



## CASE STUDY: STEM – Children and the Chocolate Factory

### Background

# £27 BILLION

ENGINEERING IS A VITAL PART OF THE UK ECONOMY – WITH THE POTENTIAL TO GENERATE AN ADDITIONAL £27 BILLION PER YEAR FROM 2022 (ENGINEERING UK REPORT 2015).

# 257,000

THE INDUSTRY IS FACING A GROWING SKILLS SHORTAGE, WITH AN ESTIMATED 257,000 NEW VACANCIES IN ENGINEERING ENTERPRISES WITHIN THE NEXT SIX YEARS.

As a centre of excellence in engineering education, UTC Reading is working with its industry partners to inspire young people to pursue careers in STEM (science, technology, engineering and maths).

In addition to its core curriculum, it provides educational outreach activities targeted at primary school pupils across Berkshire.

Among these is STEM – Children and the Chocolate Factory, an initiative run in partnership with Thames Water, Kier and Peter Brett Associates.



IT IS REALLY IMPORTANT THAT LOCAL BUSINESSES ENGAGE WITH SCHOOLS AND GET INDIVIDUALS INTERESTED IN STEM SUBJECTS AT PRIMARY SCHOOL AGE. THE INDUSTRY IS CRYING OUT FOR NEW TALENT AND WE HOPE TO HELP INSPIRE YOUNG PEOPLE TO THINK ABOUT CAREERS IN CONSTRUCTION AND ENGINEERING.



Georgina Wilmott,  
Proposals Manager at Kier

### The challenge

The Children and the Chocolate Factory workshop invites pupils in Key Stage 2 to take part in practical workshops that develop problem-solving, teamwork and basic engineering skills.

Working in small teams, pupils are challenged to design and build their own mini water network to supply a fictional chocolate factory opening in their town. Pupils must explore and understand the implications and impact of neighbouring facilities before putting their supply to the test using real water.

Pupils are guided by professionals from Thames Water, Kier and Peter Brett Associates, who also offer glimpses of careers in engineering, utilities and infrastructure.





## Inspiring the next generation

Two successful events have so far taken place, involving around 120 pupils at a time drawn from five local primary schools. Feedback from teachers and pupils has been extremely positive.



THIS EVENT HAS BEEN A GREAT OPPORTUNITY TO SHOW OUR CHILDREN WHAT ENGINEERING IS ALL ABOUT, AND WHAT A CAREER IN ENGINEERING COULD LOOK LIKE. IT HAS ALSO HELPED TO BUILD THEIR PERSONAL AND SOCIAL SKILLS BY ENCOURAGING THEM TO WORK IN TEAMS AND COMMUNICATE TO SOLVE PROBLEMS.

CHILDREN, AS WELL AS MANY ADULTS, DON'T HAVE A CLEAR IDEA OF WHAT ENGINEERING JOBS THERE ARE. THIS SORT OF ACTIVITY HELPS TO MAKE IT MORE TANGIBLE AND I HOPE IT WILL INSPIRE SOME OF OUR CHILDREN TO EXPLORE THIS AVENUE FURTHER.



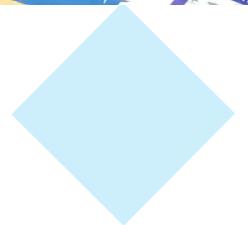
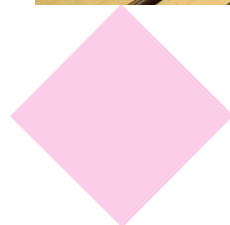
Alison Hicks,  
Year 5 teacher, Alfred Sutton Primary School



WE HAVE LEARNT HOW TO CHECK THE WATER NETWORK AND HOW TO PLAN ITS ROUTE THROUGH A TOWN. I HAVE ALSO LEARNT ABOUT GRAVITY AND ITS EFFECT ON THE WATER. IT HAS BEEN REALLY FUN. I HAVE ENJOYED SEEING THE WATER FLOW THROUGH AND WORKING WITH OTHER PEOPLE IN A TEAM.



Warsan Zubeir-Masabo,  
aged 10, Alfred Sutton Primary School,





## The impact

In a survey of British firms that employ engineers and IT professionals by the Institution of Engineering and Technology, over half reported difficulties finding the right talent and 59% described the skills shortage as a “threat” to their business in the UK.

Events such as STEM – Children and the Chocolate Factory, are helping to inspire the next generation at a grassroots level, to support further learning in the classroom.



THE PURPOSE OF THESE EVENTS ARE TO OPEN THE PUPILS’ EYES TO THE MASSIVE RANGE OF EXCITING JOBS OUT THERE WHICH USE SCIENCE, TECHNOLOGY, ENGINEERING AND MATHS SKILLS IN THE HOPE THEY’LL CONSIDER THEM AS FUTURE CAREERS. FROM CHATTING TO THE PUPILS I THINK WE ARE DEFINITELY ACHIEVING THAT AS THERE IS SO MUCH ENTHUSIASM AMONGST THEM. JOBS IN ACCOUNTS OFFICES OR LABORATORIES TEND TO BE THE FIRST THINGS WHICH SPRING TO MIND WHEN WE THINK ABOUT MATHS AND SCIENCE BUT WE ARE SHOWING THEM THERE IS SO MUCH MORE.



Liz Banks,  
Thames Water’s education team



IT IS IMPORTANT THAT YOUNG PEOPLE HAVE OPPORTUNITIES SUCH AS THIS TO FIND OUT MORE ABOUT ENGINEERING. MANY ENGINEERING FIRMS ARE STRUGGLING TO RECRUIT BECAUSE OF A LOW LEVEL OF AWARENESS ABOUT ENGINEERING ROLES AND WHAT THEY ENTAIL. BY INVOLVING CHILDREN IN HANDS-ON ACTIVITIES LIKE THIS IT HELPS TO SPARK THEIR IMAGINATIONS, DEVELOP THEIR PROBLEM-SOLVING SKILLS AND ENCOURAGE THEM TO THINK ABOUT FUTURE JOB ROLES.

STEMNET ambassador  
Ian Coddington



I BELIEVE THAT THE REAL BENEFIT OF SUCH A HANDS ON TYPE OF EVENT IS TO DEMONSTRATE THAT MATHS AND SCIENCE AREN’T STRICTLY CONFINED TO TEXT BOOKS AND CLASSROOM LESSONS. JUDGING BY THE ENTHUSIASM AND INTRIGUE WE HAVE SEEN, WE ARE CLEARLY ON THE RIGHT PATH TO ACHIEVING OUR GOAL OF INCREASING YOUNGSTERS’ INTEREST IN STEM CAREERS.



Dan Phelps,  
STEM Lead Coordinator at Peter Brett Associates