

Predstavljanje primjera dobre prakse, Od ideje do uspješno napisanog projekta *Pollution! Find a STEM solution!* *Full STEAM ahead*



DANIJELA TAKAČ, OŠ PANTOVČAK

Erasmus+ regionalnu radionicu u području odgoja i općeg obrazovanja,
8. veljače 2018., Karlovac

PLANIRANJE PROJEKTA

Nastanak ideje

Etwinning konferencija

Praktično primijeniti znanja iz fizike u djeci bliskom okruženju

Navesti ih na djelovanje - poboljšanje uvjeta rada i života u školi

primjeri iz školskog života (*Mali istraživači, CSI laboratorij...*)

Cilj projekta:

- ▶ Povećati interes za STEM područja
- ▶ Izložiti učenike inovacijama u znanosti i tehnologiji te proširiti znanja o samoodrživom razvoju
- ▶ Upoznati učenike sa zanimanjima novog doba
- ▶ Razvijati vještine 21. stoljeća
- ▶ Poticati učenike na djelovanje

RAZDOBLJE PROVEDBE:

24 mjeseca

Gdje pronaći partnere:

- ▶ **KA1**
- ▶ **Comenius**
- ▶ **eTwinning grupe**
- ▶ **Facebook grupe**
- ▶ **Preporuke kolega**



Pripreme za pisanje



- ▶ EUN akademija
- ▶ Čitali literaturu preporučenu od strane AMPEU
- ▶ Školski/Europski razvojni plan
- ▶ Prioriteti Europske komisije
- ▶ Dobar plan diseminacije
- ▶ Međupredmetne aktivnosti
- ▶ Aktivnosti uvesti u školski kurikulum

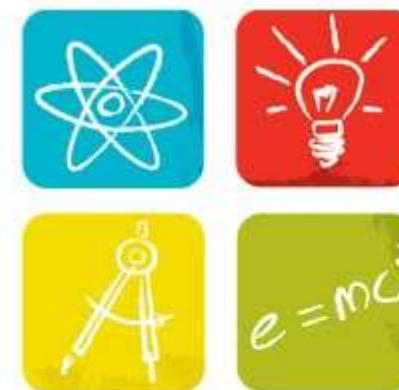
PISANJE I PRIJAVLJIVANJE PROJEKTA

- ▶ Timski rad
- ▶ Engleski jezik
- ▶ Organizacija



Aktivnosti podijeljene u 4 skupine:

- ▶ 1. E-skills and digital jobs
- ▶ 2. Clean energy and clean technology
- ▶ 3. STEM activities
- ▶ 4. Ecological and cultural activities



STEM

science • technology
engineering • math

1. E skills and digital jobs

- ▶ Novi trendovi i inovacije u znanosti
- ▶ Radionice i predavanja stručnjaka iz STEM područja
- ▶ web 2.0 alati
- ▶ videokonferencije



2. Clean energy and clean technologies

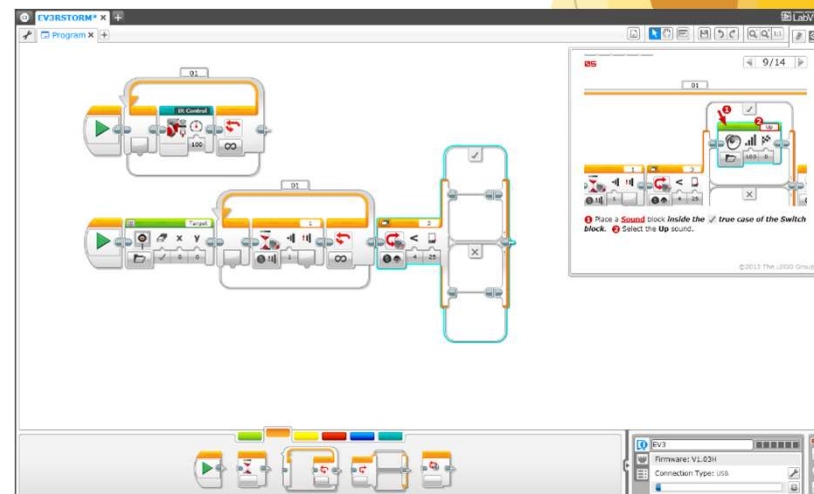
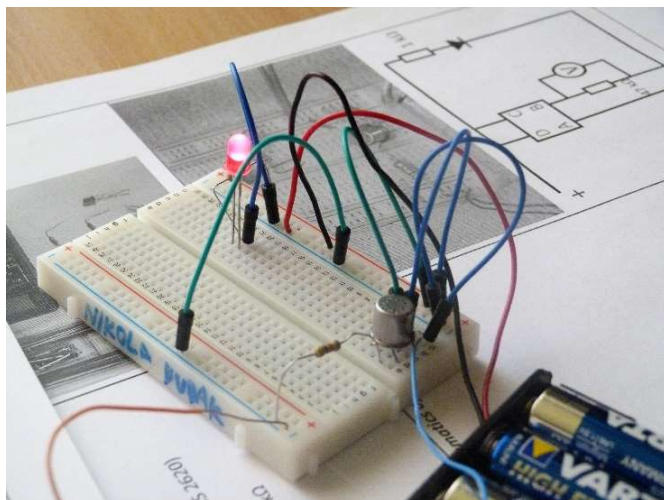
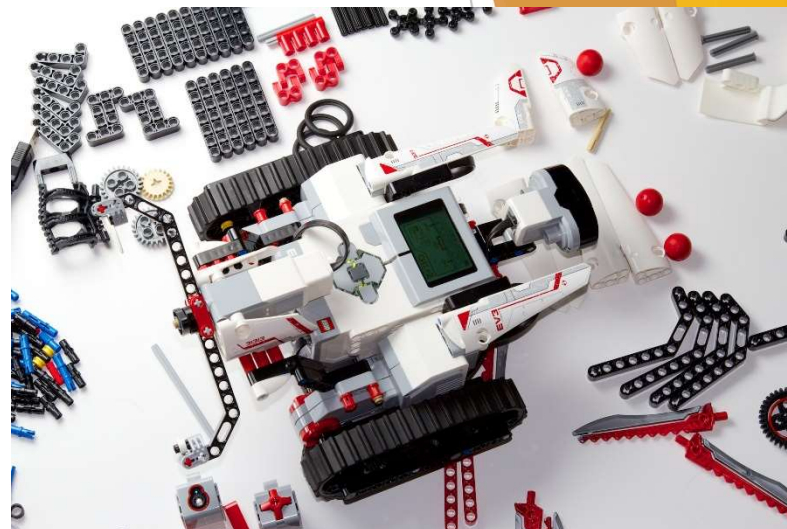
- ▶ Posjeti industrijama s "čistim" tehnološkim procesima
- ▶ Ekologija
- ▶ Recikliranje
- ▶ Održivi razvoj



3. STEM activities

► Aktivnosti s LEGO Mindstorms EV3 robotom

- Svjetlosno onečišćenje
- Zvučno onečišćenje
- Onečišćenje zraka
- Obrada mjerenja znanstvenom metodom



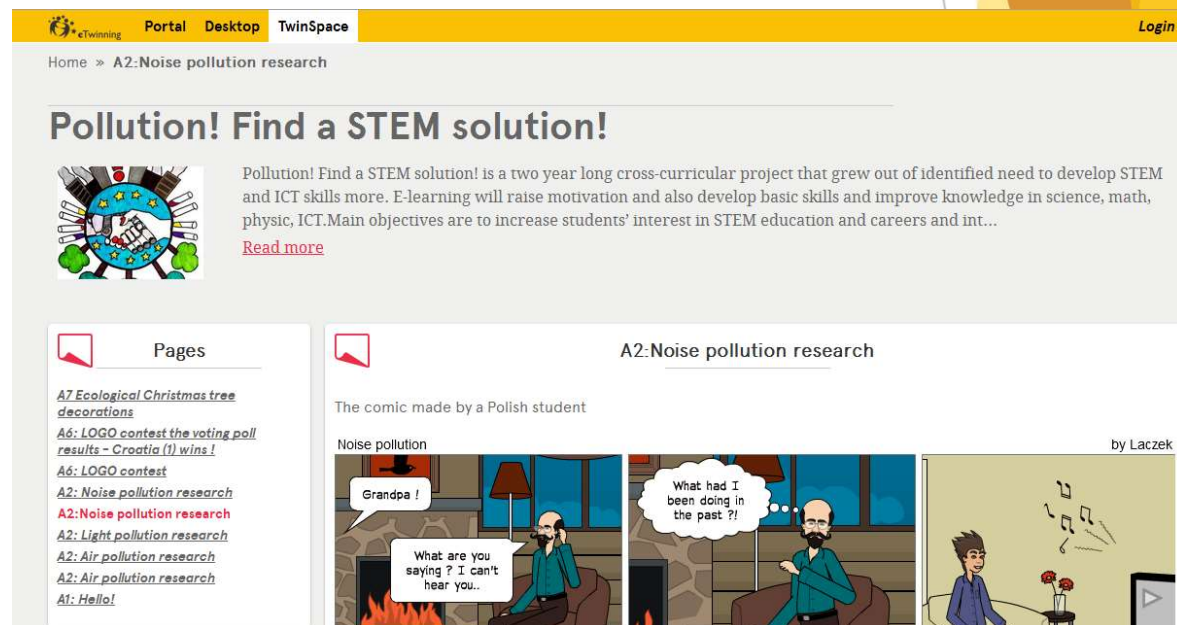
4. Ecological and cultural activities

- Kultura i tradicija
- Mobilnosti i usavršavanja za učitelje i učenike
- Ekološka sredstva za čišćenje
- Ekološki ukrasi



Implementacija aktivnosti i održivost projekta

- ▶ Google drive
- ▶ Tablice aktivnosti
- ▶ Web stranica
- ▶ TwinSpace:



The screenshot displays the TwinSpace website interface. At the top, there is a navigation bar with 'Portal', 'Desktop', and 'TwinSpace' tabs, and a 'Login' link on the right. The main content area features a header 'Home » A2:Noise pollution research' and a title 'Pollution! Find a STEM solution!'. Below the title is a small graphic of a globe with various icons and a paragraph describing the project as a two-year cross-curricular initiative. A 'Read more' link is provided. On the left, a 'Pages' sidebar lists several project-related pages, including 'A7 Ecological Christmas tree decorations', 'A6: LOGO contest the voting poll results - Croatia (1) wins!', 'A6: LOGO contest', 'A2: Noise pollution research', 'A2: Noise pollution research', 'A2: Light pollution research', 'A2: Air pollution research', 'A2: Air pollution research', and 'A1: Hello!'. The main content area also features a section titled 'A2:Noise pollution research' with a sub-header 'The comic made by a Polish student'. This section contains a comic strip titled 'Noise pollution' by 'Laczek', showing a grandfather and a grandson. The grandfather is sitting in a chair, and the grandson is standing next to him. The grandfather says, 'What are you saying? I can't hear you...'. The grandson responds, 'What had I been doing in the past?!'. The comic is set in a room with a fireplace and a lamp.

Kako savladati moguće početničke poteškoće - naši savjeti

- ▶ Detaljno čitanje Erasmus + vodiča
- ▶ Suradnja s agencijom
- ▶ Pomno planiranje aktivnosti - tablica
- ▶ Ravnopravna raspodjela aktivnosti po zemljama partnerima
- ▶ Paziti na praznike u različitim zemljama (Francuska, Češka)

Pollution! Find a STEM solution!
ACTIVITY DURATION: START DATE: 1st October 2014 END DATE: 31st October 2014

ACTIVITY TITLE: A6 Project LOGO contest

Responsible:

All schools participants of the project organized logo contest for their students at the beginning of October 2014. Number of the age of students was not relevant. Students used any kind of materials: images, topography, photographs, drawings or combination of them to create the logo for the project. Each school selected 2 voting logos. The logos were uploaded on Twin Space in the LOGO map. Every student and teacher included in the project could choose logo that he/she likes the most and vote for it. It was not allowed to vote for logo designed in your school. Voting was possible online from 26th to 31st October. For that purpose a simple voting tool was placed and used on Twin Space. The winning design is used as official logo of the project from the 1st of November onwards.

Outcomes

Outcome of the activity is the project logo used on all materials to promote the project. Students and teachers got familiar with voting tool and Twin Space as it is the first activity on it.

NUMBER OF PARTICIPANTS INVOLVED IN THE ACTIVITY:

	TEACHERS:	STUDENTS:
Poland		
France		
Czech Republic		
Spain		
Croatia	4	22

DISEMINACIJA:

- **tisak, radio, TV, internet, ŽSV, konferencije**
- **OER** – otvoreni edukacijski resursi (*lesson plans*) s opisima aktivnosti i ciljeva aktivnosti na 8 jezika (English, Spanish, French, Polish, Croatian, Czech, Catalan, German).

(Radni listići, upute za rad, program za mjerenje onečišćenja)

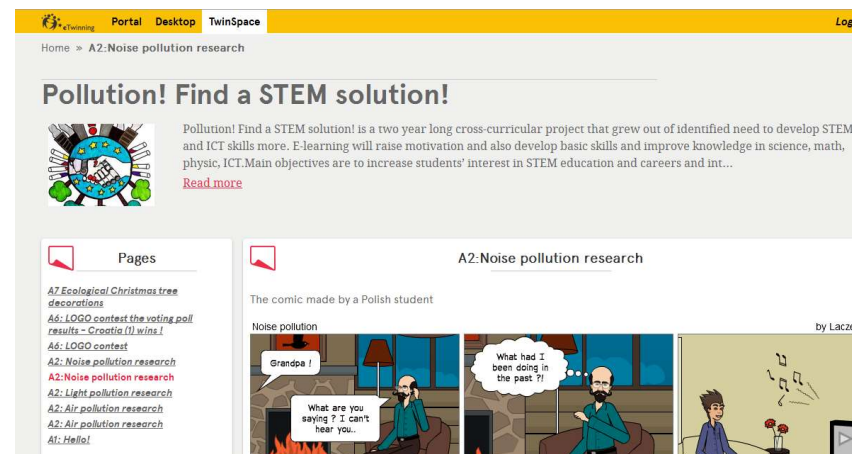
- prijave na konferencije (CUC)
- STEM natjecanja
- usmena predaja znanstvenicima iz sličnih područja
- digitalni časopisi i web stranice
- javni Twinspace
- Facebook stranica projekta
- lako dostupna web stranica s najnužnijim informacijama i rezultatima projekta



➤ **Stranica na eTwinning platformi**
<https://twinspace.etwinning.net/654/>

➤ **Facebook stranica**
www.facebook.com/pollutionfindasolution

➤ **Mrežna stranica projekta:**
<http://stemsolution.weebly.com>



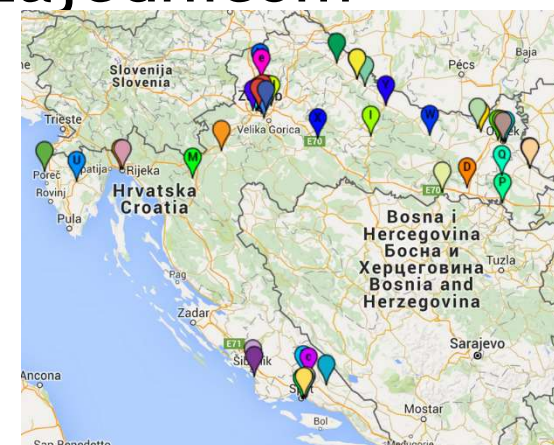
Dodana vrijednost i održivost

- Nacionalni eTwinning projekt „Zvučno onečišćenje”

- ▶ Održivost projekta
- ▶ Uključeno 53 škole i preko 80 učitelja
- ▶ Mjerenje aplikacijom ili Arduinoom



- Blog na engleskom sa španjolskom školom
- Suradnja s lokalnom i znanstvenom zajednicom
- Novi projekt „Full STEAM Ahead”
- Uvođenje novih aktivnosti u sve škole partnere (robotika, LEGO)



Pohvala

Students learn how to combat pollution through pan-European project

EU-funded project united teachers from around Europe to design an education programme based on science, technology, engineering, mathematics and environmental awareness for secondary school students

"Pollution! Find a STEM solution!" is a two-year project for students aged 11-16 that integrates learning about environmental issues with digital technologies, maths, engineering, geography and science.

The project brought together 231 teachers and 2,729 students from five different European countries – Czech Republic, Poland, Spain, France and Croatia – to create and work on activities that contribute to improving the environment.

Students learnt practical activities like how to build devices that measure air, light and noise pollution in their schools and homes. They learnt how to analyse the data and compare the results with fellow students to find solutions to solve environmental issues.

They also built model windmills and solar energy collectors, and visited clean energy technology sites. The course focused on digital literacy and included meetings with scientists and engineers to help students become more interested in these careers. A student in France said:

"We learnt a lot of things about pollution, we met wonderful people, we did very interesting activities, and visited new countries. We want to thank all people present in this project but especially the teachers, because without them all it wouldn't be possible!"

The children also learnt about practical steps like how to grow plants, making ecological soaps, using public transport, recycling and planting trees.

The project produced open educational resources in 8 different languages, including guides on how to measure air, noise and light pollution, and videos on how to build a model wind turbine.

The project ended in 2016, but partners are now collaborating on another Erasmus+ project called "Full STEM Ahead".

Erasmus+
Field: School Education
Action Strategic: Partnership

Key facts and figures

Participants: 2,729	Countries: 5
EU grant: €119,825	Project duration: 2014-2016

Project title
Pollution! Find a STEM solution!

Lead organisation
Name: Osnovna škola Pantovčak
Location: Zagreb, Croatia
Website: www.os-pantovcak-zg.skole.hr

Partners
Základní škola a Mateřská škola, Czech Republic; Collège Edouard Belin, France; Zespół Szkół nr 7, Polska; Pantovčak, Croatia; Marii Konegimskiej Gimnazjum nr 7, Marii Konegimskiej, Poland; Institut Français, Bulgaria, Spain

More information
Project website: <http://webprojectshining.net/OS4/home>
The Erasmus+ Project Results Platform: <http://ec.europa.eu/programmes/erasmus-plus/projects/>



EUROPEAN COMMISSION
DIRECTORATE-GENERAL EDUCATION, YOUTH, SPORT AND CULTURE

Stakeholder Engagement and Programme Impact

Brussels, 5 July 2017
EAC A 3/FP/AB/1z/
File code: 2015/DISSEMINATION/001

Osnovna škola Pantovčak
Hercegovačka 108
Zagreb
10000 HR
E-mail: danijela.takac@gmail.com

Dear Project Coordinator,

It is my pleasure to inform you that your project 2014-1-HR01-KA201-007149- "Pollution! Find a STEM solution!" has been selected as a "success story" by a panel of experts from the Directorate-General for Education, Youth, Sport and Culture of the European Commission.

"Success stories" are finalised projects that have distinguished themselves by their impact, contribution to policy-making, innovative results and/or creative approach and can be a source of inspiration for others. The selection of your project as a success story was made on the basis of rigorous criteria regarding its quality, relevance and results.

The project has been marked as "success story" in the [Erasmus+ Project Results Platform](#), a database where you can find descriptions and results of projects supported by the European Commission under the Erasmus+ Programme for Education, Training, Youth and Sport, as well as its predecessor programmes.

As a consequence of this selection, visibility and acknowledgement will be given to your project, for instance on our websites, social media, and when preparing documentation for conferences or other events with high-ranking attendance.

Should you have any additional results that you would like to add to your project card on the Erasmus+ Project Results Platform, please send them to us at EAC-PROJECTSPLATFORM-HELPDESK@ec.europa.eu and we will upload them for you.

Please also note that you may be contacted by our external contractor for dissemination and exploitation of results, MOSTRA, for additional material related to your project.

I would like to congratulate and thank you and your project partners for your commitment, enthusiasm and high-quality work.

Yours sincerely,

Francesca PAGNOSSIN
Head of Unit

Cc: Ms Antonija Gladović, HR National agency (ured@mobilnost.hr, info@mobilnost.hr)

Commission européenne/Europese Commissie, 1049 Bruxelles/Brussel, BELGIQUE/BELGIË - Tel. +32 22991111
http://ec.europa.eu/dgs/education_culture

Project Title

POLLUTION! FIND A STEM SOLUTION!

★ **SUCCESS STORY**

🏆 **GOOD PRACTICE**

Description

Pollution! Find a STEM solution! is a two year long cross-curricular project that grew out of identified need for further development of STEM and ICT skills. Pisa 2012 results make evident that s...

Topics

Key Competences (incl. mathematics and literacy) - basic skills, Natural sciences, ICT - new technologies - digital competences

Start Year

2014

Countries



„Full STEAM Ahead”

RAZDOBLJE PROVEDBE: 15.09.2016. - 14.09.2018.

- aktivnosti s naglaskom na astronomiju, svemirsku tehnologiju i poslove u svemirskom inženjerstvu i znanosti
- kroz aktivnosti simuliramo najnovija dostignuća vezana uz put na planet Mars (ESA, ExoMars misija i NASA's Journey to Mars)
- Inovativan STEAM pristup
- SCIENCE BOX
- Eksperimenti i obrada mjerenja - Arduino

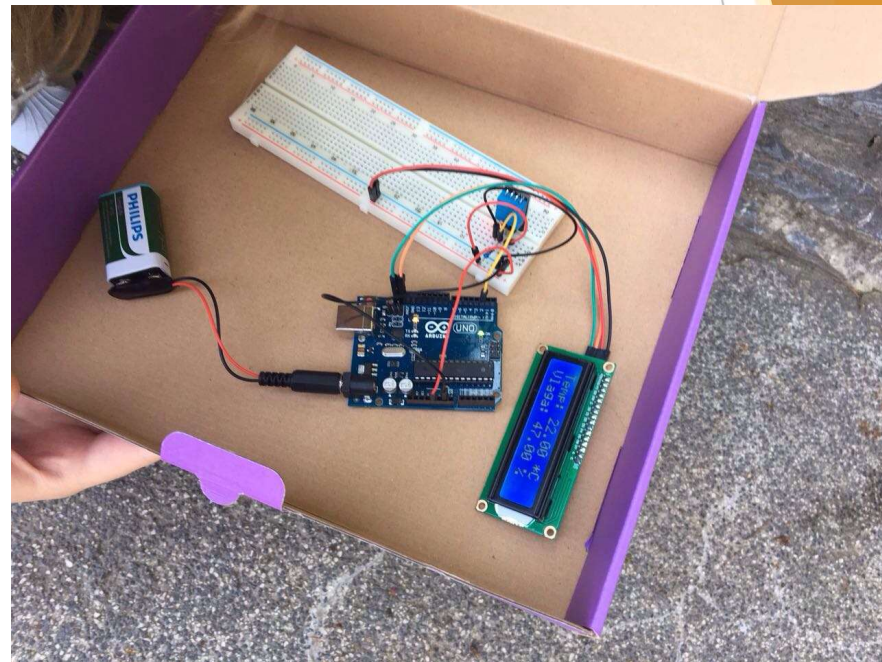


Erasmus+





Moj COOL Lab



Kako savladati moguće početničke poteškoće – naši savjeti

- ▶ Suradnja s agencijom i školama s iskustvom u Erasmus + projektima
- ▶ Pomno planiranje aktivnosti - tablica po mjesecima i zaduženjima
- ▶ Ravnopravna raspodjela aktivnosti po zemljama partnerima
- ▶ Paziti na praznike u različitim zemljama
- ▶ Google drive ili slični alati



Erasmus+

Hvala na pažnji!



Co-funded by the
Erasmus+ Programme
of the European Union

KONTAKT:

danijela.takac@gmail.com

FB: Danijela Takač

Twitter: @danijelatakac

Responsibility for the information and views
expressed here lies entirely with the authors.