

Spring
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**YOUNG
ENGINEERS**
Talent · Skills · Enterprise

Project Eggs Factor launched

OUR NEW national sponsor, Airbus, is challenging young engineers throughout the UK to build a model aircraft capable of flying a chicken before it has its own wings in the newest of our Young Engineers challenges 'Project Eggs Factor'! Every part of their engineering capabilities will be tested as they design and build their aircraft – be it an aeroplane, glider, rocket or hot air balloon – to transport an egg as far as possible and land it intact. We don't want an 'egg-splat,' we want an 'eggs-emplary' landing!

Competitors need not travel to take part in the challenge, as they will organise their own test flights on their school's playing field or other local open space. Flight distances will be verified by an independent adjudicator, such as a club leader or teacher, and we will also want to see video footage of the flights – so it's also a great opportunity to put that fancy new camera phone to the test! Video clips of the best flights will be shown on our website (www.youngeng.org) along with a leader board, which will be updated weekly. Competitors may submit more than one test flight result to us – allowing them to continue to improve their aircraft and flight distance throughout the challenge period. Improvement and perseverance will also be rewarded, as these are key

qualities that engineers need to achieve success! All successful flights will earn flight certificates and there will be flight leadership awards and trophies. The challenge began on 1 January 2007 and will finish at the end of July 2007. It will



also run next year September 2007 – July 2008 with the current performance leaders being announced each term.

The challenge is open to all UK students aged 7 to 18. Entrants must use approved materials in the construction of their aircraft. Full challenge details and the flight leader boards are at: www.youngeng.org/index.asp?page=1060

So chocks (or is it chicks?) away!



Buy 1 get 1 free Toobz tool offer

The Toobz tool is a safe, multi-function tool that measures, cuts, punches and joins plastic 5mm straws with precision at a variety of angles, transforming them into a cheap and easy to use construction kit, which is perfect to get even younger engineers started and has great modelling potential. We have even set a few Toobz activities in our Activity Programme for Beginners (Key Stage 2, P3-P6) – see article on page 3.

Artstraws Ltd. have kindly extended a buy one get one free special offer to members of the Young Engineers club network, enabling clubs to get two toobz tools for a bargain £12.50 including postage and packaging! Order yours, while stocks last, by sending a cheque (made payable to Young Engineers), your club membership number, contact telephone number and delivery details to: Toobz Tool offer, Young Engineers, Chiltlee Manor, Liphook, Hampshire GU30 7AZ.

Inside this issue:

- Club visits Croatia
- Revamped Young Engineer for Britain competition
- Club Showcase invitation
- Full Activity Programme for new clubs



Young Engineers is a member of the Royal Academy of Engineering's BEST programme

Club Visits Croatia



The Riejska waterfront.



The group visited the 2nd largest coliseum at Riejska.



They were amazed at the scale of the diesel engine drive wheel.



The girls examine the raw materials used in ship building.

On a very dark and wet morning in late October, four students: Natasha Vracas (16) Valin Wang (18), Lucy Wiles (16) and Emma Worrall (15), from St Swithun's School, Winchester and their Club Leader, Andy Maskell, set out on the start of their Lloyd's Register European Engineering Experience. The group ventured to the Istrian Peninsular in northern Croatia to visit shipyards in Pula and Rijeka.

Although Croatia is not particularly famous for ship-building, the team found very busy yards at both locations and were able to see all aspects of ship construction including initial steel preparation, unit fabrication, fitting out and the assembly of the final vessel.

The yard in Pula was building a number of car carriers, the largest being capable of transporting up to 7,000 cars. The team had a great opportunity to hear about all aspects of ship building including the environmental protection considerations and the role of the Lloyd's Register surveyors. They saw the entire production line of a diesel engine from fixing the first plates together to the testing of the finished engine. Valin explained, "We made up our own little method of remembering how a diesel engine works: Suck, Squish, Bang, Blow!"

At Rijeka, the shipyard specialised in building much bigger chemical carriers.

Here the girls climbed on board a ship to see one of the massive steel blocks, which make up the main structure of the ship, being welded into place.

As well as seeing engineering in action, there was also time to see some of the countryside, see the largest ancient amphitheatre outside of Rome and sample the local cuisine.

In December, the team gave a presentation of their trip and their view of engineering in Croatia to a VIP reception at Lloyd's Register's London Headquarters.

The school's Young Engineers Club won the Croatia trip by being voted the Club of the Year 2006 at the Annual Celebration of Engineering in September. St. Swithun's is a thriving club with a large membership which spans the entire age-range of the school. Each year they engage in a huge range of engineering projects including Greenpower, the Engineering Education Scheme as well as our own Royal Navy and BAA challenges. Their projects always show a high standard of design and craftsmanship, and they are often competition winners.

For your chance to become Club of the Year 2007, reserve a place at your regional Club Showcase. Go to: www.youngeng.org/index.asp?page=71

Club Showcases:

Get Together, Celebrate, Design & Build!

Clubs at our National Club Awards final told us that one of the best parts of the final was being able to get together with other clubs, make friends and exchange ideas. So that more of you can benefit from this experience, this year we will be holding Regional Club Showcases.

The Regional Showcases offer clubs the opportunity to celebrate their year's achievements and are open to all Young Engineers clubs – large and small, primary and secondary, new and established. It is a platform at which you can display and celebrate any extra-curricula group engineering activity. Clubs will be represented by a team of four students who will prepare a display for the event, which shows photos of the club in action, projects created and so on.

The day promises to be an exciting event which will include an on-the-spot design &

build engineering challenge. Although there will be some element of competition, this event is aimed to be primarily a celebration of achievement. Everyone's efforts will be recognised and all clubs will receive a 'goody pack' containing resources for future projects. We will also be looking out for candidates to invite to the prestigious National Club Awards, where clubs could go on to win the coveted title 'Club of the Year.'

The showcases will be part of combined regional events taking place in late June/early July, which also include the Young Engineer for Britain and K'Nex Challenge regional heats as well as other regional engineering events, so there will be plenty for those attending to see and be inspired by. Places at each regional event are limited, so reserve your place now to avoid disappointment!! Go to: www.youngeng.org/index.asp?page=71

StairSteady Steps Towards Full Scale Production

Ruth Amos has given us a report of how life is going as Young Engineer for Britain 2006:

“Over the last the last few months StairSteady has gone from strength to strength, by the time this article is printed I will have had my first meeting with a national branch of Age Concern. They are starting a new project on mobility and there is a good prospect that StairSteady will be included in their range of approved mobility devices/aids.

The latest version of StairSteady, although similar to the prototype, now has a second handle especially designed for the older generation; this improvement has been greatly helped by feedback from my first prototype. This means I now have two models and a possible range of components that can be attached to help people carry objects up the stairs, e.g. a handbag or books.

Trials are going well: I have one version in a work place and one in a family home, and I am hoping to install at least two more by the end of January.

In the Autumn, I went to London for the launch of Enterprise Week and competed in the ‘Enterprising Young Brits’ competition, where I heard Margaret Hodge and Gordon Brown speak on encouraging more youngsters into business. The judges were very impressed with StairSteady; it was highly commended and I was invited to enter again next year when I was further on with sales.

The next few months are going to be busy. As well as my discussions with Age Concern, I am also speaking at a technology tournament in March and have a stand at the ‘Women in Engineering’ conference in Leicester. I am also looking forward to going to France with Urbis Lighting as part of my Young Engineers ‘Benefit to the Community’ award. Besides all of this StairSteady work, I have to do my A Level work and find time for some social relaxation!!!”

We are now accepting entries to the 2007 Young Engineer for Britain competition. Register online at: <http://www.youngeng.org/index.asp?page=66>

Your feedback brings new structure to the Young Engineer for Britain

Embracing new technologies is key to engineering success, and we are ensuring that this is reflected in the new format of the Young Engineer for Britain competition.

More than ever, the competition encourages students to think outside the box and ask – what can I do that is different in order to make something happen? We believe engineering today is all about innovation and enterprise. Young innovators across the UK will find they are now given more scope allowing them to be rewarded not only for curriculum related work (which is still very welcome), but also for the innovative solutions they have engineered for the needs of their community.

We are looking for projects that include:

- help for those in need
- a better environment
- more enjoyable sport and leisure
- improved safety and security
- enhanced healthcare and medicine
- better communications
- less stressful, more efficient travel and transport
- better places to live, learn, work or visit

This list is by no means exhaustive!

Students will be required to satisfy three out of a possible four special skills categories in order to be considered as the Young Engineer for Britain. These categories,



Rafi Ahmed displays his Fill Safe System at the 2006 Eastern Regional Final.

which will be judged individually by experts in that area, highlight the essential qualities necessary to be a modern day engineer and to be able to put ideas into practice:

1. Design and innovation
2. Product development and marketability
3. Craftsmanship and finish
4. Integration and application of electronics (can be hardware and/or software)

Today, it is true to say that virtually every aspect of our daily lives is enabled or aided in some way by engineers. Yet, the popular conception of engineers is still of people who only build roads and bridges or fix cars and machines. The new format of the Young Engineer for Britain competition will reflect the modern multi-faceted face of engineering. To find out more and enter go to: www.youngeng.org/index.asp?page=66

Royal Society Prizes for Science Books

It's that time of year again – you can now enter your club into our Junior Science Book Prize draw! We have places for eight clubs to act as judging panels for this important award. Club Members (guide age 9 to 14) will be given a set of five or six short-listed science and technology books to read, discuss and judge; and along with over 80 other panels will decide the winner of Junior Science Book Prize. As well as the short-listed books, the eight draw winners will receive a judging pack to guide them through the process. The books will be supplied at the end of March, and clubs will need to submit their decision by the 8th May.

The short-list will not necessarily include engineering related books, but clubs that have taken part in previous years have found it a very rewarding experience, as the judging process helps strengthen the groups' communication and debating skills and has benefited their ability to work as a team on future club projects.

Clubs who are not drawn will still have the opportunity to take part if they can source the books themselves (which should be available from local libraries). To enter for the draw email clubs@youngeng.org by Friday 9th March.

Get published in the Independent!

The Technology Horizons Award asks students to write an article to answer: Ecology and technology – how can modern technologies protect the environment? Writing an essay can help club members to crystallise their ideas, as one of last year's winners, Sophie Walker, illustrated when she commented: "It was only because of the competition that I started making the link between technology and engineering... ..I started to think about engineering not being a dull profession, but one in which you can change the future."

Young engineers can enter the 14 to 18 year old category, and the winner will get their article published in the education section of The Independent. There are generous cash prizes for the winner and several runners up and teachers who enter 15 or more essays will receive a Bosch IXO cordless screwdriver as a mark of thanks for supporting the competition. Apply on-line at http://education.independent.co.uk/careers_advice/engineering/article1962598.ece

This essay competition is sponsored by Bosch and The Independent as part of the Shape the Future campaign, which includes our own Young Engineers Club Network and Competitions.

Are you missing out?

Young Engineers now contacts clubs via email to tell them about offers of help, pass on news of local engineering events, and give details of last minute opportunities. To make sure you're not missing out, make sure we have your correct email address and that your club profile is up to date. We also post news on the What's New section of our homepage, so remember to keep an eye on www.youngeng.org.

We need your numbers!

This is a good time of year for us to get a snapshot of our network's student membership numbers. Gathering membership numbers is vital as we need to let our sponsors know the size of our network and the scope of our influence. Sponsors are interested in knowing not only how many clubs sign up each year, but how many re-register year after year! Registering new members also entitles them to our FREE fantastic membership pack!

Remember that as long as you are running extra-curricula, engineering-focused activities for school-aged UK youth on a regular basis, you and your club members qualify for membership of our network. This includes groups of students who focus on one particular competition such as Greenpower or F1 in Schools. If you are running a club, where the membership changes each term, please contact the office – a reduced membership pack is available for students taking part at this level.

To re-register, simply log on to your club profile page at www.youngeng.org/index.asp?page=100 click 'update details' and complete your club numbers, or provide the following in an email to clubs@youngeng.org:

- the number of girls in your club
- the number of boys in your club
- the age-range of your club members
- number of membership packs required (for new members that have not had a pack previously only)

Dates to Remember

Log onto to www.youngeng.org to view the full Events Calendar with information on other schemes, holiday engineering courses for club members, seminars for club leaders etc.

9-18th March 2007

National Science and Engineering Week

29th March 2007

Royal Navy Challenge 2007 National Final

31st March 2007

K'Nex Challenge 2007 entry closing date (Scotland only)

27th April 2007

BAA Challenge 2007 National Final

30th April 2007

K'Nex Challenge 2007 entry closing date (England & Wales)

BAA 2007 National Final

31st May 2007

Young Engineer for Britain Closing Date

Late June/Early July

Regional K'Nex, Young Engineer for Britain and Club Showcases

17th September 2007

The Annual Celebration of Engineering



What's this?

Free First Year Activity Programme proving a hit!

Many of you have written to thank us for producing the beginner and intermediate Activity Programme booklets. These programmes contain a year's worth of design and make activities which give beginners and those of intermediate level (approx Key Stages 2 & 3, P5 to S2) a progression of engineering activities which build their skills and engineering knowledge.

The beginner programme is divided into three topic areas designed to fit in with school terms: Space, Transport and Fire Safety. The intermediate programme covers everything from structures, modes of transport and alternative power to electronics and chemical engineering. Curriculum links are given for all the activities, including the relevance to subjects such as English and Geography as well as the D&T and Science curriculum. (We will shortly be producing an edition which includes Scottish curriculum links).

Experienced club leaders have helped to write the programmes based on their experience of activities that have worked in their own clubs. All of the activities require club members to engineer their own solutions – they are not simply required to follow a set of step by step instructions, and must use their heads as well as their hands!

To make assembling the resources needed as easy as possible for club leaders, the programme booklet gives specific advice on where to obtain each item. The equipment and consumable resources needed to run the programme are all inexpensive and easy to obtain, being either available from home or school, or easily ordered from a D&T or Science supplier catalogue.



Forest Hill Young Engineers show off their sorting machine project.

Use your Rapid 10% discount!

Many of you may think that your Rapid discount will only be useful for buying the electronic components needed, but in fact the Rapid catalogue is a comprehensive source of the vast majority of D&T, Science and Art supplies – and much, much more! You can buy everything from tissue paper and wood needed for the Wind Power buggy, the modelling clay needed for the Aerodynamics investigation, the Kite kits needed for the Kites activity, the K'Nex needed for the club K'Nex challenges and so on! All with your 10% discount!

To download the activity programmes, go to: www.youngeng.org/index.asp?page=1035

To order online from Rapid, go to: www.rapidonline.com

Join the Young Engineers Club Network

We support the setting up of engineering clubs and enrich the activities of existing clubs. If you run, or want to run any kind of extra-curricula engineering activities, why not join the network? The network is FREE to join and there is no obligation to commit yourself to any further involvement, allowing you the freedom to run your club the way that suits you, safe in the knowledge that you are part of a national network, who you can call on for support when you need it. To join, go to: www.youngeng.org/index.asp?page=55.

The benefits of membership:

Activity Programmes and Activity Bank – ready made ideas for club sessions, including optional year long programmes and a searchable bank of individual activities. **Membership packs** for club members. Club leaders receive a **badge, club certificate and club handbook** – giving practical advice on how to maximise the success of the club. **Discounts. Engineering Challenges and Competitions. Events Calendar. Club Leader Forum. Support Pages** guiding you to all the advice you'll need. **Regional Club Showcases** – get together with other clubs, celebrate your projects, exchange ideas, take part in an 'on the spot' engineering challenge. **Club Network Leadership Awards** – recognises and rewards the dedication of the volunteer club leaders. **Fulcrum Newsletter** and relevant email updates.

Young Engineers would like to thank all contributors to this addition of Fulcrum. Fulcrum's writing team include Colin Barry, Stuart Ellins and Editor Lil Grafton. We would also like to thank Rapid Electronics for supplying the graphics and printing resources for this edition.

Our national sponsors are

