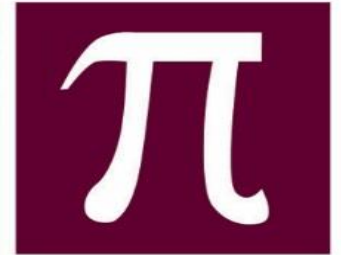
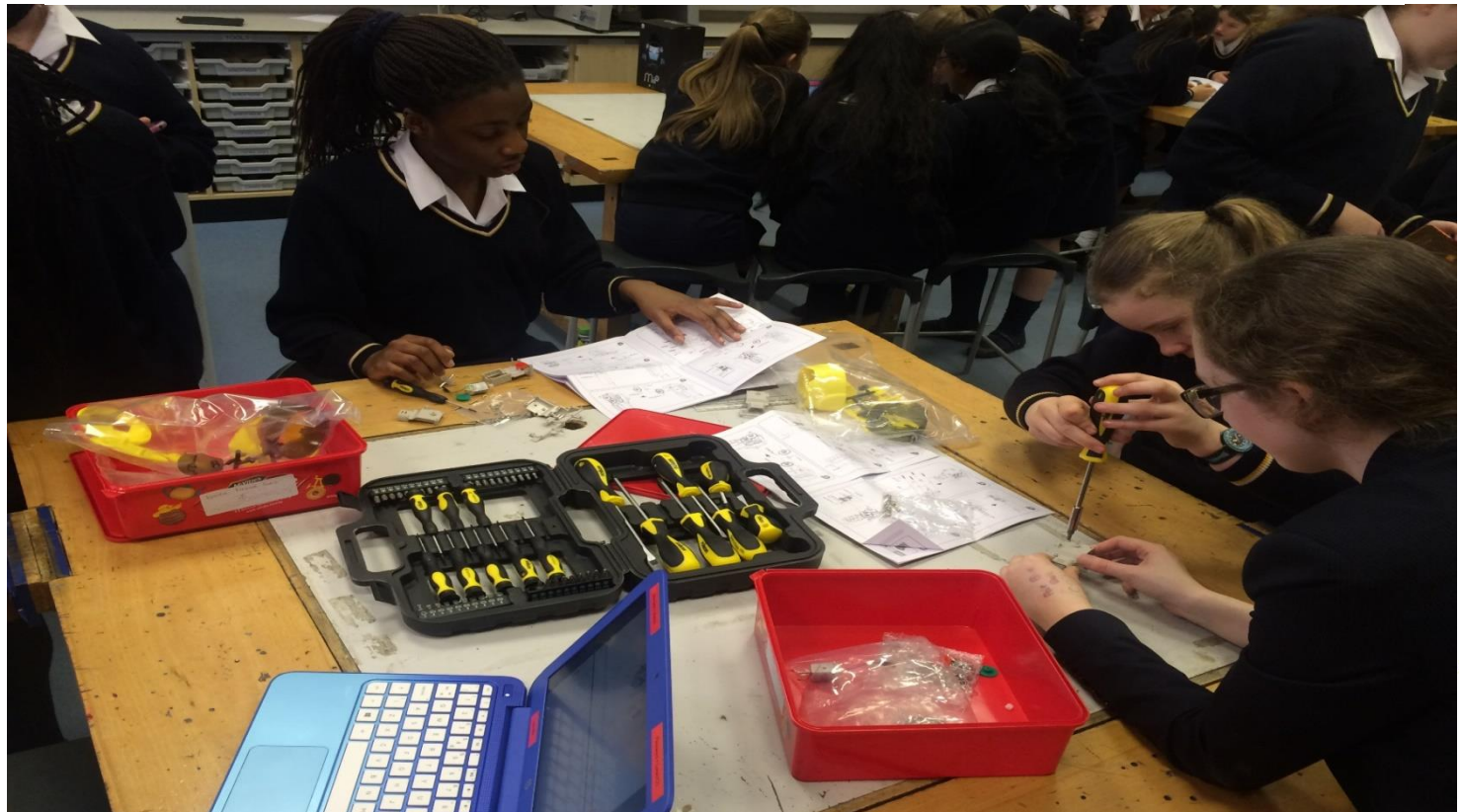


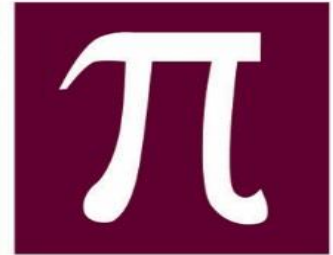
LORETO GRAMMAR SCHOOL



**STEM** SCIENCE TECHNOLOGY  
ENGINEERING MATHS



LORETO GRAMMAR SCHOOL



**STEM** SCIENCE TECHNOLOGY  
ENGINEERING MATHS

**‘LEARN’@Loreto  
Grammar School**

**Loreto Engineering  
and Robotics Network**





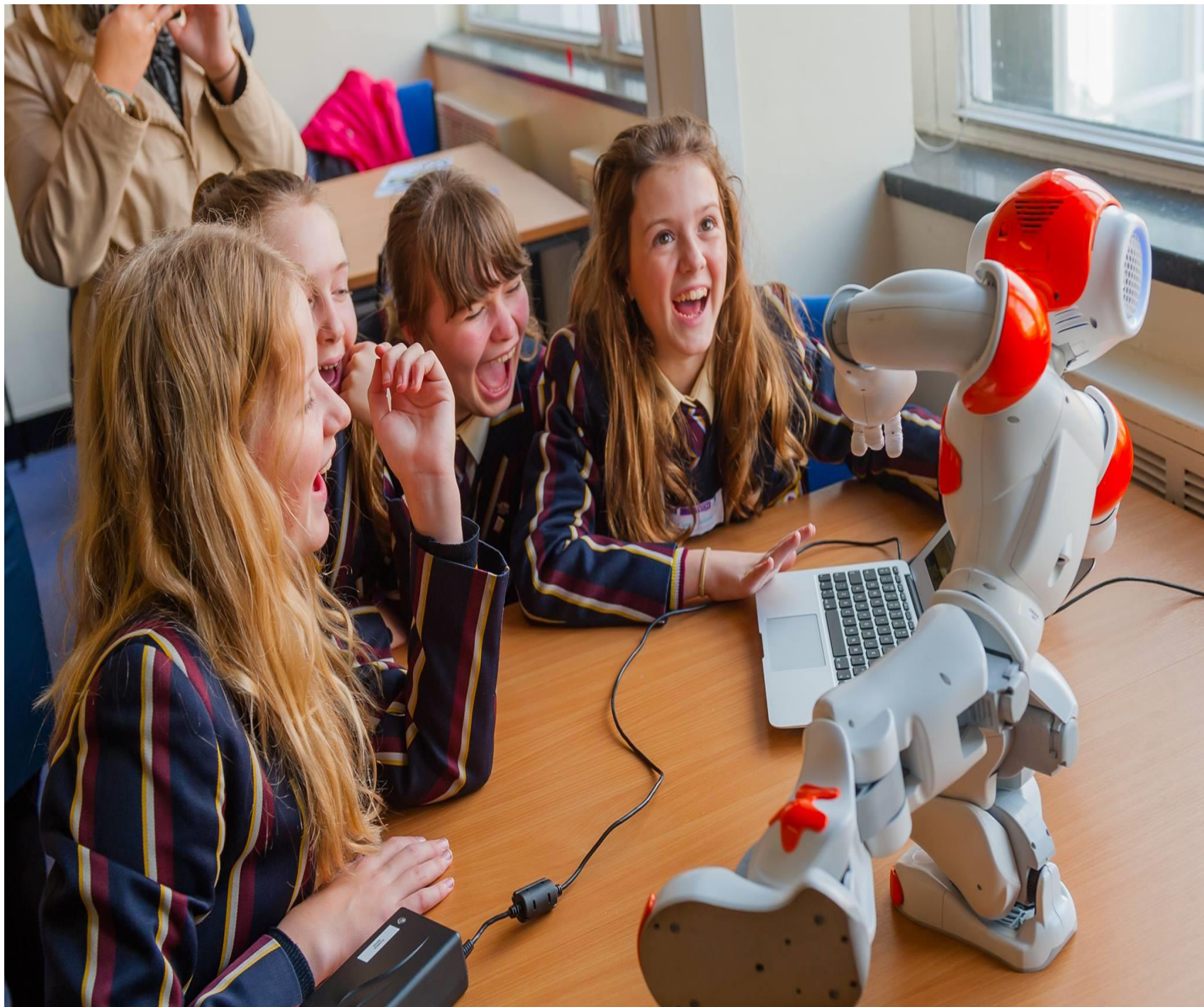






Photo - Adam Leach

It's up to all of us now; men, women, colleagues, teachers, parents, brothers and sisters to make sure that gender is not even part of the discussion when it comes to measuring a person's value or worth in ANY area, but especially not STEM subjects where there is a desperate need to balance the work force to be more representative of the population.

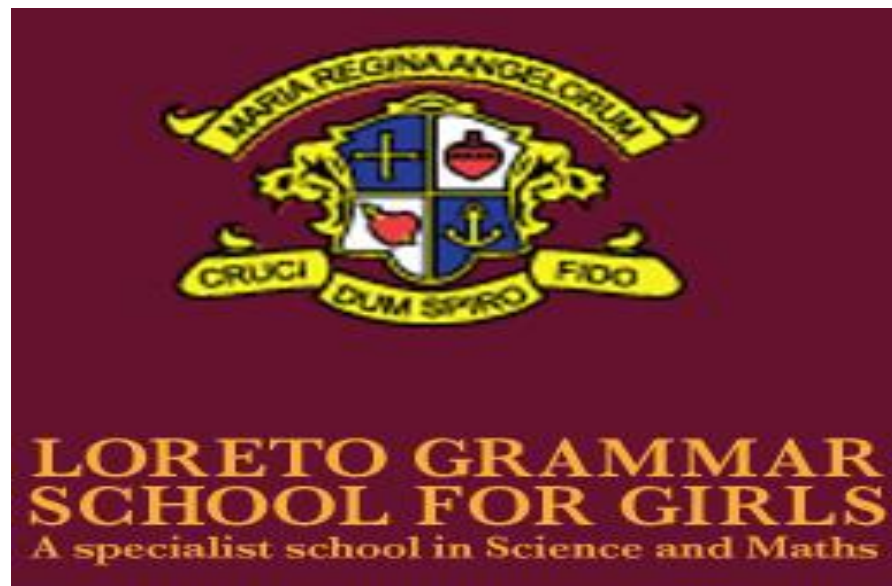
*Kate Russell - BBC*

.....  
**#notjustforboys**



Department  
for Work &  
Pensions





Loreto Grammar School is voluntary aided all-girls Catholic Grammar School with Academy Status in Altrincham, in the borough of Trafford, near Manchester, U.K. It assumed the status of an Academy in August 2012.

The schools values are: Joy, Justice, Freedom, Truth, Sincerity, Excellence and Internationality.

Although it is a non-fee-paying school, pupils must sit an entrance exam to enter, and fulfil several other entry criteria. It is part of the worldwide Loreto community, and the school was founded by the Sisters of Loreto (IBVM) in 1909.



# LGS and STEM



**NRICH** enriching mathematics



# Stem Club at Loreto Grammar School

I began STEM club at Loreto 4 years ago with the intention of raising the profile of the future skills gap in STEM careers as well as stimulating the students' curiosity in engineering with fun, practical activities that would otherwise be missed in the curriculum. I wanted students to explore their true potential in this diverse field and the real opportunities that are available in the contemporary STEM workplace.





# inGenious: The First Year

**I was invited to Istanbul in Aug 2012 to the 1st inGenious Summer School, Early results of the first phase of the pilot project indicated that pupils learned how STEM can solve challenges in society, and teachers benefited from industry knowledge of cutting edge technology and science. I was inspired by talking to colleagues from both UK schools and internationally.**

**STEM was an area I wanted to develop in the second year of the pilot. I wanted to have more collaboration between STEM departments within school and I wanted to raise the profile even more of STEM at Loreto.**







# How our involvement in inGenious led to getting involved in Teen Tech

## TeenTech Competition Categories

There are ten core categories and each school can submit one team entry per category:

1. **Sport** – tracks, buildings, training, equipment, drug detection, timekeeping
2. **Transport** What will the future of aviation look like? What inspiration could come from nature?
3. **Healthcare** – monitoring, co-ordination, advice, accessibility
4. **Education** – different ways of learning, outside/inside/beyond school
5. **Wearable Technology** – smart bags, glasses, clothing, artificial limbs, exoskeletons
6. **Environment** – renewable technology, sustainability, climate change
7. **Entertainment** – devices, integration text /audio/ visual
8. **Communication** – web, mobile, TV, radio, advertising
9. **Construction** – TeenTech City of Tomorrow
10. **Future of food** – growing, making, distributing, evaluating

Special category **journalism**: Use any media to report on a STEM story.







# Maggie Philbin Teen Tech and UK Digital Task Force



iDEA centre of excellence

Each badge is based on a specific digital, enterprise or entrepreneurial skill and has been endorsed by an industry leader known for its expertise in this area. These are open badges which are a new global standard to recognise skills and achievements across the web. From pitching to coding, these badges are quick, simple activities and once you have earned the badge, you can show off your new skills by sharing it across your social networks.

#### Business Skills



#### Technical Skills



#### Entrepreneurial Skills



COMING SOON.



# What Next?

Opportunities for students following their success .....

Following a whole school STEM day in July 2015 where we had 700 students doing 85 activities, STEM Ambassadors ran robotics workshops with some students, it became apparent that there was a lack of Robotics skills at our school, but a huge interest in learning more about it.



# e-Twinning – a great way to work together

A practical, straightforward online platform that allows school pupils across Europe to work together, e-Twinning encourages students from different nationalities to collaborate on projects of their choice.

## Our e-Twinning projects

- Engaging Students STEM Club and Citizen Science
- Geometry Alphabet
- 4 Pics 1 World
- Coding e-Twinning PDW Tallin 2014

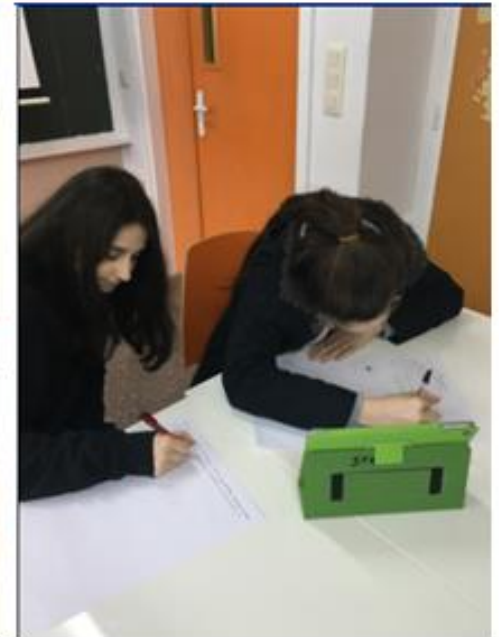
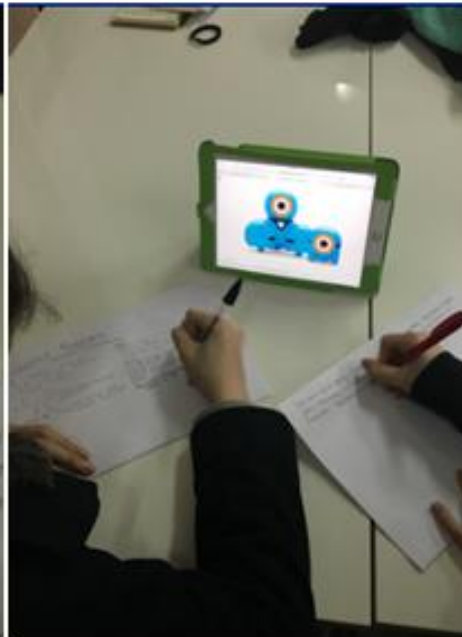




# Planning how to introduce LEARN @Loreto



# Working as a Team



# The Robots

In the project we aimed to program three robots; Sphero, Dash and Dot. These three robots are controlled by technology, using an app that can be installed on tablets and mobile devices. The two robots Dash and Dot are controlled by an app called 'Blockly,' whilst Sphero is controlled by an app of the same name.





# The Process

The robots Dash and Dot require simple block coding that is also used in popular programs, for example Scratch. This is ideal for teaching younger children how to program because it is easy to master, but also introduces fundamental programming concepts such as selection, sequencing and iteration. Sphero is easy to use as it requires a simple roll ball and a swivel sensor on the app which is easy to manoeuvre.



# Welcome to Speaking Signs

Buying Back Time

YUSO



# International collaboration between schools

## Active projects (5)



### Engaging Students: STEM Clubs and Citizen Science

18.03.2015

This project has been accepted by Erasmus + and we will be meeting twice in this academic year.

I also want to use TWIN Space to allow safe communication between students for a UK National competition called in the International Collaboration.

- Edit
- Image gallery
- Add new partner(s)
- Manage partner(s)
- Close project
- TwinSpace
- Project Card: talk to your NSS
- Download eTwinning Certificate
- Apply for a Quality Label



### SIERPINSKI CARPET PROJECT

07.10.2014

The Sierpinski Carpet Project is a nonprofit, collective and joint activity among children, from 3 to 16 (extended to 99 years old), around the world. We want to build a giant geometric fractal, known as Sierpinski Carpet, with coloured squared stickers.

The Sierpinski carpet is a well known fractal...

- TwinSpace
- Project Card: talk to your NSS
- Download eTwinning Certificate
- Apply for a Quality Label



### Geometry Alphabet

07.10.2014

The Project aims to introduce and develop our schools' skills in doing constructions traditionally with pen and paper then moving to GeoGebra, an interactive dynamic mathematics software platform for learning and teaching mathematics and science from primary school up to university level.

- Edit
- Image gallery
- Add new partner(s)
- Manage partner(s)
- Close project
- TwinSpace
- Project Card: talk to your NSS
- Download eTwinning Certificate
- Apply for a Quality Label



### Four Pics One World

02.10.2014

Development of IT skills in classrooms using App Inventor. The task is to create an Android App which is the format of a quiz - pupils create quiz questions in categories e.g food - art - music - sports - places - famous people. Pupils share their project on TwinSpace so that the...

- Edit
- Image gallery
- Add new partner(s)
- Manage partner(s)
- Close project
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# Erasmus +

## Erasmus+ will support:

- Opportunities to study, train, gain work experience or volunteer abroad.
- Education, training and youth sector staff to teach or learn abroad.
- The development of digital education and the use of ICTs.
- Language learning.
- Recognition of skills, including those learned outside the formal education system.
- Strategic Partnerships among educational institutions and youth organisations with peers in other countries in both their own sector and other sectors, in order to foster quality improvements and innovation.
- Knowledge Alliances and Sector Skills Alliances, to address skills gaps and foster entrepreneurship by improving curricula and qualifications through cooperation between the worlds of work and education.
- A loan guarantee facility for master's degree students to finance their studies in another country.
- Teaching and research on European integration.
- Exchanges, cooperation and capacity building in higher education and the youth sector worldwide.
- Initiatives to foster innovation in pedagogy, and progressive policy reform at national level through Prospective Initiatives.
- Good governance in sport and initiatives against match-fixing, doping, violence, racism and intolerance, particularly in grassroots sport.

Erasmus+ can transform your life and career.

## Where can I find out more?

[ec.europa.eu/erasmus-plus](http://ec.europa.eu/erasmus-plus)

## How do I apply?

Please contact the Erasmus+ National Agency in your home country or the Executive Agency (EACEA) in Brussels.

[ec.europa.eu/erasmus-plus/na](http://ec.europa.eu/erasmus-plus/na)

Join the conversation on Twitter:  
#ErasmusPlus



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## Changing lives, opening minds

The European Union  
programme for education,  
training, youth and sport

2014-2020



# Erasmus+







## Who will benefit?

More than 4 million young people, students and adults will gain experience and skills by studying, training or volunteering abroad through Erasmus+.

The programme will also support over 125,000 institutions and organisations to work with peers in other countries to innovate and modernise teaching practice and youth work. Together they will help ensure that young people and adults get the skills they need to succeed in today's world.

Erasmus+ replaces seven programmes with one, so it's easier to access. And changes in the rules mean it has never been simpler to apply.



## Why Erasmus+?

Europe must equip its citizens with the education, skills and creativity that they need in a knowledge society. The world is changing fast, and education systems need to modernise and adapt to new ways of teaching and learning and embrace the new opportunities that exist. Education, training and non-formal youth learning are key to creating jobs and improving Europe's competitiveness. That's why Erasmus+ will make a key contribution to addressing these challenges.

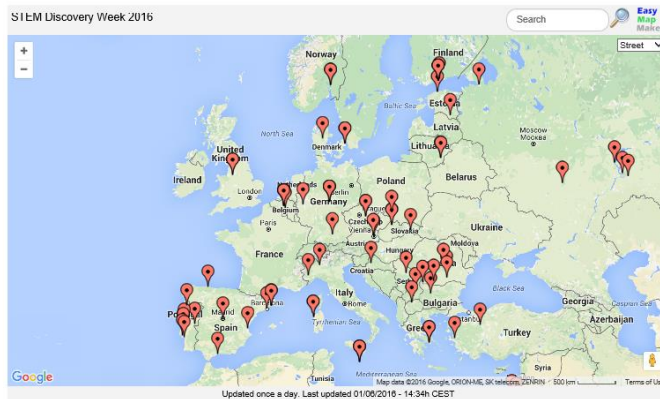
Erasmus+ will provide

**€14.7 billion over seven years**  
to strengthen education, training, youth and sport in Europe.

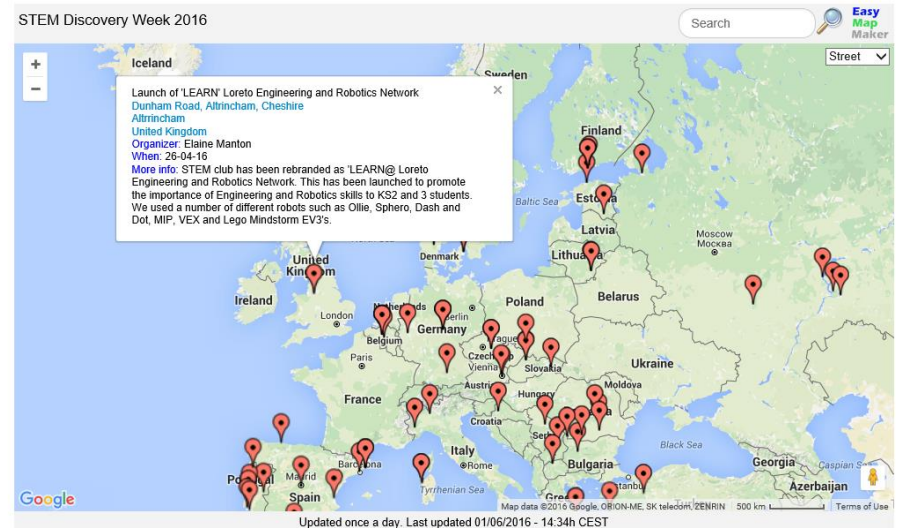




## STEM Discovery Week Events 2016

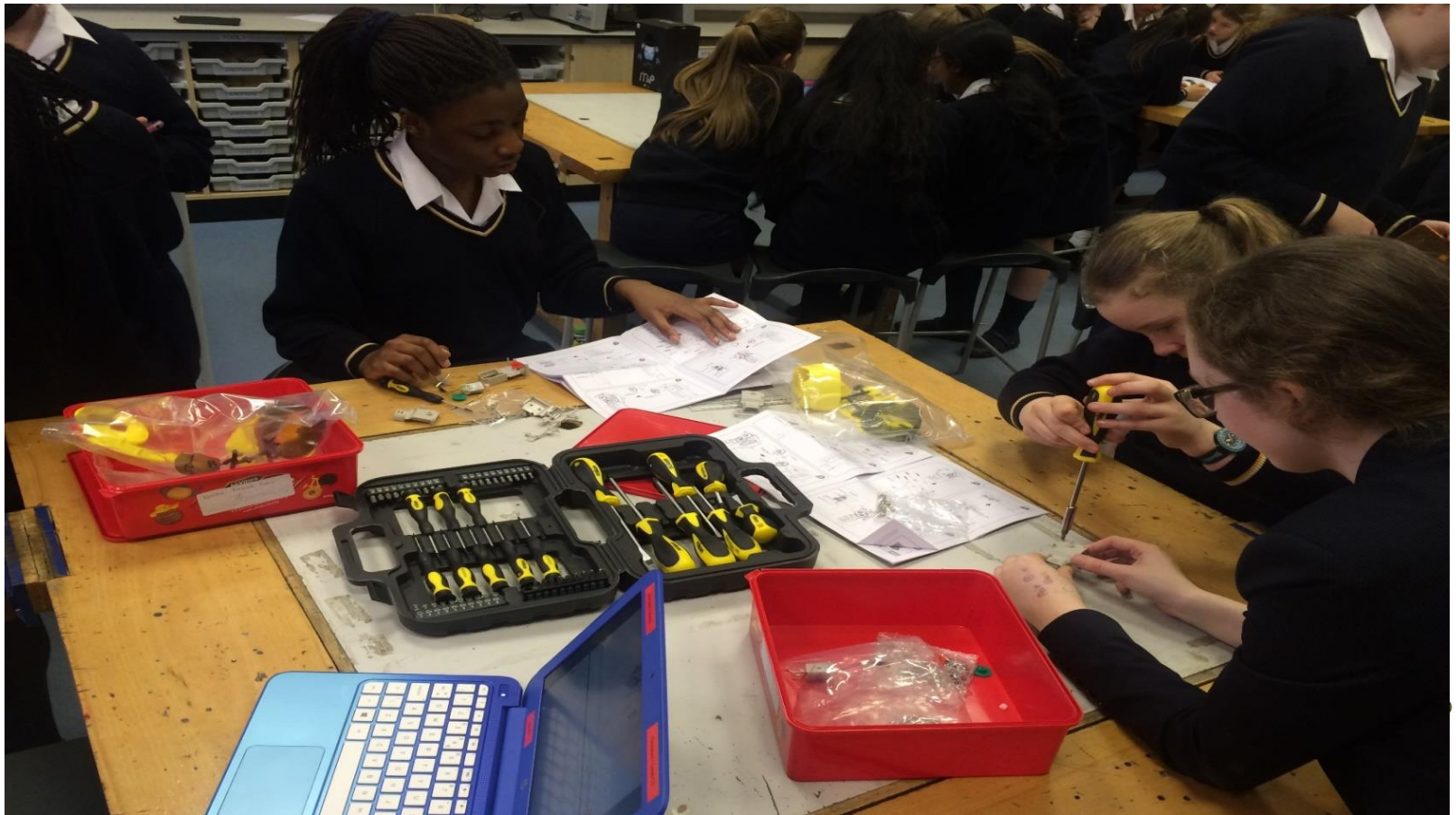


**Find out what's happening during the STEM Discovery Week and get inspired for your own event!**





# FLL, VEX IQ, Greenpower, TeenTech, Little BIG Awards





**Scientix, the community for science education in Europe**

## European science and maths projects

