

Activity title: Crash Test Challenge

Target audience: Teenagers aged 14 and up

Number of volunteers required:

2 – 4 depending on number of students

Budget:

Up to approximately £50

Project Brief:

This idea was taken from a Smallpeice Trust STEM day involving students aged 14. The idea is to engage the children and get them thinking about solutions to a problem. In his case not smashing eggs travelling in a cardboard car by using skills they have observed and tested.

Time required:

4 – 8 hours (depending on required level of complexity)

Resources required:

Any you want to use - suggested materials listed below.

Corrugated plastic, wooden or plastic wheels, dowel, cardboard, felt-tip pens, rubber bands, sponge, cotton wool, nuts and bolts, wood glue,

balsa wood, masking tape, all purpose glue, eggs (can be hard-boiled), chassis design guide, design brief

How to structure the activity:

Teams of 4 – 5 students are challenged to design and construct a vehicle which can protect two passengers (eggs) from a front impact crash.

Take materials, paperwork, and laptop (if you wish to make a presentation) into a school, university, FE College. Explain the principles of car design, automotive safety, and the forces involved in a front impact crash. Challenge the students (in teams) to design and construct a crash worthy vehicle which will be tested at the end of the session.

Adapt the project to the level required and add in budget constraints, marketing requirements, target market specifications, for a longer project which can be run as a residential activity.

With extra time, teams can consider marketing including target audience, logos, advertising and costs to the consumer (as seen in the below photo).

Outcome:

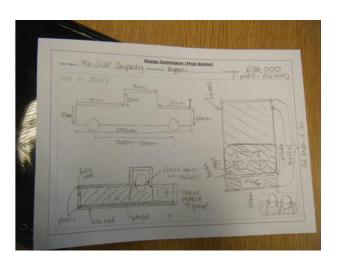
Learning Outcomes

- 1. Teamwork
- 2. The importance of planning and designing
- 3. Engineering fundamentals applied to the automotive industry



Left: a car designed for the retired market

Right: A plan of a car designed to withstand a crash impact



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