
**THE JAGUAR CARS
MATHS IN MOTION
CHALLENGE FOR SCHOOLS
2006/2007**

Case Report on the Jaguar Cars Maths in Motion Challenge

School

Ulverston Victoria High School
11–18 mixed comprehensive
Specialist Maths and Computing College

Age Range of Participating Pupils

Year 3 to Year 9

Ability Levels

The first year that we used the software we worked with Gifted and Talented pupils mainly because they are the ones that we were already working with in small groups. We wanted to offer them something different while experimenting ourselves to see how the project would work, initially with a small group. In the second year we have started working also with middle and lower ability pupils of secondary age and this has been very rewarding indeed.

Lower Ability

This year we started a **Family Learning initiative**, giving us the opportunity to work with small groups of our middle and lower ability pupils who attended evening or weekend sessions **accompanied by a parent**. We immediately thought of the Jaguar software as the perfect medium for delivering this, as we had to offer something exciting enough to entice the families into school in their free time.

Our objectives:

- To show how maths can be used for exciting activities
- To offer something special that most students don't get the chance to do
- To develop mathematical skills amongst parents
- To develop mathematical skills amongst lower/middle ability pupils
- To boost the confidence of lower/middle ability pupils
- To develop the team working between parents and their children

Year 7 plus parents (group size 16 including 2 younger brothers) We met for 4 x 90 minute evening sessions. All the parents worked together with their children on the track measurements. When we moved on to the computers, some parents supported their children and others set up their own cars. Then they helped each other with the percentages. The first time we kept the race simple and short to avoid pit stops. Then everyone, adults and pupils alike, were desperate to have another go at resetting their cars and I provided fuel amounts so that we could have pit stops and tyre changes, time being too short to lead them through the calculations themselves.

All but one of the 7 pupils were **very motivated** by the project and **undoubtedly have gained a great boost to their confidence**. They have certainly **improved some of their mathematical skills** and several of them have already **shown a greater**

willingness in class to answer questions. Although there was one pupil who did not concentrate very hard (as indeed she does not in normal class), the project proved a total success for her father. He was a maths phobic, had not attempted a sum since he left school and had never touched a computer. Although this was a huge challenge for me in terms of input, he made great strides forward and successfully raced his own car by the end.

Year 8/9 plus parents (group size 28) We are now running a one day event on a Saturday for our Level 4 – 6 pupils plus parents. The group is larger than before as, not only do we now feel more confident with greater numbers, but also **the day is oversubscribed and it is hard to turn down enthusiasm for doing maths at the weekend!** Several parents arrived at the school office on the morning they received their invitations to make sure that they were at the top of the list.

Furthermore, we are targeting our bottom set pupils as we now realise the huge benefit that we can be gained here. We have not chosen very weak pupils as one teacher would be too stretched to support them. Instead we are targeting those willing students who try hard without much reward, quiet ones who could benefit from a confidence boost and those students with some ability who don't always manage to focus.

Evaluation of work with Lower / Middle Ability

We are very encouraged by our recent steps in this area and wait with interest to see the results in the classroom. The feedback from the parents who came to our first sessions was very positive. One mother said: "I know several parents who turned down the opportunity to come their loss. There was such a benefit to us." One pupil said: "I enjoyed working with my mum as a team" and another said: "**I enjoyed learning how to do the percentages**". Obviously the latter comment is music to the ears of any maths teacher!

Gifted and Talented

Year 3 (group size 14) The pupils very much enjoyed the project and learnt an enormous amount about estimation, using scales, measuring angles and lengths plus working out percentages. However it was very hard work for the teacher and really needed an extra pair of hands as the work was so new for the pupils.

Year 5 (group size 8) This was **very successful and caused great excitement**. The pupils felt they had learnt a lot, and more particularly understood techniques better. One of them said: "I knew about measuring and using a protractor before but I didn't really understand it. Now I really know what I'm doing and I know why the numbers on the protractor go from 0 and from 180 both ways."

Year 5 / 6 After School Maths Club (group size 25) This was a big challenge because of the numbers involved. However some of the Year 5 students had done the challenge with us in their own school and were absolutely thrilled to be cast in the role of experts and were tremendous in helping others. There is no doubt that they had received **a huge boost to their confidence** by mastering skills ahead of their peers and **they had remembered how to do everything despite a six month time gap**. All the pupils were very keen to get all their measurements correct and very motivated by the task. Some of them have since said that it was good to see how they could use their skills in a real situation. **Many of them have returned to the maths club this year** even though the

activities are much the same because they enjoy using maths in such different ways, and have been asking when we are going to be doing the car racing.

Year 9 (group size 6) This was perhaps less successful for us as the group were not as motivated by the challenge as our younger pupils had been. They were all bright pupils and found the measuring too easy. Although the later work on calculating fuel for pit stops is more complex, the pupils' interest was lower, perhaps because we were asking them to do this in their lunch breaks.

Evaluation of work with Gifted and Talented It is harder to evaluate the improvement in performance of pupils who are already ahead of their peers. We were however very pleased with the opportunity the software gave us to offer extension work to these pupils and it was certainly **motivating for the younger pupils**. It advanced their mathematical skills in several areas and was an exciting and **memorable part of our overall programme to develop their mathematics skills and confidence**.

Summary

We are very pleased with how the Jaguar Cars Maths Challenge fits into our programme of extra activities. **We have seen great benefits** from it at primary level with our Gifted and Talented and have **now realised the potential** with our middling to lower ability secondary pupils. It offers a motivating way to learn mathematical skills and an **excitement that is not always available in normal maths activities**. It has boosted the confidence of many of our pupils and provided us with a means to enhance their team working skills with their parents.

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