



# Learning about climate change by developing design skills

Evaluation Report Summary of CCAC's demonstration programme



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**CLIMATE CHANGE ALL CHANGE**

## Introducing Climate Change All Change

Established in 2019, Climate Change All Change (CCAC) is a charity which empowers children and engages designers to use design as a powerful tool to understand and address the climate crisis. Together they work creatively responding to the challenges of climate change.

CCAC addresses the impacts of global heating on every sector: travel, clothing, homes and buildings, energy, food, and how we live, work and play. Design is a problem-solving discipline that can help children develop knowledge, skills, imagination, and resilience to meet climate challenges.

In five demonstration projects in 2022, designers worked in partnership with schools to implement six to eight week-long projects where children learnt about the nature and impact of global warming and then, working in small groups, developed a design response to a changed world of 2050.

The partnering designers brought disciplinary expertise across the fields of architecture, landscape design, perma-culture, urban design, and fashion. The designers worked with upper Key Stage 2 primary classes (Year 5/6, age 9-11) and their teachers to help the children understand the causes and consequences of climate change, to learn the problem-solving attributes of good design, and to develop their design concepts. Some of these were then elaborated and visualised professionally by the designers and presented back to the children. Their work was displayed in local public institutions, and some will also be exhibited in a national exhibition.

An evaluation study of the demonstration programme was conducted by researchers from King's College London.



## Learning from the evaluation

Here are eight key findings from the perspective of the student, teacher and designer.

1. The activities and design-based partnerships promoted by CCAC bring energy and focus to the topic of climate science and climate change in the primary school context. Children developed a rich understanding of climate science as the following student explains:

***Climate change is because of greenhouse gases are trapping the heat in the atmosphere so that the climate of places is changing. (Student, London)***

2. By supporting children to engage in a design task in response to an extreme climate scenario, CCAC highlighted the problem-solving skills of designers:

***And it taught us, how like if climate change gets worse, then we will need designers to design things and create ways of being more eco-friendly. (Student, Cheshire)***

3. By participating in CCAC children developed specific design skills and engaged with bespoke design processes. Such opportunities are rarely afforded in the primary school context, yet provide a genuine window to the world of work:

***I learnt about drawing and getting the angle right, and then thinking about the up and down view and the horizontal view and how you have to plan the size you want your shape to be. We had to think about how far back it would be for the viewer. Or how close you want it to be. (Student, Cheshire)***

***I enjoyed it as it's opening up new jobs. If I didn't know about sustainability or fashion designers, I wouldn't have liked to be one. If I hadn't known what it was, I wouldn't have known if I wanted to be it. It's opening up new jobs, and it's good because it shows children can do what they want, what they put their mind to. (Student, Nottinghamshire)***

4. Significantly, the frequency of groupwork or more open-ended activities in primary schools has been limited since the pandemic. However, teachers noted that CCAC has provided an opportunity to re-introduce valuable ways of working activities back into the classroom:

***It's given us the confidence to be a bit freer. CCAC has been great in encouraging us all to try different ways of working, or mixing things up a bit, keeping it fresh (Teacher, London)***

5. Working on the project equipped teachers with new content knowledge and confidence:

***I thought I had a quite a decent bit of knowledge beforehand, but I've learned so much from all this work and I'd feel really excited and enthused to do it again next year, and am confident to talk to the children about it.*** (Teacher, Cheshire)

6. The design-based activities and the format of working collectively, offered a degree of agency and also hope to young people:

***I feel that we're learning about how we can make the climate better for when we're adults and when we have more power to do things like this.*** (Student, Cheshire)

7. The participating designers were inspired by their experiences working with the schools and were proud of their contribution in supporting children's engagement with design principles and climate concepts:

***I really enjoyed the challenge of trying to integrate environmental issues with architecture and doing so in a way that would make sense to children. I was pleased because I think they understood the ambiguities and nuances of talking about forests as both an ecosystem to protect and a resource for us to use.*** (Designer, Bristol)

8. The CCAC programme gave parents, carers and the wider school community a chance to witness children's creativity and engagement with design-based learning:

***It showed us that the children were capable of learning new and complex skills and using teamwork to present their ideas back to adults. It showed us how mature and capable the children can be when they are given the right level of challenge.*** (Teacher, Bristol)



## Considerations for further scaling of the co-design programme

- Primary teachers need support (time and training) to effectively teach (1) climate change concepts (2) the nature and application of design skills. Engagement with CCAC will leave teachers feeling confident to plan and implement a design for climate change project with children.
- Visiting designers need appropriate induction to primary education practice and pedagogical practices relevant to primary contexts.
- Careful scaffolding is required to nurture children's creative design and problem-solving skills, such as techniques using the word 'because' to justify design choices. This can help children to develop design solutions that are both imaginative and grounded.
- Long term partnerships between local school authorities or academy chains and local design companies are necessary to ensure that more children benefit from working with designers, learning about the design process, and developing design-based solutions to environmental problems.

CCAC have pointed out that they learnt much from the evaluation and the discourse that followed it. It will inform the development of the quintessential dynamic between teacher, student and designer and the challenge of mitigating the consequences of global heating.

# Extracts from the main report

## Summary of findings

In sum, it would appear that the CCAC demonstration programme has played a valuable role in introducing climate change concepts to primary school contexts and thus supported children's and teachers' basic climate literacy.

Further, the CCAC project has introduced children and teachers to the nature and contribution of design in addressing environmental problems. CCAC has fostered the development of key communication and teamworking skills in addition to introducing children to specific design-related skills relating to creative and imaginative thinking, and has provided rich insights into design careers.

The lengthy timeframe of each project has been pivotal in allowing strong relationships to form, new skills to develop, and complex concepts to become established. The designers' expertise, passion, and enthusiasm were particularly key in engendering success.

Further, CCAC enabled teachers to gain pedagogical confidence and expertise in teaching climate science content through design. Here, however, it is important to acknowledge that the increases in teachers' confidence were also due in part to their own initial courage, flexibility and openness to participate in an experimental project.

In reviewing the findings from the demonstration project, it is clear that there are some significant lessons for the future:

- *Even with the input of partnership designers, primary teachers need support (time and training) to effectively teach (1) climate change concepts (2) the nature and application of design skills.*
- *Designers need appropriate training in pedagogical practices relevant to primary contexts, including how best to scaffold open-ended imaginative activities.*
- *A longitudinal project is necessary to embed complex concepts.*
- *Whilst a design task for a scenario set in the future supports the development of children's creative problem-solving skills, it does not enhance children's agency for acting to ameliorate climate change now.*

## Considerations for the future

In this final section, we propose a series of recommendations for future developments of CCAC based on the evaluation findings. These recommendations are grounded in the theoretical framework of Greer and Glackin (2021) and thus highlight the following features which would enhance future iterations of CCAC:

1. The need to explore alternative visions of the future. This is not only about developing imagination to see alternative futures, but to challenge the extant status

quo and see beyond the conventional [Western / capitalist / human-centric] perspectives of how the world should be.

2. The importance of embracing the complexity of climate change causes and consequences.
3. The role of multiple types of knowledge and ways of knowing, and the realisation that problems are not easily solved with only one approach.
4. The need to reflect on the wider impact of particular eventualities and solutions. To see design as a way of reducing inequity as much as applying a technological invention.
5. To consider the more-than-human world.
6. To recognise and support students as agents of change now.

### Demonstration programme: schools and designers

School name	Location	Designer name	Design area
Ordsall Primary School	Retford Nottinghamshire	Aurelie Fontan	Clothing/ fashion
Springfield Primary school	Sale, Manchester	Tom Kendall	Landscapes/ perma-culture
Ashton Gate Primary School	Bristol	Finbar Charlson and Jack Cardno	Regenerative architecture
Coppermill Primary School	Walthamstow London	Xavier de Kestelier	Architecture/ community
William Tyndale Primary School	Islington, London	DaeWha Kang	Urban design



