River Basin Model

Goals and Expectations

Before diving into any project, it is important to consider the goals and desired outputs. In the case of the EcoCentre DAPHNE, the goal and aim in creating a water cycle model was to create a tool that would be used to demonstrate to school children not only the water cycle, but also the role people play in it, whether through industry, personal or social activities. In addition to this, the model was planned to provide an interactive and fun tool with which the children could play and pour water to see what happens to it. The landscape was planned to include a mountain from which two rivers would flow (and which could actually be filled with water), a village, a mine, fields, forests, meadows, a lake, and a factory. Finally, it was also important to keep in mind that this model would need to be made such that it could be relatively easily transported by car to the schools in which children are taught. The size and weight of the model, therefore, had to be decided with this in mind.

Preliminary Plans

Before starting to put the actual model together, some rough sketches and drawings were made displaying approximate measurements (height of mountain peak) of the model. It was also decided which main materials would be used. Styrofoam was chosen as the base and main material of this model and in part because of its abundance, accessibility and especially its light weight was important considering that this model was intended to be travel friendly (for transporting to schools), and that it would be quite large.

Styrofoam

The base of the model was a large piece of styrofoam. It is visible in this photo as the pink underlayer of the lake. Several sheets of additional styrofoam were glued together on top of each other to give an idea of the gradual ascent of the mountain. The rivers and lake were carved into the styrofoam. Other small pieces of styrofoam were used to fill in holes and to give shape to the mountain peak. The only part of the pink styrofoam base that was altered or cut in any way, was a hole that would provide a drain for the water in the lake and the lake bottom which we decided not to keep flat but give a gradual deepening.

Plaster

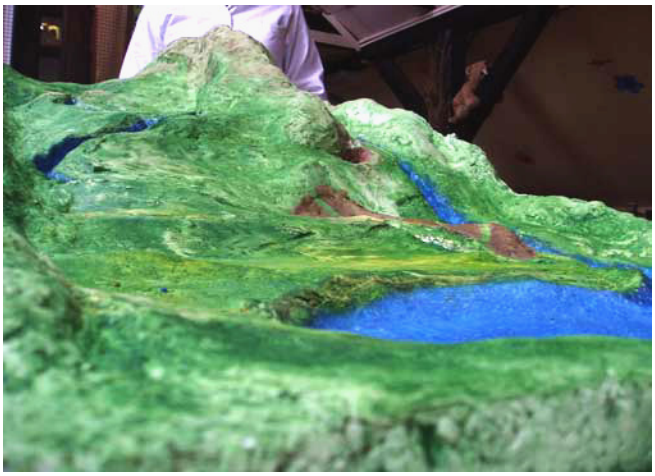
Once the styrofoam had been given a rough shape, it was time to smooth out the rough spots with plaster and to fill in any still existing holes. Quite a few layers of plaster were used and two days were spent working with it. This photo was taken earlier than the photo below. The mine had not yet been carved, the sides of the model had not yet been raised and there were fewer river branches. It was decided to use aluminium foil to create a water effect because of its reflective quality and visual texture.

It is on this photo in particular that the rivers can be seen quite clearly. The river on the left that meanders demonstrates the healthy and natural river course. The river on the right side, however, flows in a straight line down and shows that it has been altered by human action. The hole just under the mountain is the mine which in the final model product would demonstrate the pollution it causes and with which it pollutes the river water. It was important to raise the sides of the model slightly to ensure that the water that the children use when playing with the model would not run off of the model but would always find its way into the river or the lake. Because of the need to continue working with the plaster and to make these adjustments, the aluminium foil had to be removed and reapplied at a later time.

Latex and Paint

When using several layers of plaster, it is important to give it time to dry before working with it again or adding anything to its surface. Since plaster still often leaves rough marks, it is useful to use sandpaper to smooth it down a bit. After this was done, latex was the next layer applied model's entire surface.

This was an important step because the latex created a surface upon which we could paint and in addition to this, it rendered the model water resistant, an important quality in consideration of the expected use of this model. Aluminium foil was reapplied to the rivers and to the lake and fastened in place with the latex in this case acting as a kind of glue. The aluminium foil was initially coloured with permanent markers to give it its initial colour. Afterwards, however, paint was used and colour mixed to then more of a water effect.



The rest of the landscape was initially painted green but gradually stylised with brown and yellow colours to show the presence of rocks, like in the mountains, or fields on the flatter areas.

Modelling Paste

Once the landscape of the model had been made, it was time to bring it to life with trees, houses, factories and other such details. A brownish modelling clay was used to make these figure and they were fastened to the surface with water and then painted.

Varnish

The final step in the creation of this model was the application of varnish over the entire surface. It was applied with a spray and provided a final manner of stabilising all elements and a final gloss.