

Torkington's

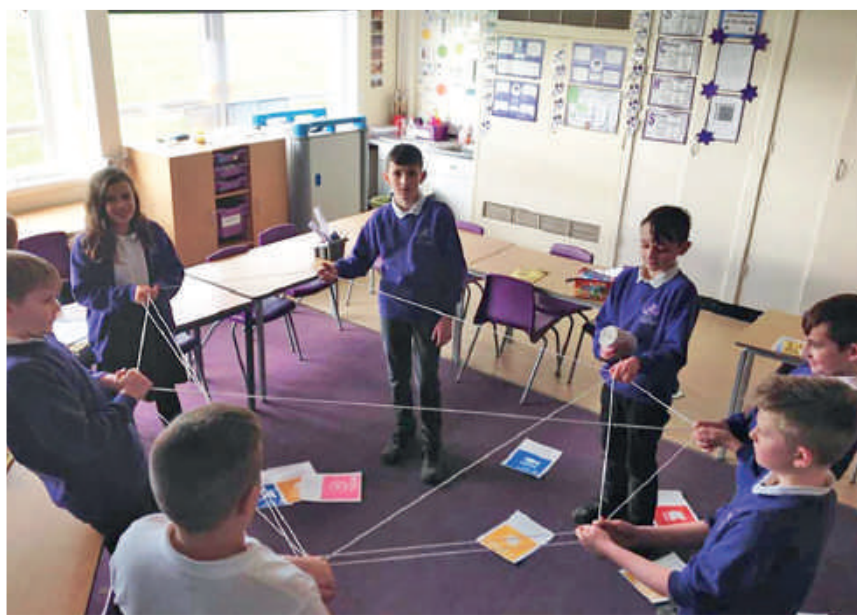
Sustainability Design Challenge

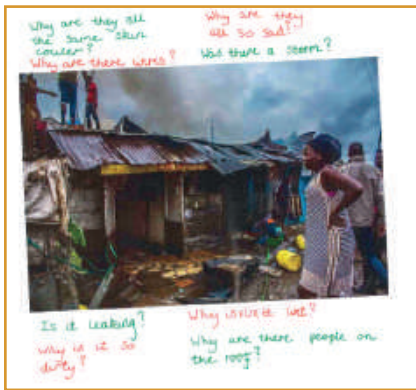
Andy Buckler and Caroline Astall, Torkington Primary School

We both attended an excellent training session and were so enthused by the learning that Torkington Primary School embarked on an ambitious Sustainable Design Challenge. The project was taught to eight mixed ability pupils, with our aim to encourage them to work collaboratively on an open-ended problem-solving project. We used the materials provided in the training to help prepare them for the context of Kibera and introduced the project using the UN sustainability goals. They used journals to proudly evidence their research, designing and development work.

Context and collaborative working

The initial linked string activity, which illustrated how the sustainable goals were interrelated, proved very effective in provoking group discussion. Having limited prior knowledge, it provided the pupils with the essential background knowledge of the sustainability goals. Following this we explored how water is used and where it comes from. Watching a film clip about Kibera and also 'a picture says a thousand words' provoked emotive and mature discussion about the lives and challenges of those who live there.





Next came the more practical aspects of the project with the pupils initially surveying the site and discussing the practicalities of the build. They were encouraged to work as independently as possible whilst we were still there to guide them. Initial plans were drawn up and amended and developed over a period of sessions.

Giving the pupils a context rather than a design brief really excited their imagination and thought processes throughout the project. By giving the pupils a design solution to improve people's lives they understood more about the impact of products on the world and as a result broadened their minds about the world and people.

Another aspect which we felt was particularly positive was the improvement in their ability to work effectively collaboratively. They quickly came to realise that they could problem solve much more effectively by evaluating and moving their thought processes forward as a team. As a result, we were very impressed by their willingness to adapt and evolve their designs. The pupils were also able to identify this themselves: *"I learnt that teamwork was the key to success when we were crafting and that things do not always go as you want, so you have to use trial and error."* (Elena, Year 6)

Outcomes and impact

Also, their ability to work independently and risk take greatly improved which was pleasing to observe. This resulted in the pupils benefiting from seeing their own progress and taking greater responsibility for their own learning as they begin to evaluate the quality of their work independently and as part of a group.

At Torkington we have an embedded Growth Mindset culture. An important aspect of this is the pupils' ability to effectively reflect on their learning, and this proved particularly beneficial in the design process. It enabled the pupils to critically analyse their progress throughout the design and build and change and adapt accordingly.

The success of the project enabled the pupils to develop critical thinking, specifically around the global issues of clean water and understanding why there is an imbalance geographically. Also, the practical elements gave them opportunities to identify and investigate design possibilities in preparation for the Design and Technology build. On reflection, one of the main benefits was the very real development of key transferable skills such as teamwork, problem solving, risk taking and communication of

ideas. As a result, it is our intention to use the Sustainable Design Challenge as an intervention for pupils with social and emotional needs and also a transition unit of work for Year 6 pupils.

The project has also had wider whole school impact. We aim to ensure that the curriculum at Torkington is broad and balanced and integrated in creative ways. For example, as a result of this project we used D&T as a vehicle for our Enterprise week. We are also now in the process of overhauling the D&T curriculum and provision across all phases and are developing schemes of work so that they are 'learner driven', so that all pupils may have the opportunity to reap the benefits seen in this project.



Wednesday 12th February 2020
 We measured the length underneath of the shed. The height was 2.15 and the width was 4 meters. We realised that when collecting the water we need the downpipe to be shorter than 2.15 because we wouldn't be able to pull the bags - without the water spilling everywhere.



The Sustainability Design Challenge courses are free to attend and are taking place throughout the Autumn term. These have been developed for The British Council as part of the Connecting Classrooms Global Learning programme and in partnership with Engineers Without Borders. See the D&T Association website for details.

Engaging with sustainability



Tom Turnham, Assistant Headteacher The Belham Primary School & D&T Specialist Kapow Primary

Over the last few years sustainability has become an issue that has risen to the forefront of most people's minds. As schools look at how they should adapt their curriculums to reflect the growing need to teach about sustainable living, many are discovering that design and technology is the ideal method of delivery for this important message.



Design and technology has always focused on key questions such as: *What is its purpose? What material is it made from? Who is it for?* More and more we are now starting to ask questions like: *What is the impact of this material? How long will this product last? Can this be used more than once?* It is via D&T that children first start thinking about the materials things are made from. Many teachers will have a story about the look of amazement on a pupil's (or adult's) face when discovering that plastic is produced from things like coal or starch and that it can take around one thousand years to breakdown. Yet this understanding about the life cycle of materials and products is vital if we, as a society, are to move away from single use items to more sustainable

products. Students must understand that materials that are incorrectly discarded can severely damage ecosystems and endanger life.

Tote bags

This unit was designed for Year 1 children by staff working in a continuous provision setting in the autumn term. Staff launched this unit through a picture book that looked at the impact of pollution on the environment, in this case it was *'Fin the Fortunate Tiger Shark and his Fantastic Friends'* by Georgina Stevans but there are many other books available. Students then learnt about plastic – what it is, where does it come from and how long it lasts, and pollution – what it is, its impact

on the environment and how it can be stopped. They put this information into informative posters, to be placed inside the finished bags. You could also link this to literacy and write letters to companies petitioning for more sustainable products.

Staff arranged for local artist Stephen Wright to come in and talk about his 'House of Dreams'. Steve has curated a living art piece in his home with every surface covered in found objects. This inspired a conversation about upcycling and a linked art project using bottle lids to make a mosaic. Having decided that one way we can help the environment is to be more sustainable and work towards being zero waste, children looked at common objects that we throw away.





As a class they decided that they wanted to focus on plastic bags. A discussion was facilitated about how we could reduce the number of bags that we throw away which led to children talking about tote bags.

The Unit: Plastic

The pupils were tasked with upcycling a t-shirt into a reusable bag. The unit would cover several of the Key Stage 1 objectives such as: design purposeful, functional, appealing products for themselves and other users based on design criteria & select from and use a range of tools and equipment to perform practical tasks.

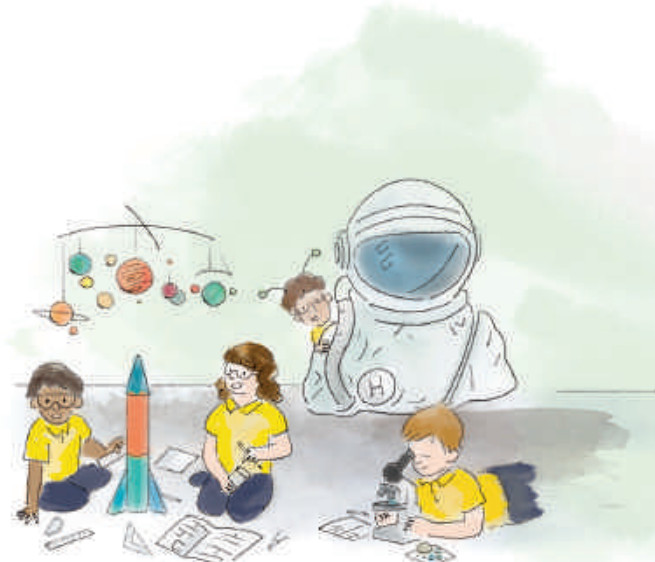
The children looked at a range of plastic and fabric bags, exploring their similarities and differences including the different purposes they may be used for. They then discussed how they could make their own tote bag – thinking about the found materials that they could use. The focus was on discussion rather than written recording due to the age range.

Staff demonstrated how, with some cutting and a little bit of knotting, you could upcycle a t-shirt into a tote

bag by cutting the bottom into tabs that could be tied together to make a seam. Children then set to work planning out their designs. Some took inspiration from the storybook and used underwater themes while others, inspired by Stephen's work, created designs with bolder social messages. Designs included not just practical elements of construction but also looked at how the finished product would be embellished.

The pupils drew out their designs and labelled the parts that they wanted to secure together or cut. Staff encouraged them to consider how they would transform a t-shirt into the bag. Once it was time to start production, the children worked in small groups with adults helping them cut and supporting them with knot tying. Care was taken to ensure that the children were cutting and knotting and that adults were just providing support and ensuring safety.

Children then used paint or fabric to decorate or embellish their bags.



In some cases the children drew their design on card which staff then helped to cut out to create a stencil – particularly in the case of designs that involved words or acronyms. Throughout the process staff asked questions that helped children reflect on their designs and to adapt them as required.

At the end of the unit, the children held a fashion show during a celebration assembly to display their bags.

This unit provided a great entry point into Design and Technology for our youngest children. It did not require a lot of technical knowledge nor did it rely on advanced fine motor skills. All children were able to participate in the design, making and evaluation of this item. Although they were encouraged to complete the proforma design sheets the focus was very much on the process and less on the recorded output.

