

Design Technology

Young Engineers

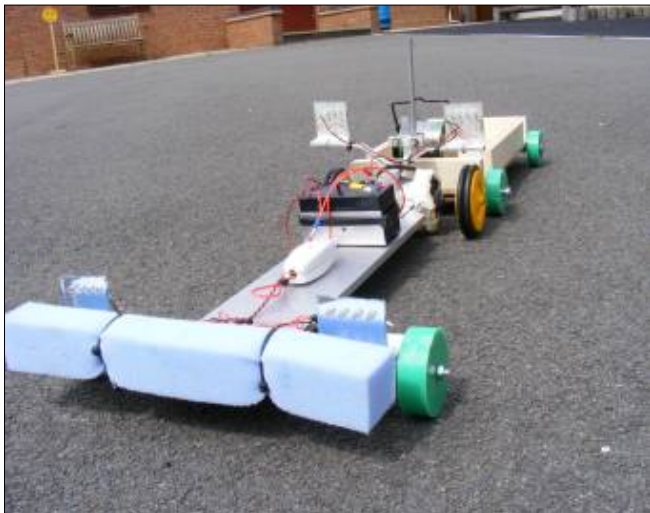
BAA Baggage Cart Challenge

It was a bright and sunny morning on the 16th of July when the intrepid group of year 8 pupils who needed to make an early start to attend the Young Engineers Finals at Gatwick Airport, arrived at the school gates. At 5:45am, the pupils looked ready for the day ahead despite having been up half the night preparing their presentation. It was clear that they were taking this challenge very seriously and had set out to win!

Early last year the Design Technology department started a new venture. Mr Sandall, Mr Coombes and I started a Young Engineers club held after-school on Tuesdays. The group was introduced to the British Airways Authority (BAA) sponsored Young Engineers challenge. Their brief was to design and make an eco-powered baggage cart buggy suitable for drag racing along a 50m track. With all manner of design constraints and limitations imposed by the organisers this was a seriously tough challenge.

During the Michaelmas term of 2008 work began. A design submission had to be prepared, designing began, making and then of course testing. The design submission went smoothly for the group, using their research and ICT skills. Their hard work paid off because they won a place in the finals.

When building and testing the group had their share of success and failures. The Design department would like to apologise for the disruption to a games lesson during the latter part of testing when a fully functioning final model went a little astray! Mr Sandall and Mr Egan underestimated the performance of a design, which proved quite literally unstoppable.



Back to the day: attending the finals during the summer break were Alexander Goldspink, Andrew Finnegan and Russell Hodgson-Jones. They had worked hard throughout the year in their own time and were ready to represent their school. It was a long drive down to Gatwick Airport and none of us knew what to expect. How strong would the competition be? Had we done enough? Pulling into the venue we saw our first competitors. The boys saw 'Team Dragon' all smartly kitted out in matching outfits and an even smarter buggy on a stand in what looked like a Pit area. The lads initial confidence took a bit of a dip. Had they put all that effort in to be the also ran?

Focusing on the task at hand the Wellingborough spirit ensued and the boys started talking about the merits of their design. It wasn't pretty but they knew it was fast. The carefully prepared presentation came out of the folder and they started to put it up. Looking at the range of buggies other teams had built also helped to settle the nerves.



Young Engineers had organised a full range of activities for the pupils to attend during the event, the pupils were in for a busy day. Time quickly approached for the team's first run. They had been drawn to run against 'Team Dragon' in their first race. The boys were nervous but carefully prepared for the first run, hooking up the baggage tailors and carefully lining up wheels with the start line.



The starting horn was sounded and they were off. Eco-thrust sprinted off the line, taking most of the spectators and officials a little by surprise. Gaining speed throughout the length of the run building to a spectacular finish that involved snaking tailors, which started to shed their loads as they approached the finish line. The run was timed at 11.5 seconds. However losing four items of luggage cost us a 40 second penalty. This was a fabulous time despite the penalties for losing luggage. Our competition was seriously worried, we may not have had a pit area resembling something from a Grand Prix circuit but we had a seriously fast machine. In all of the morning runs Eco-Thrust squashed the competition with it's blistering pace. Picking up many penalties for 'lost' luggage, entertaining the crowds and still posting times to beat the other teams. The lads eventually sat down for lunch feeling confident of a job well done with Eco-thrust achieving times over five times quicker than it's nearest competitor.

1. ECO THRUST	00:31:50
1. GIRL POWER INT.	05:18:70
1. AEROTUGS	08:00:00

The relaxed atmosphere however, was about to be shattered; lining up on the start line was Team Dragon in their last attempt to overcome their earlier technical difficulties. The horn sounded for the last time and they were off. Their design moved smoothly off the line and pulled the trailers steadily along the track. It wasn't fast but it was very controlled. Team Dragon crossed the line in a steady 23 seconds but without losing any luggage they leapfrogged into the lead.

2. TEAM DRAGON	00:23:47
2. ECO THRUST	00:30:75
2. GIRL POWER INT.	01:35:25

Immediately the conversation on team Eco-Thrust's table changed, Russell, Alex and Andrew started talking tactics. After the morning they had had they did not want to go home in second place. The main problem seemed to be that we were a little too fast! The penalties for losing luggage resulted in us being beaten by a slower team. Some tough decisions had to be taken. Should the final be run with a nearly depleted battery? How could the luggage be stacked to minimise loses? Was there a way of stopping the trailers snaking? After some pretty intense discussions the decisions were made. If we were going out we were going in a blaze of glory. Fully charged batteries, tightly coupled trailers and carefully stacked luggage.

Another quick time in the semi-final meant that Eco-Thrust had won a place in the final. So lining up against 'Team Dragon' for the last time we knew that losing more than one piece of luggage would result in second place. The crowd assembled, many of them now supporting the Eco-Thrust buggy. Everyone from Wellingborough School had fingers crossed. In our best previous run we had lost 2 items of luggage and that would not be good enough. It could not have been any closer.



The horn sounded and they were off. Eco-Thrust streaked away in its usual entertaining style. Team Dragon pulled smoothly and cleanly away from the start line. Within seconds Eco-Thrust had built a commanding lead but as it continued to gain speed all attention was focussed on the trailers. By the mid point the weaving and snaking started, it was difficult for the Wellingborough team to watch as the trailers struggled to cope with the pulling power of Eco-Thrust. The loads looked vulnerable and precarious at the

speeds achieved. Team Dragon meanwhile was making good progress along the track looking safe and secure. With a final flick of the end trailer, Eco-Thrust crossed the line. The luggage had miraculously stayed on the trailers. Wellingborough School had won; posting a time that was twice as fast as its' nearest competitor. The team's hard work had paid off; they won best track time and overall winners. Wellingborough School could now celebrate its first National Young Engineer Champions.



Congratulations go to the full team some of who were unable to make the finals day due to pre-booked family holidays.

Alistair Goldspink and Andrew Finnegan need a special mention for their presentation that was commended by the judges.

Alexander Gooch – Provided much creativity, inspiration and ideas when things got tough in the workshop

Russell Hodgson-Jones and Jamie Russell worked hard in the Gent Centre making Eco-Thrust go!

Mr Sandal and Mr Coombes put much of their own time into the venture to make give the pupils the opportunity to succeed

I must make a final thank you to the parents of the pupils who accommodated later collection times on Tuesdays to allow the pupils to attend the Young Engineers Club.

Next year we will be competing as defending champions!

Mr Egan

