

Rocket Workshops



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Introduction

Rockets can be a very dramatic way of illustrating many aspects of science, and over 15 years I have developed a range of lectures and workshop activities that cover all academic levels from year 5 through to MSc Thermodynamics.

For nearly 30 years I have worked in the field of rocketry, designing, analysing and modelling the performance of the rocket motors used in most of the missiles in UK service. For about half of this time I have been involved with schools liaison and educational activities.

I am a registered science presenter with Sciencelive.net, read my reviews

<http://www.sciencelive.net/sciencelive/search/details.asp?id=236>

Activities

The activities I can offer fall into two categories: Lectures and workshops.

Lectures

Lectures typically take 1 hour and are aimed at year 9 and upward. A lecture will be tailored to the age group by selecting from the following topics.

- Charge design (application of locus)
- Combustion chemistry
- Combustion engines
- Design optimisation
- Environmental impact of large boosters
- Introduce the concept of momentum exchange
- Key scientists in rocket history
- Materials
- Safety
- Types of rocket motor – their uses and pros and cons
- Use of vector algebra in nozzle design

Workshops

Years 5 to 8

Workshop activities can start with any group old enough to use craft knives and superglue – generally year 5 and up. For the younger groups it is a half-day event, and is really centred around “lighting the spark” – the aim is to raise an interest in science. Some experimentation is done but the main activity is model making.

Years 8 to 10

Older groups use worksheets to predict the height the rockets will attain – often 200 – 300 metres. They will also devise methods of measuring the altitude, construct the instruments needed and compare the results with the prediction. This is normally a full day activity.

Rocket Workshops



Years 10 to 12

In addition to working from more advanced worksheets A' level groups can also build rockets to their own design. We issue challenges such as egg lofting, maximum flight time or spot landing. These activities involve significant design optimisation challenges. Again, this is normally a full day activity.

Safety

The model rockets built during these activities can achieve heights in excess of 300 metres and speeds of up to 200 mph. This makes for a spectacular event and one in which strict safety standards are rigorously enforced.

We only use commercially manufactured motors, they are fired electrically from a safe distance using a custom made firing box with a safety key. Risk analyses have been undertaken and are available. We also have appropriate public liability insurance. The rocket models are built from kits I designed and provide. Models built to students own designs for one of the "Challenges" are thoroughly examined before being allowed to fly.

Group sizes and facilities

For lectures the group size is at your discretion
For Workshops the maximum size is 30

A lecture requires a room with blackouts, such that a computer based presentation can be used. Workshops need a room suitable for a craft activity, and a large open area for the flying – school playing fields are generally suitable. We provide everything else.

Costs

Lectures: £150 for one, £75 for subsequent lectures on the same say.

Workshops	Half Day	£200
	Full Day	£300
	Plus £7 per person for consumables	

Contact Me

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