

*Re-think, Re-imagine, Re-purpose:  
A Case Study in Sustainable Use of a Single Material in Design and Technology Lessons*

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**Abstract**

In this paper, I will discuss how we developed a series of projects in Design and Technology lessons with boys aged 9–13 using a single batch of donated timber. The wood was used for 2019 iconic temporary pavilion designed by Yinka Ilori and Pricegore architects at the Dulwich Picture Gallery in London. The gallery requested the students design a prototype artefact that could become a community resource. This paper explains how a series of projects evolved from the initial designs. The original artefacts were adapted to different uses and the smaller and smaller offcuts were re-imagined in a variety of different projects across the age groups. This case study offers an example of how a material with a cultural history can motivate projects that value and use the material with care ensuring that nothing goes to waste. It also examines how existing artefacts and offcuts can stimulate unique and exciting creative outputs within a wide range of abilities and ages. It demonstrates the way students learnt to renew and repair weathered material and how using re-purposed materials was embraced.

Keywords: Rethink, Repurpose, Reimagine, Timber, School, Design, Technology, Boys, Education

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## Introduction

I am co-head of Design and Technology at an independent school in South London, where I teach 300 boys aged 8–13. Alongside my teaching, I am completing a practice-based PhD with RMIT University, focusing on material learning and learning by doing. This paper discusses how we used a batch of timber across 3 student projects, integrating sustainability and creativity in design education. This approach emphasizes hands-on learning, collaboration, and creativity, countering a way to educate children out of their creative capabilities, discussed by Sir Ken Robinson in his 2006 TED talk.

Through this case study, I will talk about:

- Where the timber came from and the importance of a material's cultural history in motivating students
- The different outcomes for the timber
- What we learnt about how existing artefacts and offcuts can stimulate unique and exciting projects

## Where the Timber Came From and the Importance of a Material's Cultural History in Motivating Students

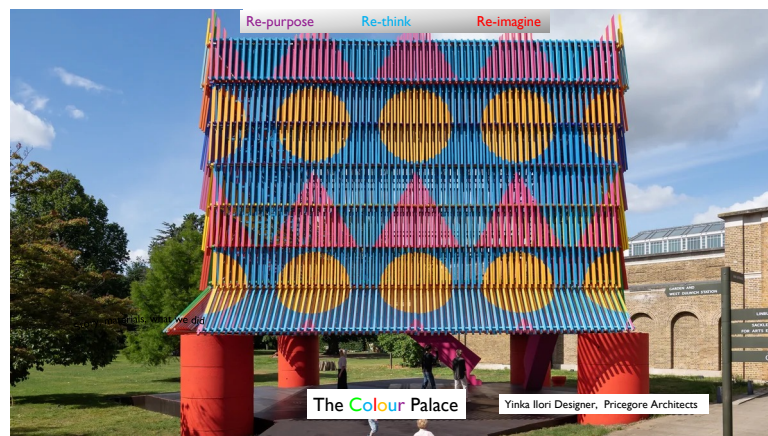


Figure 1: The Colour Palace, Dulwich Picture Gallery (Photo by: Adam Scott)

In the summer of 2019, the Dulwich Picture Gallery in South London commissioned designer Yinka Ilori and Pricegore Architects to create a temporary pavilion in their grounds. This pavilion was not just a physical structure but a culturally significant piece, inspired by Ilori's heritage and intended to be accessible, playful, and community centered.

The pavilion design was deeply influenced by Yinka Ilori's Nigerian heritage, particularly the vibrant colours and patterns of Ankara fabric, a Dutch wax print popular in Nigerian culture. This structure symbolized a blend of cultural narratives, aiming to evoke a sense of joy, optimism, and community. So, the pavilion embodied deep values and connections.

After the summer, there was a discussion about what to do with the pavilion. Rather than dispose of the wood, an alternative solution evolved. The students and I were working on a planter design for our school playground in collaboration with alma-nac architects, and they knew the Gallery were looking at how to re-purpose the pavilion. The gallery suggested a proposal - if our students co-designed and constructed a prototype planter, other schools and institutions could use the plans as a community resource. The wood could be shared out

across Lambeth and Southwark schools. By disassembling the pavilion, the wood was detached from its original shape and structure.

During the design and construction of the planters, it was important that the students were aware of the background and the journey of the timber itself as it gave the resource a significance and a value. And the concept of re-cycling is key to Ilori's own approach, as he explains in an interview for "The Modern House":

“What I love about recycling is the narrative aspect of it...So, to something that came from elsewhere, I'm now bringing my British-Nigerian culture, adding value, meaning and stories, extending the narrative. That's what London is about: layers of culture. It's what I love about being British.”<sup>1</sup>

Recycling to Ilori is about adapting, combining, re-telling ideas and materials. So, it felt appropriate that we could think about different ways to use and re-use the wood in school.



Figure 2: Adam Shapland From Alma-nac Architects Working with the Students Assembling the Planters (Photo by: Belinda Lawler)

Working closely with Tristan Wigfall and Adam Shapland from alma-nac architects, our Design and Technology students designed and built these modular planters. The students aged 12–13 needed to identify areas of the school grounds that were underused and propose creative ways to enhance them. This process not only engaged their design thinking but also encouraged team collaboration as they constructed site-specific planters. They were re-purposing the wood but also the grounds of the school they knew well.

Figure 4 shows Adam Shapland co-constructing the planters, working with the boys, showing and sharing techniques. There is a strict geometry in the design, which was also in the pavilion but in this project the scale and purpose had shifted.

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<sup>1</sup> The Modern House, (n.d), Artist and designer Yinka Ilori talks colour, identity and designing the 2019 Dulwich pavilion, para. 9.

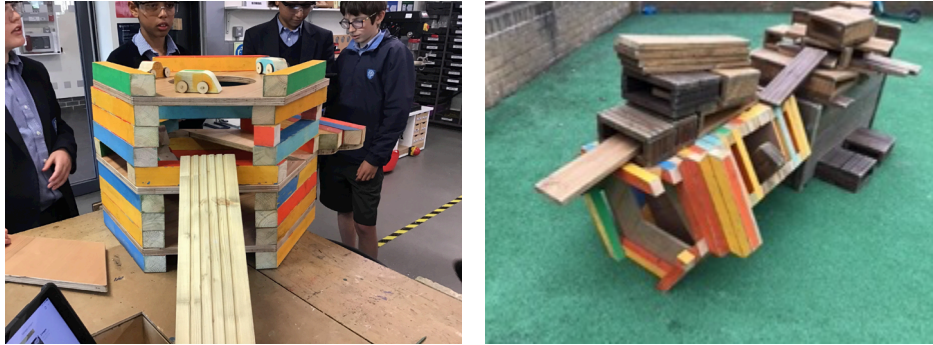


Figure 3: Garages and a Fortress Made From the Original Planters  
(Photo by: Melanie Mortimer)

During Covid, the plants in our playground planters died. But, just like the Picture Gallery, I didn't want to dispose of the structures, I also saw the potential to re-think the planters rather than discard them. Post-Covid, the teachers of our younger students mentioned the lack of stimulating play equipment and noted their boys' enthusiasm for small cars. This discussion evolved into another iteration of the wood as we now had a brief and a client. So, we put it to another group of Design and Technology students—could they take the existing planters, recondition them and transform them into garages? As the photograph on the left in Figure 5 shows, platforms, ramps, circular skylights and cantilevered balconies ensued along with a collection of wooden cars, trucks, and caravans.



Figure 4: The Box of Offcuts From the Planter (Photo by: Melanie Mortimer)

However, the element of re-imagining emerged when the garages started to be used by the 6- and 7-year-old boys. In Figure 5, the right-hand image shows how the garage has been turned on its side and become a defense, a place to hide, using the bulk and volume of the structure, a place for a person... This is imaginative re-use where the child/children are engaging with the planter, making it a part of their thinking, accommodating and reinforcing its structure to suit their particular situation and intention.

With a growing collection of uniquely shaped offcuts in various stages of weathering, I gave a different age group of boys a brief to make hybrid creatures using at least one piece from the Colour Palace timber. This project encouraged our 9-year-old boys to explore their imagination and capacity for play while working with irregular materials. Drawing inspiration from their favourite animals or fictional creatures, the boys transformed the offcuts into imaginative designs.

This referenced the method and outlook of the contemporary design duo, Studiomama, that embrace the concept that “no idea, or scrap material is ever discarded, for dormant within each is another project waiting to be animated, compelling a sense of curiosity.”<sup>2</sup> It also gave us a perspective on thinking differently about material we might discard, to quote, “there is a bigger conversation around finding value in everything, including what we deem “waste” and maybe a lot of creative minds can help with that.”<sup>3</sup>

This project had several intentions. The boys needed to “follow their fascinations”<sup>4</sup> as Penny Hay, professor of Imagination at Bath Spa urges. But they also had to see these small parts from the Colour Palace as valuable material—in other words, not waste. My aim as their teacher, was to encourage them to see this resource of “scrap” as “standard”. This has interesting ramifications.

Because each project produces offcuts, the supply is relatively constant and always changing. The bits left over from other projects are uneven and sometimes rough, but there is a generous supply, and the students could feel free to use plenty of wood for practice. In this way, making mistakes becomes part of the process. As a teacher you are less anxious about the boys making a wonky cut and throwing the pieces in the dustbin, and for the boys, they can ‘see’ that there is plenty of material for them to use as they gain confidence and skill. The intention is that the workshop environment becomes a really safe space for failure as promoted by the Make First approach at the Crafts Council UK. So, this project was a site for using curiosity, for finding potential in odd-shaped pieces, for tapping into inherent fascinations and for seeing ‘scrap’ wood as valuable.

One of our teachers gathered the students’ reflections on their experiences. The boys could clearly articulate how the project showed their interests in crocodiles, sharks or mythical creatures... Their comments indicated how this motivated them to consider small, key details. The creatures had a physicality in their imagination, and then in their product. It is useful to carefully consider what the boys said in their own words.



Figure 5: The Shiraffe Made by a 9-Year-Old Student (Photo by: Melanie Mortimer)

This student spoke about his interests and the process of trying different techniques to make his creature stable:

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<sup>2</sup> Studiomama, 2022. p. 9

<sup>3</sup> Ibid, p. 121

<sup>4</sup> Hay, 2022. para. 3

*“I made a Shiraffe. A mixture of a shark and a giraffe. I chose giraffes because I like them, they're really gentle creatures. I like sharks, there are loads of different ones e.g. the Megalodon shark and some that are so small, they're the size of your thumb.*

*I made a structure. It wasn't strong. It took 2 lessons to do. Colouring took ages. I took off the bit that wasn't strong and pivoted it with nails. I screwed on a different bigger bit which was stronger. When we used the big fret saw you had to look carefully so you didn't cut your fingers. You had to focus too, so you were accurate.*

*It's been really fun. Today is DT club so I can finish it. I'm excited.”*

This student clearly harnessed his own fascinations with animals, in particular sharks and giraffes, knowing specific information about their size. But he also articulated the process of learning by doing and how important it was to make mistakes and think through how to solve them.



Figure 6: Off-Cut Creature (Photo by: Melanie Mortimer)

Another student also discusses his trial-and error approach in detail:

*“When I was gluing two parts together, they slid about. I was using PVA glue. I used pieces of wood at the front, back and sides to stop it sliding around. The legs needed to be the same length, so they were stable. I used pins to join them to the body so they could lie and stand up. I glued the feet. The tail was in two parts, but one part snapped off. I sanded this bit into a diagonal angle. Then I coloured it.*

*During that process I added the oak circles. When I was sanding, I touched the wood to see how rough it was. The log circles were harder to sand. I thought what to do as I made it. I didn't have a plan. Before I added the circles I experimented and placed them in different places to see where to put them. There are two eyes on the sides. I added eyes on the front so it could see in all directions. On the end the circle is a mini fan which cools the body down. On the back there is a mirror which reflects air off its head to keep it cool.”*

His description brings out the physicality of the experience, when he talks about sliding, stability, snapping... He didn't feel hurried, had time to experiment and negotiate. What was also clear was how 'haptic' this learning was, by haptic here I mean it concerns touch, but it is also to do with weight, volume, conditions. And through this material knowledge how you 'know' about textures, rigidity, stickiness and density.

This student could recognise that this making process was organic when he says in paragraph 2, “I thought what to do as I made it, I didn't have a plan...”. But he also articulated how the creature had come alive for him, “it could see in all directions”, and how it needed a mini fan

and a mirror... The project harnessed innate interests, combining imaginative design ideas with the development of hands-on know-how.

### **Conclusion (What We Learnt About How Existing Artefacts and Offcuts Can Stimulate Unique and Exciting Projects)**

In this project the concept of “re–purposing/thinking and imagining” has been central—from Ilori’s idea of narrative layers, to adapting planters that have been abandoned during COVID-19, and finding ingenious ways to transform odd-shaped offcuts into extraordinary creatures. A bank of offcuts with a history has put some pressure on us as students and as teachers to use it well, to look after it and repair it because it has a ‘heritage’ which prompts a caring approach. The wood has been somewhere, been part of a something significant which has been admired and used by others.

But there is also a sense of freedom involved. In using ‘scrap’, wood, (or wood that had been used before), the boys didn’t need to feel worried about making mistakes or using plenty of pieces for practice. They had the time and resources to try out different ways of joining and shaping.

They could also use the project as a way of thinking/making, having a go, seeing where things didn’t match up to an imaginative concept or didn’t ‘work’ when they tried to construct it, and then trying something different. Seeing the potential in the irregular shapes of the offcuts opened up imaginative possibilities for the boys. They started to see shapes that could link to their own interests. From the interviews, they clearly enjoyed the chance to bring different pieces together, mix them up and make an artefact that had significance.

In their Design and Technology lessons the boys are now very used to seeing donated wood or disassembled pallets as familiar materials for projects. They have learnt to work with the imperfections, irregularities and roughness with impressive care and vigilance. Because the material is not uniform, the outcomes will all be different.

Lastly, I would like to touch on the pedagogy that using second-hand material offers up. Working with offcuts encourages projects that are *open-ended* and *self-directed*, an approach explored by Dr Louisa Penfold from Harvard, in her 2019 paper on a new materialist approach to education. And as she explores, the interaction between student and material is dynamic and complex. It involves minute and well-judged decision-making and continuous adaptation. I would like to conclude with a quote that outlines how this approach can, therefore, be both timely and relevant for 21<sup>st</sup> century creative learning that comes full circle from Robinson’s urge to support creative education:

“...materials have the ability to support children in making new connections with themselves, others, and the ever-changing world around them. This framework is important for educators, creative practitioners, and policymakers in shaping education practices, as it raises significant issues around about the importance of the creative arts and materials in children’s lives.”<sup>5</sup>

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<sup>5</sup> Penfold, 2019. para. 26

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