computing skills are enhanced through the computing curriculum. We want our children to understand that DT is everywhere and the skills of designing, making and evaluating are a fundamental part of many

different aspects of life. Our children are given a range of enrichment opportunities to enhance their passion for design and technology throughout the year from designing Christmas gifts to making soup for our CAFOD fast days. Our annual British Science Week also promotes links with the STEM Association. We want our children to understand that they could be designers, architects, engineers or chefs of the future and we want to raise their aspirations in the associated STEM (Science, Technology, Engineering and Maths) subjects.

Impact

Our carefully planned curriculum results in a practical and knowledge-rich education that enthuses our children and provides them with the necessary skills to succeed in secondary education and be innovative and resourceful members of the world God created for us. We want them to make an impact on society and our curriculum provides them with the necessary tools to be able to begin this journey.

Through our lessons, the tasks we provide and the continual reassessment of their learning, we are confident that all our children are able to build upon previous learning with increasing complexity. Prior learning tasks at the beginning of each lesson ensure that our teaching staff are able to address any misconceptions prior to introducing a new topic and during the topic. Teachers use this information to adapt future planning to ensure that repeated misconceptions do not occur with other year groups.

Understanding our pupils learning habits is an essential part of ensuring maximum impact for their learning. Pupil voice provides the children with the opportunity to share their ideas and celebrate what they have enjoyed in the lessons.

Our curriculum recognises that it is important that our children are able to understand the functional and aesthetic properties of materials and know how to use and combine tools to carry out different purposes. We want them to be able to apply their skills, knowledge and understanding of a range of different computing systems to enable them to fulfil the needs of users and clients in the future. We believe it is essential that our children understand the need for a healthy lifestyle and how to design and create healthy dishes so that they can live to a long and prosperous age. We appreciate the contribution key individuals, events and inventions have had throughout history and for our society today and our curriculum enables our children to share this appreciation too. As a result of our DT curriculum, once our children leave for secondary education, we are confident our children will have a strong foundation for understanding these key values and will recognise that our decisions today will impact the wider world in the future.