

# CASE STUDY



## The Challenge:

“Everyone recognises that our rapidly changing economy is placing ever-greater demands on the skills of the workforce. If we are to compete in the global race, we need to equip our people with the skills to adapt, innovate and flourish. Given the rapid technological change we are facing, science, technology, engineering and maths (STEM) skills are especially vital...”

*Professor John Perkins, Review of Engineering Skills, November 2013*

- Engineering companies project 2.74 million job openings between 2010 – 2020.
- 1.86 million will be workers who are likely to need engineering skills.
- The numbers of 20 to 64-year-olds (the most economically-active sector of our population) will decline.
- To meet the demand and stay competitive the UK needs to increase the take up of engineering over the next 5 – 10 years.

Derby City Council identified a need to inspire its young people to recognise the STEM careers available to them with employers in the City. Their aim has been to effectively enhance a young person’s potential of accessing local STEM jobs.

## The Solution:

**Derby Programme:** Derby City Council works in partnership with the Big Bang East Midlands and the Tomorrow’s Engineers programme in order to improve the level of STEM engagement in Derby schools. A Tomorrow’s Engineers ‘Around the world’ workshop is delivered into each of the 14 schools and pupil referral unit in the city to the full year 8/9 year group to help them understand the potential career opportunities that are available to them in STEM. Local STEM companies are then linked up with schools to solve a STEM-based competition problem which is judged at The Big Bang Fair Regional Event East Midlands at the Roundhouse in June each year.

## Companies & Mentors:

We aim to partner a mentor from a STEM-based company with a team of up to six year 8 students from each of the 15 Derby secondary schools and the Pupil Referral Unit.

Mentors have the opportunity to inspire young people about their particular company, give an overview of how their company/industry could relate to the competition, and provide support and guidance to aid the young people in formulating a competition entry.

## The Derby Programme Aspirations:

The Derby Competition helps to:

- Improve awareness of STEM
- Enthuse young people about STEM and careers
- Encourage young people to make subject choices that keep their options open
- Increase the reach of The Big Bang Fair
- Widen Participation



“Tomorrow’s Engineers” workshops are offered at the first stage of the **DERBY COMPETITION** in the aim to bring local schools and businesses together.



The Big Bang Fair  
East Midlands



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## Facilitation & Organisation:

The Big Bang and Tomorrow's Engineers teams at Learn by Design organise and facilitate workshops and school/mentor sessions and any related communications to ensure a smooth transition. Mentors are provided with a briefing pack on the session with their school which includes expectations and any appropriate advice and guidance they can give during the visit.

## Big Bang East Midlands:

The mentor involved accompanies their team at the Big Bang East Midlands regional event where the competition is judged and prizes awarded. The opportunity for the mentors' companies to attend and exhibit in the Derby Village area at the Big Bang East Midlands is offered and encouraged.

*"Tomorrow's Engineers" workshops raises awareness of STEM prior to students taking their options*

### Tomorrow's Engineers Day:

Each of the 15 Derby Schools and the Pupil referral unit are offered a 'Tomorrow's Engineers' Day to educate about and promote STEM activities and careers.

### Competition Terms:

Each school picks a team of up to six, perhaps following on from Tomorrow's Engineers work, to enter the competition.

### Mentor/Team Meeting:

Each company sends a mentor to meet with a school team and help them design and plan their competition entry

### Competition:

Teams prepare their entry and bring it to The Big Bang Fair East Midlands in June Event where it will be judged.

### The Big Bang Fair East Midlands:

The Derby Prize is awarded. Mentors are encouraged to attend in support of their team and their companies encouraged to exhibit in the Derby Village area.

**DERBY PROGRAMME**



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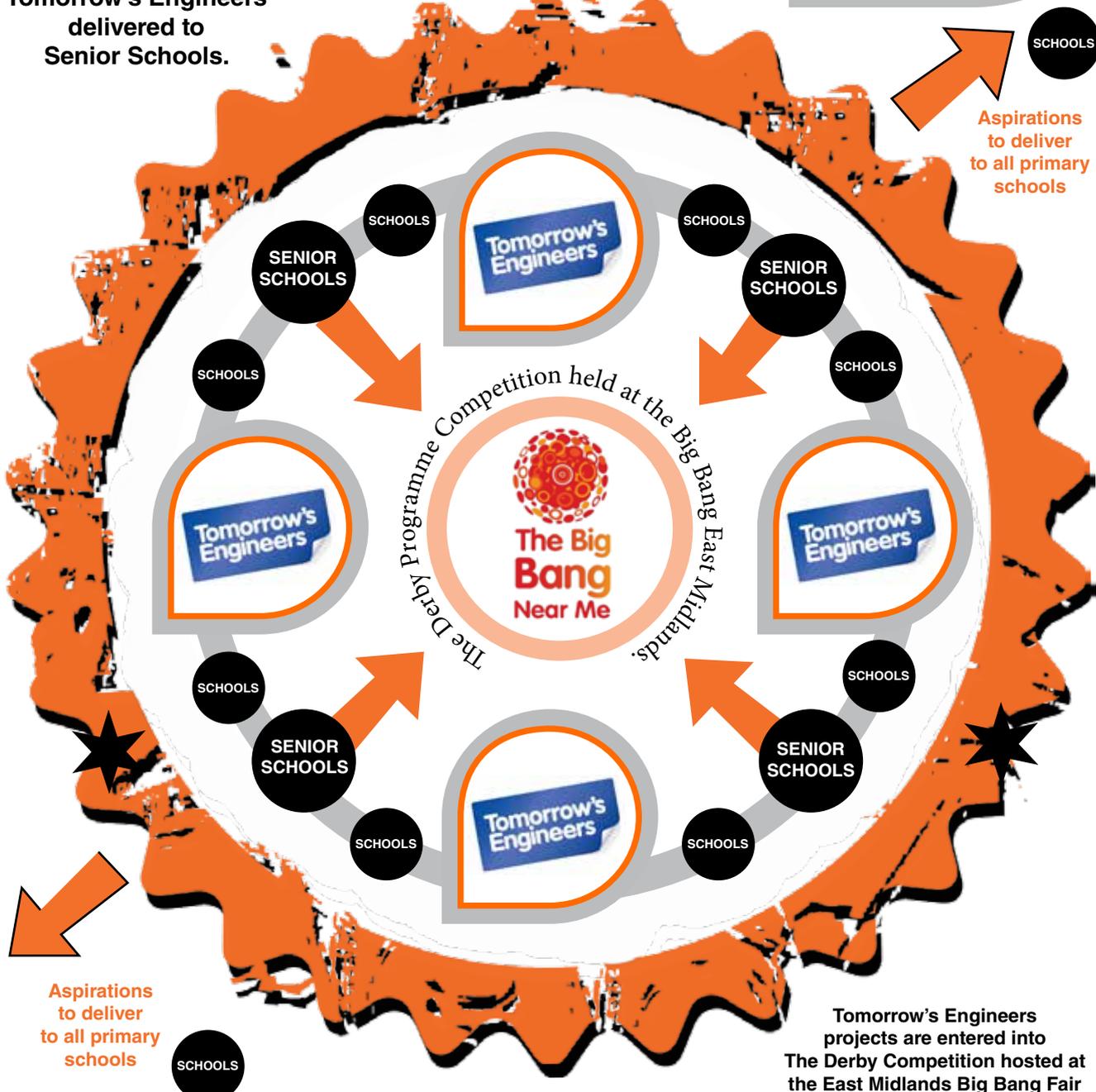
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Tomorrow's Engineers  
delivered to  
Senior Schools.



Aspirations  
to deliver  
to all primary  
schools

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to deliver  
to all primary  
schools

Tomorrow's Engineers  
projects are entered into  
The Derby Competition hosted at  
the East Midlands Big Bang Fair

**DERBY PROGRAMME**

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## 2015 Schools took part in the Derby Competition:

- Merrill Academy
- City of Derby Academy
- Lees Brook Community School
- Murray Park School
- West Park Academy

## Feedback:

- An opportunity for certain students to 'break the mould' of current behaviours and raise attainment through a challenging project.
- Increased engagement and variation in STEM learning among the team members.
- Extra-curricular STEM learning.
- Increased interest in STEM specific to the solution the learners came up with to the brief.
- Increased demonstration of generic project skills: team-working, project planning and management, communication and presentation skills.
- Increased interest in enterprising thought patterns due to 'ownership' of the project idea.



Learn by Design  
has successfully  
delivered over 700  
Tomorrow's Engineers  
workshops to  
UK schools.

## OUTCOMES:

**14 out of 15**  
Derby City schools  
engaged in TE in  
2015/2016

**2158**  
learners  
**ENGAGED**  
in academic year  
2015/2016

View The East Midlands  
Big Bang Fair Video 2016

ENGINEERING

ENGAGE



STEM

TECHNOLOGY

INSPIRE



"Tomorrow's Engineers" workshops  
raise awareness of STEM career options

## SHOWCASING STEM IN THE REGION



### Added value

The Derby programme introduces not only schools to STEM but also offers partnership and investment opportunities to corporates in the region.



#### Working in partnership with local authorities.

Working in partnership with marketing Derby (the inward investment arm of the city) to showcase STEM skills and highlight future work force to potentially interested Corporates.



#### Aligns with LEP (Local Enterprise Partnership)

Aligns with LEP (D2N2) Skills Strategy, which identifies significant STEM skills future requirements.



#### Bespoke engagement

Provides bespoke engagement opportunities for local major employers for example; Rolls Royce, Bombardier, JCB and Toyota.

## DERBY FACTS

**£3bn**

invested in Derby since 2005 and £1.7bn in the pipeline for the next five years.

**23%**

GVA growth since 2010 - the fastest in the UK.

**45,000**

people employed in engineering /manufacturing functions - highest in the East Midlands.

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