National Centre for Universities and Business

POWERING THE

TALENT2030

NATIONAL ENGINEERING COMPETITION FOR GIRLS

COMPETITION GUIDELINES

INFORMATION FOR STUDENTS, TEACHERS AND PARENTS ABOUT HOW TO ENTER THE COMPETITION

2018, THE YEAR OF ENGINEERING SUPPORTER

SPONSORED BY

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TALENT 2030 NATIONAL ENGINEERING COMPETITION FOR GIRLS

WHAT IS THE TALENT 2030 NATIONAL ENGINEERING COMPETITION?

The National Engineering Competition is a free competition offering you the chance to win £1000 for you and your school! We invite you to solve the major challenges of the 21st Century, showing how engineering makes a difference to people and the planet.

To win £1000, we want you to create a project that tells us how engineers can solve the challenges of the 21st century. This could be an original solution designed from scratch, or a project telling us what engineers are currently doing to solve the challenge. This could be an issue in your local area, or something on a global scale! It's an opportunity to get creative, get thinking and most of all have fun!

WHO CAN ENTER?

- The competition is open to all female students in secondary education
- Girls can enter independently or through their schools
- There are 3 different age categories - **11-14 (Y7-9), 15-16 (Y10-11) and 17-18 (Y12-13)**
- Girls can enter individually or in groups of up to 6
- Open to girls from all subject areas
- One entry per group/individual (schools can submit multiple entries but girls cannot)

KEY DATES

COMPETITION ENTRY OPEN — 24TH SEPT 2018

COMPETITION ENTRY DEADLINE — 14TH DEC 2018

BIG BANG FAIR

All shortlisted finalists are invited to attend the Big Bang Fair on 16th March 2019.

To find out more about the fair visit **www.thebigbangfair.co.uk**

TIMELINE

- **24 Sep 2018** — Competition opens
- **14 Dec 2018** — Entry deadline
- **Jan 2019** — Shortlist announced
- **Feb 2019** — Judging panel meets
- **Mar 2019** — Winners announced & Entries showcased; Finalists display projects at Big Bang Fair 2019
- **Spring/ Summer 2019** — Outreach trips to see engineering in action

PRIZES

- **£1000** for the winner of each category! **£500** for the winning student or group and **£500** for their school
- **£300** for second place of each category and **£150** for third place of each category (prize money to be shared between all entrants for team entries)
- Engineering mentor for each category winner
- All competition entrants have the opportunity to get a Bronze, Silver or Gold CREST Award. Shortlisted finalists who qualify for the award will have their registration costs refunded
- Free membership to the Women's Engineering Society (WES) for the winners and runners-up
- **£150** for the best display at the Big Bang Fair: All shortlisted finalists will be invited to showcase their entries at the Big Bang Fair and **£150** will be awarded to the best exhibition and project explanation on the day

TO ENTER, YOU NEED TO FOLLOW THESE COMPETITION GUIDELINES:

IDENTIFY some of the challenges of the 21st century (see list on page 3 for project area ideas)

PICK one, or a few, to explore and research in more detail

DECIDE what you are going to do about the challenge(s) that you have chosen

This could be:

i) Explaining what engineers are already doing and/or are going to do

or

ii) Creating or explaining your ideas for your own solutions

REVIEW what you have found or evaluate what has been done

PRESENT your ideas, conclusions or final solutions

HOW TO ENTER

When your entry is complete, you will need to fill in a form on our website and either upload your entry or provide a link to it if it is a website, online video etc.

WHAT THE JUDGES ARE LOOKING FOR:

- That the process above has been followed
- Enthusiasm for tackling the challenge(s)
- Innovative and creative thinking
- A high-quality final product (in whatever format has been chosen)

Note: The competition is accredited by CREST (run by the British Science Association) so all participants are encouraged to apply for a CREST Award. You do not have to qualify for a CREST Award in order to enter the competition but we are expecting entrants to have spent at least 10hrs on their project, which is the minimum requirement for a Bronze Award.

PROJECT IDEAS

The aim of this competition is to inspire you to find out more about engineering and about the exciting variety of things that engineers are doing (not just 'fixing cars'!), and to encourage you that it is a career that makes a difference to people and the planet. As described in the competition guidelines, you can either present existing work by engineers or design and even create your own ideas, and this can be done in any format (this could be a PowerPoint presentation, a website, report, video, CAD designs etc or a combination of formats to make up the whole project - be creative!). Think about issues in your local area you could come up with solutions for.

Some examples are:

CHEMICAL/BIOLOGICAL	A presentation on how engineers can ensure that there is enough water and food for a growing population?
HEALTH	A website showing how technology could help cancer patients?
MECHANICAL	A report showing an experiment with three-dimensional printing techniques to improve an existing product to save energy?
ROBOTICS	A video on how robots can improve people's lives or make processes easier?

RUNNING THE COMPETITION - INFO FOR STUDENTS & TEACHERS

• From whole year groups to independent study, the competition is easy to run both in and outside of the classroom (for example it could be run as part of an after school or STEM club). To help you get started, from **24th September,** there will be resources available on the **Talent 2030** website to help encourage and support students taking part in the competition, including inspirational ideas and examples of past competition entries.

• All shortlisted finalists (approx. 30-45 groups dependant on the total number of entries) will be invited to display their entries and take part in the **Big Bang Fair at the NEC, Birmingham, 16th March 2019**. Talent 2030 will contribute towards travel costs.

This is an excellent opportunity for the girls to develop their communication skills and confidence as they explain their project to the fair visitors. They will also be given time to go and explore the fair themselves. On the day, there will be a £150 prize for the best display and project explanation. The winners and runners-up of the main prizes will also be awarded their prizes on the day during an exciting awards ceremony with a special guest presenter (TBC).

(Please note these prizes are decided by a panel of engineers and expert judges before the fair and entrants will be sent the results in February).

The competition is accredited by **CREST** (run by the British Science Association) so all participants are encouraged to apply for a **CREST** Award. Details of how to apply can be found at:

www.crestawards.org/run-crest-awards

Find out how **STEM Ambassadors** can support your school and get involved in the Talent 2030 Competition – from giving a talk in your school to mentoring the girls taking part.

www.stem.org.uk/stem-ambassadors/local-stem-ambassador-hubs
to find your regional contact.

PROCESS – PROJECT STAGES FOR STUDENTS

1	**Launch** Get to grips with the question and think about different ways of approaching the challenge. Organise your teams and identify a problem you wish to address.
2	**Research** Spend some time researching your project idea, what already exists and what could be developed? What are the constraints you are facing and where will your solution go in the future?
3	**Idea development** How are you going to tackle the question? Finalise your method and approach and develop your idea. Perhaps build a prototype and test your idea; can it be improved?
4	**Reflect** Evaluate your idea or approach; could it be improved?
5	**Report** Decide on how best to present your idea. This could be anything from a poster, PowerPoint, video, report or even a website – how you present your idea is completely up to you... be creative!
6	**Competition entry** Submit your competition entry by 6pm on 14th December.
7	**Finishing-up** Celebrate your achievement and share your journey. All participating students will receive an entry certificate to congratulate you on your efforts.
8	**Winner and Runners-up announced** Talent 2030 will judge and shortlist entries in January. Following this, a panel of high profile female engineers will judge the shortlisted entries and winners and runners-up will be announced in February.
9	**Big Bang Fair** All shortlisted finalists will be invited to exhibit their entries at the Big Bang Fair 2019. There will be a £150 prize for the best exhibition and project explanation. All prizes will be presented during the awards ceremony on the day.

FIND OUT MORE ABOUT ENGINEERING AND STEM HERE:

Talent 2030:
www.talent2030.org

Tomorrow's Engineers:
www.tomorrowsengineers.org.uk

Year of Engineering:
www.yearofengineering.gov.uk

STEMettes:
http://stemettes.org

WISE:
www.wisecampaign.org.uk

Women's Engineering Society
www.wes.org.uk

National Centre for Universities and Business

The National Centre for Universities and Business (NCUB) is a public-private partnership with the sole purpose of increasing the value, intensity and diversity of university-business collaboration.

We focus on building stronger connections between universities and business around the national agendas of skills, innovation and place. Our work is driven and supported by our network that uniquely brings businesses, universities and government together. We catalyse collaboration to address key challenges, circulate and celebrate breakthroughs, work together on policy development, create and support unique digital platforms for skills, innovation and information, and amplify the voice of this partnership to government.

Talent 2030 is a programme of work which illustrates our belief in investing in and nurturing the UK talent base to support and drive the UK economy. Beyond this, we recognise that addressing deep-seated issues around gender equality will require coordinated action across a range of stakeholders.

At present only 10.6% of the UK's professional engineers are women, the lowest level in Europe. From any perspective this is a huge waste of potential talent. In 2012 an NCUB taskforce led by Richard Greenhalgh, former Chairman of Unilever UK, and Nigel Thrift, Vice Chancellor of the University of Warwick, recognised the need to encourage more talented young people to pursue careers in manufacturing and engineering. Engineering holds problem-solving at its heart, and it's hard to solve a problem if everyone thinks the same way; what the manufacturing and engineering base needs is diversity in its thinking.

And so Talent 2030 was born, and has grown over the past six years. Since 2012 we have worked with more than 2,000 girls from 300 schools across the UK, and awarded £18,000 of prize money. We could not have done so without our tremendous sponsors, Rolls-Royce, PepsiCo and Centrica, supporting the drive to match young, creative and diverse minds with rewarding careers and life-long opportunities for development and success.

TALENT2030

Got any questions? Email us at contact@talent2030.org

contact@talent2030.org
www.talent2030.org
@Talent_2030
www.ncub.co.uk