

Primary Engineer – Moving Vehicles!

The 'Primary Engineer' project required children to design and make a powered vehicle which could move forwards and backwards; climb an incline and be covered with a removable outer body.

Following an exciting course, we were introduced to the 'Primary Engineer' project outlined above. After a number of discussions we decided to become involved as we felt the work would enhance and enrich the current topic in our Year 5/6 class entitled 'Transport', therefore providing children with a real-life context and audience for their work.

Using skills and ideas acquired on the course our Year 5/6 teacher introduced the project to the children who were immediately fired with enthusiasm. They understood the relevance to their current topic and as a result were able to bring their own existing skills, knowledge and understanding to their work.

As a school we strongly believe in the importance of first-hand experiences and cross-curricular work so throughout the project the practical work on the vehicle itself was supported and extended by other areas of the curriculum e.g. Science, Art and Literacy.

Initially the concept of the chassis was introduced to the class and the children then worked in pairs to produce an example of their own. This was followed by a series of literacy lessons on instructions whereby the children had to write their own version of the task they had just completed. Each pair also produced scale drawings of their chassis which linked with their work in Numeracy on measures.

Next the task of making the vehicle climb an incline became the focus and independent research was carried out by the children as to how real vehicles cope with hills, slope etc. They were intrigued with the concept of four-wheel drive and so with the teacher's support a two-wheel drive and four-wheel drive version of the chassis was built. These were then tested as part of the class' Science work on forces where it was concluded that the four-wheel drive version could climb a much steeper gradient. Their findings were written up and the children drew their own conclusions as to which version they would like to build (all opted for the four-wheel drive).

Work then began in earnest to complete the chassis by adding powered motors, wheels and the gearing mechanism. This itself stimulated further discussions on gears and ratios.

Once the basic chassis could complete all movement criteria for the project the children were then asked to develop some concept designs for their body work. Initially these were just sketches stimulated by magazine images, internet research, books etc but the final design had to

be presented from a range of views using a computer drawing program. Having decided upon a design the children began the very complicated task of making the shell removable and after many trials and errors a suitable method was decided upon.

On completion of the models the children wrote evaluations of their work, identifying whether they had met the criteria, strengths of the model and possible ways forward. They were also asked to write an imaginative non-chronological report which would persuade others to buy their finished product.

All groups completed the task and met the criteria set. Possibly the most impressive part of the project was the range of ideas which were developed for the outer shells of the vehicles they included amongst other things jeeps, sports cars and dragsters. The children worked very effectively as teams, there were very few disagreements and those that did occur were quickly solved through sensible discussions and compromise. Everyone was extremely proud of what had been achieved and the children couldn't wait to show anyone and everyone what their vehicles could do!

It is our belief that the project worked so successfully in our school because of the way it complemented our cross-curricular approach. The work the children undertook was relevant to their current learning and therefore both supported and extended their topic.

One of our vehicles, designed and built by two Year 6 girls, went on to win third place in the national competition; an achievement which we are all extremely proud of!

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