

Warrington School's Mini Eco-Village : A Case Study

Setting the Scene: Warrington School, 25km north of Dunedin, is a decile 9 school. It has 3 classrooms, junior, middle and senior, with approximately 52 students and 5 teachers (two classes team teaching). The whole school started the year with the theme of 'Buildings' as the school BOT has money to spend on either upgrading existing buildings or adding on and it seemed appropriate to focus on this topic with the children.

This project ending up addressing the sustainability issue of environmentally friendly buildings and sustainable communities. It was not an entirely planned nor structured project from the start but developed along the way with the children. It was progressive education for sure: unpredictable and flexible, involving collaborative problem solving and plenty of 'messy thinking' from children and teachers alike. Hence the following is not a step by step procedure of planned lessons but instead a story of our journey, to hopefully inspire, encourage and spark new ideas!

The exploration began with the middle and senior classes using activities from the ES Kit to initiate class discussions and questions about buildings (e.g. The Mauri of Buildings Pg 217, Classroom Safari Pg 222 and Buildings in Harmony with Nature Pg 232). National and Public Library books and school journals were used to explore different buildings from around the world. The children focused on what the buildings were made of, used for, and the many different designs. The senior children also researched building aspects such as location of buildings, water sources, energy sources, which quickly led on to a closer look at alternative energy sources such as wind, solar, biofuels, water. This in turn got them experimenting with small fans from old computers to see if they could generate enough energy to light a small light bulb (which they did!).

A local man came to talk to the senior class about his home that is 'off the grid' and gets energy purely from solar panels (generating electricity) and black painted radiators (giving hot water in summer with the wetback doing this job in the winter). The children learned how the sun is the source of all energy (solar, wind, water!). They were able to see a solar panel first hand connected to a power meter and experiment with the panel in the sun on different angles, in the shade and flat on the ground, noting the difference in power generated. A lively discussion on position of houses, windows, rooms etc. pursued with an activity using small cardboard boxes with a cut out floor plan and pictures of windows, solar panels doors etc. where the children became the architects using the knowledge they now had.

Term 1 also saw a number of outside teachers and community members in the school running specialized sessions in art, technology, music, sport etc. The 'Building' theme was incorporated in the art, seeing the children drawing their own homes, maps of their village, and on to building a mini house out of waste polystyrene and corflute, wire, flax, wool etc.

The Principal suggested that he could use the polystyrene at the finish in his ceiling for insulation.

The idea of building their own mini eco-village began to take shape with teachers and children discussing what they could do with their small houses. A section of grass by the entrance to the school was designated a suitable site. The senior children immediately marked out roads (with brown wool) and sections (with blue wool) and began placing their houses. Once their house was positioned according to their

interpretation of north facing for maximum passive solar heating, they plastered their polystyrene house with a clay-cement mix out of clay gathered from the school bank. They considered the polystyrene to be good insulation under the clay plaster! Some children decorated their walls with pebbles and shells before the plaster dried.

Fences were being built, farms, gardens and compost bins, a shop to sell the local produce was eventually placed in the middle of the village by a child, after having to go through a process of resource consent. A wind-farm began to develop by one of the children building a couple of wind-turbines on his 'farm'. Other children joined in to help and soon it was deemed large enough to supply energy to the whole village. A playground grew with woven and knot-crafted playground equipment that one of the girls discovered how to make from a book she found. Water reservoirs with spouting from the roof, solar panels, skylights, hammocks in back yards and so on, took form.

All of this was the children's own process, with questioning presented by the teachers and encouragement for the children to sort out their own problems that arose by communicating with each other. Within the week, the middle classroom had their houses placed after much debate by the seniors and a look at what virtues were needed to enable the middle class children to be a part of the village. The following week the junior class also joined in much inspired by the older children's enthusiasm. (Two of the senior children were seen still working on their sections at 7pm one night in the drizzle with their raincoats on!!)

Discussions on an eco-village requirements and sustainable versus unsustainable options pursued amongst the children (often at playtimes and lunchtimes!) e.g. one child wanted to build a nuclear power plant in an old tree stump but the consensus was that since they didn't know what to do with the radioactive waste, the wind-farm would be the way to go! A supermarket selling overseas produce versus a shop selling locally grown food was debated but they decided that they didn't want an airport as that used a lot of oil.

Social issues arose with children finding they had to compromise, share, co-operate, communicate and solve problems. They were faced with having to consider other children's viewpoints and let go of enterprises that didn't work out or were not agreed upon by the rest of the eco-village community. Children learned to improvise with resources that were available meeting the needs and constraints of their village.

Environmental issues arose when it rained. The need to tidy up the dirt piles and clip grass (which they dutifully set about doing with scissors, totally of their own accord!). Mud cracks on buildings needed re plastering with more cement added.

Equity issues arose with the sharing of land amongst all children wanting to place their house in the village.

Thus sustainability issues of buildings, energy use, social dynamics were all addressed by this project. The challenges of social co-operation were invaluable and could not have been staged. Children began to change their view from a self-centered approach to thinking about the 'village' as a whole. The challenges of considering waste and energy use as well as sustainability versus comfort came up of their own accord because they were relevant and necessary to the success of the children's own goals.

A written assessment on 'report writing' about buildings was carried out by the middle and senior classes with the senior class focusing on the eco-village, outlining their perspective and opinions, problems that arose, successes and future suggestions.

Further development has occurred in Term 2 - after a slackening of interest during the

holidays and onset of cold, rainy weather - with the children in the senior class deciding to get back into their village work. The senior class have been experimenting in groups, making rammed earth walls, mud/clay bricks, paper bricks, an underground house, a tree house, a clay dome house, a glass house with thatched roof etc. This has turned into a technology unit with criteria and planning formulated by the children and teacher together.

It will be interesting to see how long this new phase captures their interest and when they decide it's time to move on and tidy it all up! A simple and effective thought provoking development could be to simply ask the children questions which relate this school eco-village experience with their daily life at home e.g. 'Has the project made you change anything at home? (like shifting furniture in a room to get more sun...) or 'What sort of house would you like when you are older?'. We could also carry out the Ecological Building Survey from the ES Kit (pg. 237) to apply our new knowledge and experience to our school building and hopefully pass on valuable ideas to the BOT!