

Building a symbiotic city: can we design and build a sustainable city fit for the future?

This project will cover the following investigations:

1. What is a symbiotic city?

An introductory lesson where students carry out an investigation into how a city can exist symbiotically with nature.

2. What are the environmental design considerations in sustainability?

Classroom investigations into noise and air pollution, food chains and biodiversity. Investigation into how the United Nations Sustainable Development Goals can inform planning. The class will visit major infra-structure sites (e.g. water, sewerage, power generation and planning agencies) to identify and experience real-world applications.

3. How can we prioritise environmental construction choices that support modern living?

In small teams the class will build several working model cities (of approx. 1m x 1m) which will exemplify their design and incorporate their chosen construction methods. The class will conduct a series of experiments on a range of materials, making informed decisions on material suitability, sustainability and carbon footprint. This will be supported by parents, local tradesmen and classroom visits from our team of SWECO engineers.

4. How do we implement a sustainable and inter-connected transportation network?

The class will conduct experiments to investigate modes of environmentally friendlier transportation (e.g. safer cycling, walking, bridges, electrified rail, etc.) and how this excludes the use of non-renewable energy consuming vehicles.

“We have been contacted by an additional Sweco contractor in Greece who saw our recent project update on Twitter. He would like to get involved and has offered to take the children’s plans, once they are complete, and render the whole city into his 3D virtual reality software so they can experience their city come to life. We are submitting the final measurements by the end of March and he will consult with us after the Easter holidays to add details and changes they may want to make after seeing how it looks from the perspective of a pedestrian.” **Lead teacher**

“The children are so enthusiastic about the project and are showing how creative and resilient they can be. They are loving working with the new tools and their skills are improving every day. I am finding the project is opening up so many opportunities for conversations about real world applications for mathematical concepts and raises practical issues they will face in their future jobs and careers. Projects like this are why I became a teacher; I just love what it brings out in the children and seeing their passion for learning ignite.” **Class teacher**

“I don’t mind when there’s a mistake because I think – that’s going to help me out later and know I’m learning – and then I don’t make the same mistake again.” **Project student**