



## Foreword

The world of engineering and manufacturing effects all of us.

Whether it is the clothes you wear, the food you eat, or the car you drive – engineering & manufacturing has an impact on most, if not every human being on the planet.

Engineering has many roots that begin at schools. The children of today, are the future engineers of tomorrow. In fact, being an engineer is all about expressing you're your inner child and letting your imagination help guide you to solve problems and shape the way we live our lives. So of course, the best place to begin your career as an engineer is at school! Engineering is a multi disciplined career, being one of the few careers around today that will be shaping the way we live in the 21st century – there are a lot of young budding Einstein's around the West Midlands region and this initiative is all about bringing them out. Engineering is one of the most exciting careers to be in.

Transport has become a critical area for man kind as a whole, and with the search for new fuels and resources – the future of the transport sector, in particular the automotive area, has become a challenging and exciting area to work within to develop new designs and technologies that will not only aid transporting people around the world, but that will also work in harmony with the planet's resources.

The automotive arena is an exciting place to work within, with a diverse range of careers available to people of all shapes and sizes, abilities and skills. To make an impact on the world, one will always need to apply some form of engineering principle – one will always have to solve a problem, after all, that is essentially that is what engineering and manufacturing is all about.

A handwritten signature in black ink, appearing to read 'M Beasley'.

**Michael Beasley CBE**  
Chairman, West Midlands CBI





**Pensnett School of Technology  
partnered with Huf UK Limited**

### **Matrix 2004 Winners**

**Award presented by Makhan Singh of EEF West  
Midlands and Roland Lee of Jonathan Lee Recruitment.**

#### **Rules, regulations and guidelines were drawn up by the Matrix steering group, and were agreed as follows;**

- The support company and the teachers are to only act as an advisory/consultancy service to the pupils, however they can provide minor resources where necessary which the pupils cannot reasonably carry out themselves (i.e. small amounts of welding, sawing etc).
- Where work has been carried out by the partner company or the teachers, then this must be recorded and documented in the final portfolio.
- The final presentation at the final must be carried out by the pupils, which must be a minimum of 5 minutes and a maximum of 10 minutes. Teachers and mentors cannot assist at the presentation.
- Each mentor is asked to do a short presentation to the 15 chosen Matrix pupils about their company and who they are. At this presentation, teachers are also asked to invite the parents of the 15 pupils to attend, where the teachers will be asked to conduct a small presentation to the parents, explaining the project. The school will need to provide evidence that this occurred (e.g. photos; sign in sheet etc).
- The final car must be free standing at the finals presentation, and not require any external powering to operate any electronics/electrical items designed onto it.
- Any small car can be purchased for the project.
- Parents can advise and provide a consultancy service to the project, but cannot directly provide any physical input into the project.
- Due to health and safety reasons, the petrol tank needs to be either removed or run dry once the car is delivered to the school. It is advised that the oil also be drained.
- The same pupils cannot take part directly in the project who participated in the previous year's programme, however they can act as internal mentors to the current team of matrix pupils.

#### **The prizes for the Matrix programme will be:**

- 1 Overall Winning Team - Best Car
- 2 Best Pupil
- 3 Best Teacher
- 4 Best Company Mentor
- 5 Best Matrix Partnership  
(Double Award - School and Company)
- 6 Best Presentation
- 7 Best Portfolio Case Study
- 8 Best Internal Mentor

#### **EEF West Midlands**

**Education and Training Development Department**  
St James's House  
Frederick Road  
Edgbaston  
Birmingham  
B15 1JJ

Tel: 0121 456 2222  
Fax: 0121 456 0285

Email: [educationdept@eef-westmids.org.uk](mailto:educationdept@eef-westmids.org.uk)  
Web: [www.eef.org.uk/westmid/](http://www.eef.org.uk/westmid/)

Apart from producing your superhero car, each team will need to produce a written case study to record their achievements. A typical case study would consist of the following:

## Synopsis

## Introduction

- Partner company background, including a report on the company visit (including teacher and pupil reports)

## Market Research

- Roles and responsibilities
- Organisation chart
- Mind mapping
- Timing plans
- Choose team name and mission statement

## Project Planning

- Organisational chart
- Gantt chart / Timing plan
- Choose team name and mission statement

## Design / Drawing

- Materials utilisation
- Curriculum related activities

## Prototype

- Costings
- Photos of work in progress and of final product

## Results

## Conclusion

The above is just for guide lines - each school can produce their own unique portfolio case study.

### The teams entering the 2005 competition are:

- |   |   |  |
|---|---|--|
| 1. St. Michaels School<br>Sertec                  | 6. Kings Norton Boys School<br>Pilkington             | 11. Woodlands School<br>Lear Corporation             |
| 2. Chase Terrace School<br>Thyssen Krupp          | 7. Pensnett School<br>Huf UK                          | 12. Bartley Green School<br>Jaguar (Castle Bromwich) |
| 3. Pershore High School<br>Morgan Motors          | 8. Coundon Court School<br>Aston Martin               | 13. Coventry Blue Coat School<br>Peugeot             |
| 4. Sir John Talbots School<br>Denso Manufacturing | 9. Joseph Leckie School<br>GKN Walsall                | 14. Archbishop Illsley School<br>Honeywell Sereck    |
| 5. Turves Green Girls School<br>MG Rover Group    | 10. Kings Norton Girls School<br>Jaguar (Browns Lane) |  |

The 2005 final is to be held on Thursday 14 July 2005 at Jaguar Castle Bromwich



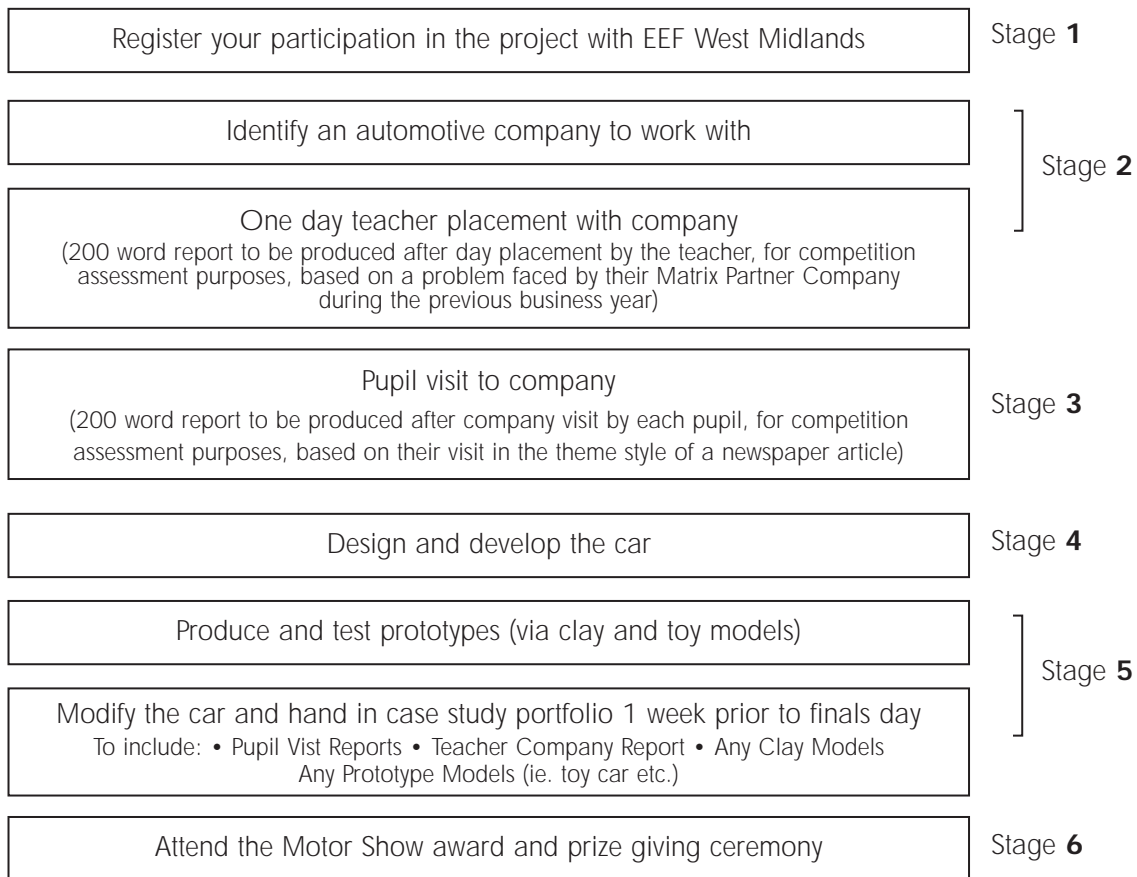
There is to be a Motor show in the next 32 weeks. In a team size of fifteen, you are tasked with creating your own superhero with his or her own special powers and characteristics which you will then apply your ideas to the design of a car for your superhero. Your school will be partnered with an automotive company, who will assist you with completing your project for the Motor show.

**Tyre Man** Got a puncture? Don't be de-flated – Tyre Man to the rescue!  
He changes a tyre in 2 seconds)

**Cappuccino Woman** She has a cappuccino and gets all powerful and fights off her enemies with cappuccino!

The superhero theme is a fun and interesting way in which the pupils can learn the skills and gain a valuable insight into the automotive engineering field.

Please note: your superhero does not have to have an automotive bias; all ideas are entirely up to the students imagination. **Be Creative !**



### Remember

The project guidelines are as follows (see overleaf for full list of project guidelines)

- Project is of approximately 32 weeks duration.
- Project is for Key Stage 3, team sizes of 15 (made up of years 7, 8 and 9).
- Only one team per school can enter.
- The project has been designed and developed by EEF West Midlands in conjunction with the Matrix steering group which consists of Design and Technology teachers and the automotive industry. The project has been developed to aid teachers in engaging students into the field of automotive engineering as well as aiding the delivery of the Key Stage 3 Design & Technology curriculum.
- A brochure/CD can be provided upon request which will contain a scheme of work to link Matrix to the Design & Technology curriculum.