



CREATIONS: Engaging your students in science through creative education

Angelos Alexopoulos (CERN)

Stephanos Cherouvis (EA)



Funded with the
"Horizon 2020 Framework
of the European Commission"



Scientific knowledge is the product of creative thinking (Osborne et al., 2003)

Science Education Is Woefully Uncreative. That Has to Change

Is science a creative endeavor? Yes! However, most people don't think so, so our science classes are typically deficient in creativity.

WIRED.COM | BY RHETT ALLAIN

Art is an excellent tool to help students learn science (Ashley, 2011; Merten, 2011)



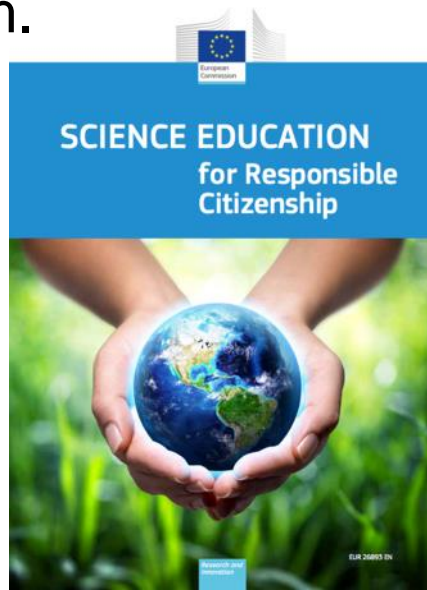
Arts Critical to STEM Learning Says Acting Secretary of Education

John M. Eger Van Deerlin Endowed Chair of Communications and Public Policy at San Diego State University (SDSU), was principal adviser to the President for...

STEAMCONNECT.ORG

What is STEAM?

STEAM is an educational and innovation framework bringing science, technology and engineering together with the arts/other disciplines and types of learners with the goal of being more engaging, creative and naturally successful for all members of any educational system.



Top 10 skills

in 2020

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Judgment and Decision Making
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility



Source: Future of Jobs Report, World Economic Forum

STEAM is about

expanding STEM education
through
Arts integration

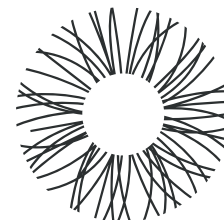
Students who are involved in the arts are:

4 times more likely to participate in a math & science fair

3 times more likely to win an award for school attendance

4 times more likely to be recognized for academic achievement

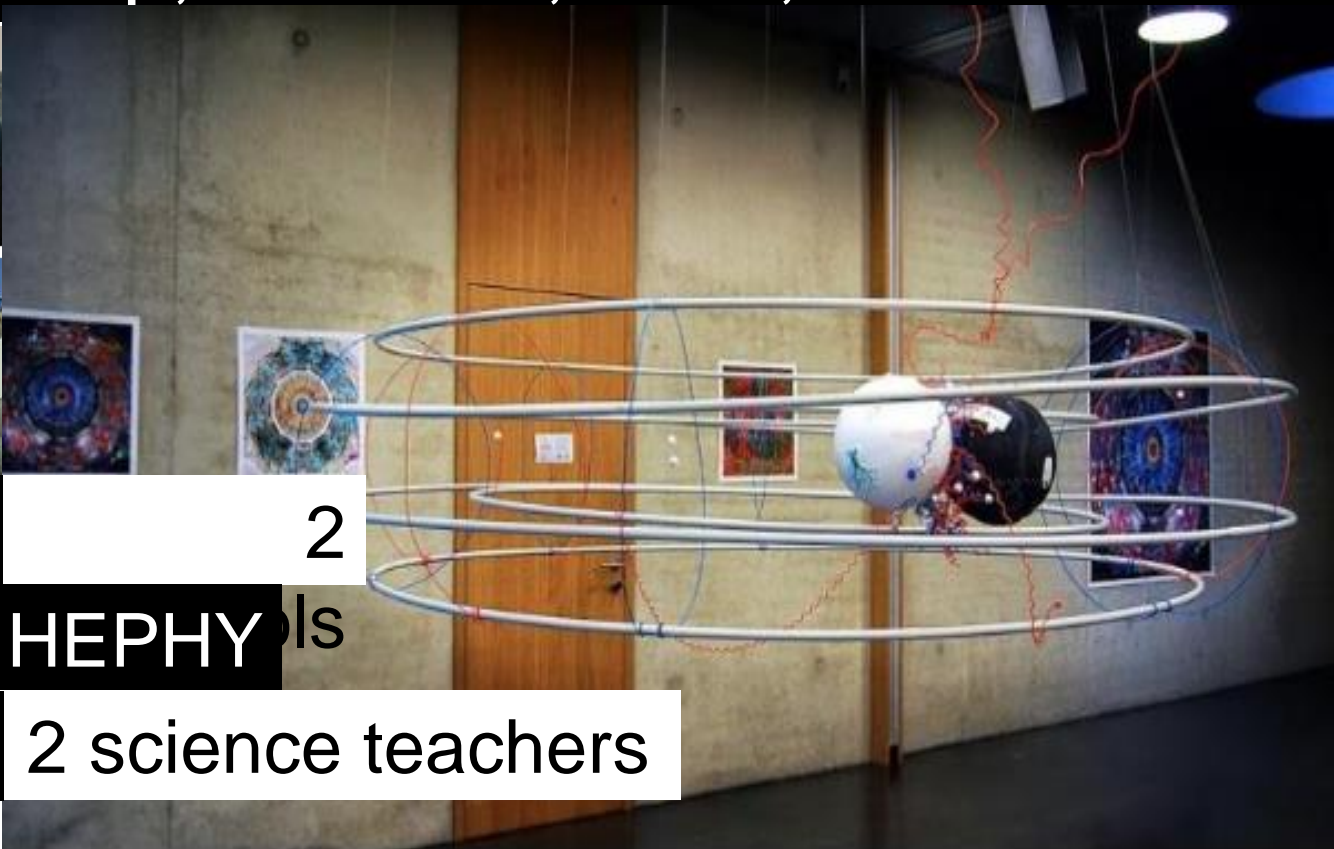
Science&Art@School



art@CMS

art of science
beauty in creation

1st SciArt workshop, Jun2013, Graz, Austria



62 students

2

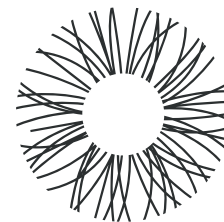
4 HEPHYls

2 art teachers

2 science teachers

The Incredible Science-Art Collider by students in Graz, Austria (Image: Michael Hoch)

Science&Art@School



art@CMS

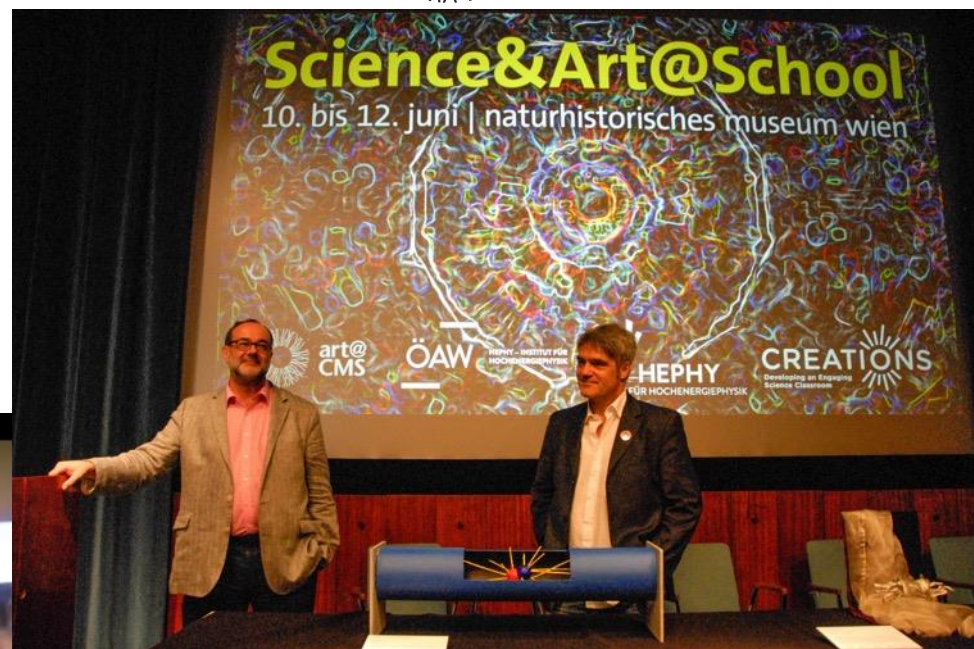
art of science
beauty in creation

4 years

>1,000 students

in 7 countries

rhythm of science - art@CMS science&art@school



Vision

- Transfer the research infrastructure culture to schools
- Introduce creativity to science education
- Foster everyday creativity in students
- Generate alternative strategies of scientific inquiry
- Engage students in imaginative activities
- Generate original and valuable outcomes



Image: Bob Krist/CORBIS

creativity

is the

process of applied imagination

Sir Ken Robinson



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ЗА ПРОМОЦИЈУ
НАУКЕ



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BIRMINGHAM



UNIVERSITY OF MALTA
L-Università ta' Malta



HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI



ΕΛΛΙΝΟΓΕΡΜΑΝΙΚΗ ΑΓΟΓΗ

Vision

- Giving students and teachers opportunities to experiment with many different places, activities, personal identities, and people
- Simulating the work of the scientist and researcher in the classroom
- Promoting a better understanding of how science works
- Enhancing students' science related career aspirations
- Encouraging and empowering science teachers to affect change
- Implementing and promoting inquiry-based science teaching and learning



Image: Bob Krist/CORBIS

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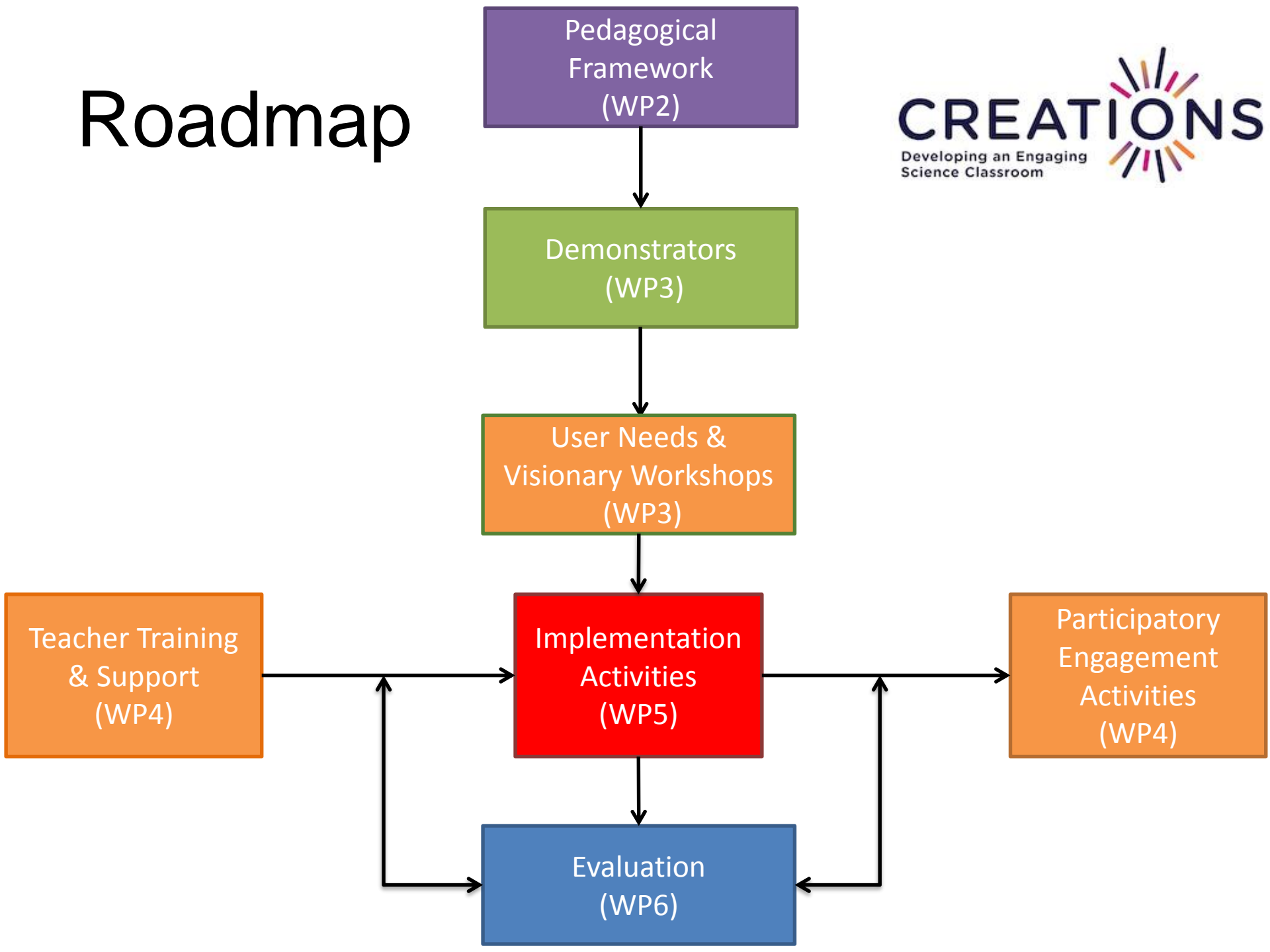
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ΕΛΛΗΝΟΓΕΡΜΑΝΙΚΗ ΑΓΟΓΗ

- Giving students and teachers opportunities to experiment with many different places, activities, personal identities, and people
- Simulating the work of the scientist and researcher in the classroom
- Promoting a better understanding of how science works
- Enhancing students' science related career aspirations
- Encouraging and empowering science teachers to affect change
- Implementing and promoting inquiry-based science teaching and learning
- Learning and (self)creating in emotionally rich learning environments
- Disseminating and exploiting the results

Roadmap



Pedagogical features



Risk, immersion and play



Individual, collaborative and communal activities for



Balance and navigation



Interdisciplinarity



Dialogue



Ethics and trusteeship

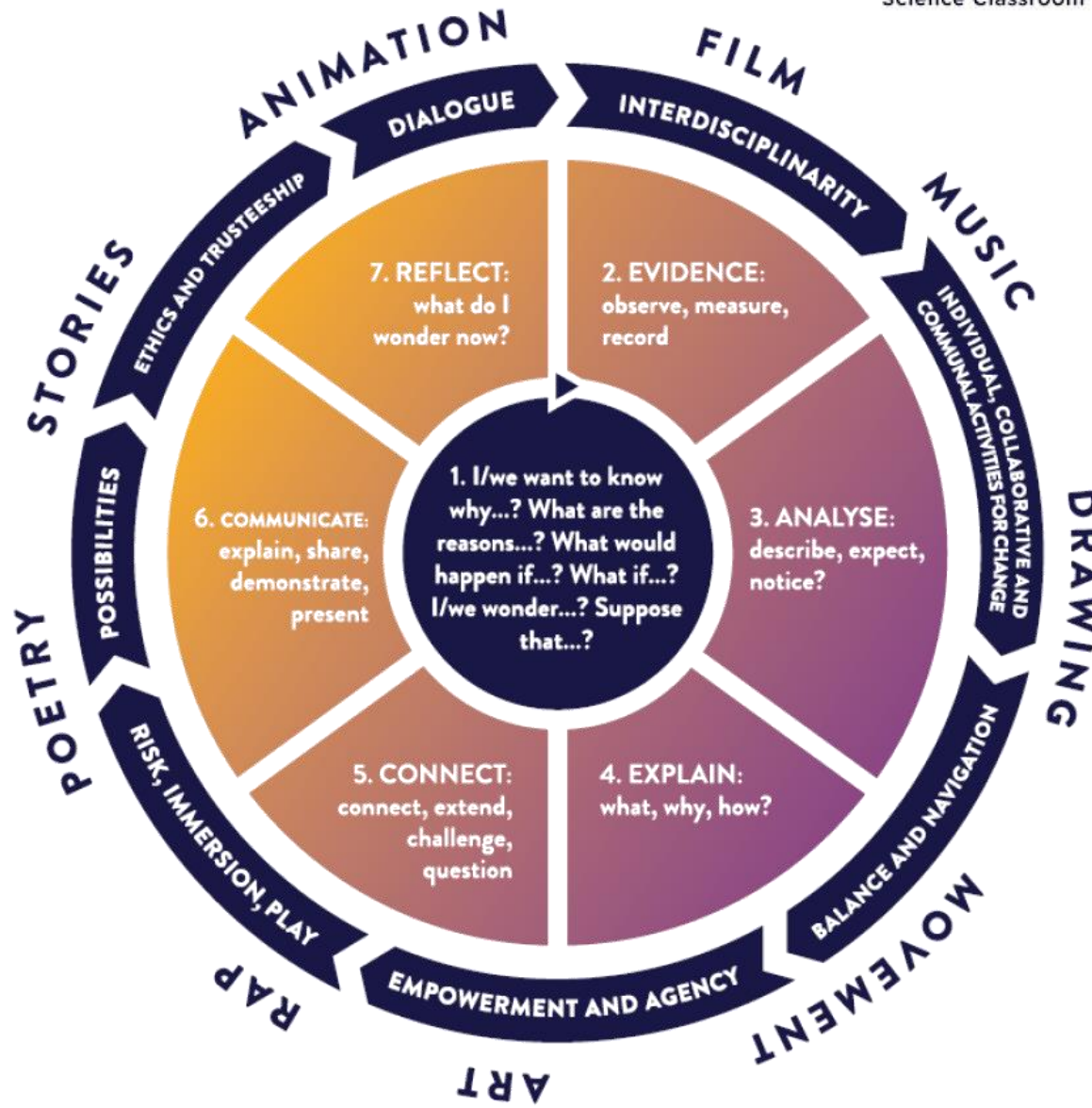


Possibilities



Empowerment and agency

Pedagogical features



Teacher training & support



Creations Summer School 2017
Attica, Greece | 02/07 - 12/07/ 2017



 **STEAM Summer School** @steam_school · Jul 3
Getting to know the steam team #scicomm #steamsummerschool #icebreakers

A collage of four photographs from the STEAM Summer School event. The largest photo on the left shows a group of people on a stage in front of a large screen displaying a cartoon character. The other three smaller photos on the right show people in a social setting, some standing and talking, and others sitting at tables.

Teacher training & support

CPD courses



2nd
PLAYING WITH PROTONS GREECE CPD COURSE
26-30 AUGUST 2017
CERN

PLAYING WITH PROTONS

Bringing together Greek primary teachers, science education specialists and CERN scientists to develop creative approaches for engaging 5th and 6th grade students with science, technology and innovation.

Masterclasses



Organized by _____ Hosted by _____ Funded by _____ Under the auspices of _____ Supported by _____



ΕΠΕΡΕΥΝΗΘΕΙΣ
ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΠΡΟΓΡΑΜΜΑ ΕΡΕΥΝΑΣ ΚΑΙ ΤΕΧΝΟΛΟΓΙΑΣ



IFJ/SNF
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ET SOCIALES

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ΕΡΕΥΝΑΣ ΚΑΙ ΤΕΧΝΟΛΟΓΙΑΣ
ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΠΡΟΓΡΑΜΜΑ



CREATIONS
ΕΠΙΧΕΙΡΗΣΙΑΚΟ ΠΡΟΓΡΑΜΜΑ

CREATIONS implementation activities

up to 7 July 2017

288
Activities

596
Schools

12,447
Students

1,192
Teachers



Particle Physics
Masterclass +
Photo Contest

...t in STEM education is Cultural Collisions ever
CERN from 21 to 25 February 2017 with the
g and Vienna (Austria), as well as from the



In the first week of March 2017, the STFC Rutherford Appleton Laboratory (RAL) ran their annual Particle Physics Masterclass, reaching over 700 A-Level students and teachers. Each day included a series of



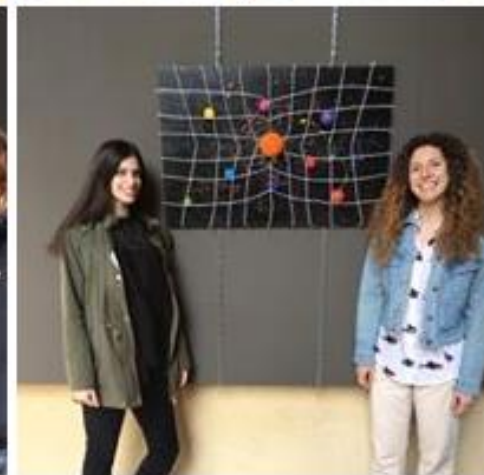
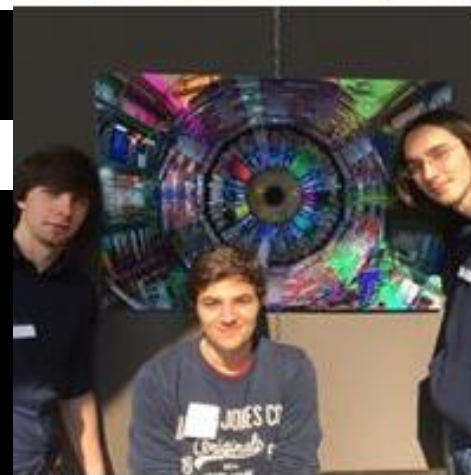
Art & Science across Italy

3K students

38 schools

5 cities

70h project work per school year



I colori del Bosone di Higgs

Percorsi tra arte e scienza

Art & Science across Italy
Aprile 2017 - Aprile 2018

+ Milano + Venezia + Padova + Firenze + Napoli

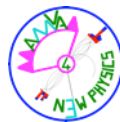


Il progetto "Art & Science across Italy" ha come obiettivo principale quello di avvicinare gli studenti liceali del III e IV anno delle città di Firenze, Milano, Napoli, Padova e Venezia al mondo della fisica, della scienza e della ricerca scientifica usando l'arte come linguaggio di comunicazione universale. Circa 3.000 studenti italiani sono in corsa per 24 borse di studio per un master al CERN, attraverso un percorso di arte e scienza.

Comitato coordinamento
A. Alexopoulos, CERN
M. Fedi, INFN sezione di Firenze
M. Hoch, CERN/Vienna
D. Menasce, INFN sezione di Milano Bicocca
M. Michelotto, INFN sezione di Padova
V. Napolano, INFN Ufficio Comunicazione
S. Paoletti, INFN sezione di Firenze
P. Paolucci, INFN sezione di Napoli
E. Vannuccini, INFN sezione di Firenze



Città metropolitana di Milano



UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II



<https://web.infn.it/artandscience/>

<https://www.facebook.com/artandscienceacrossitaly/>



art@CMS
art of science
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I colori del Bosone di Higgs

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Art & Science across Italy
Aprile 2017 - Aprile 2018

+ Milano **Venezia** + Padova + Firenze + Napoli

5 / 12 luglio 2017

Palazzo del Casinò. Lido di Venezia
Lungomare Guglielmo Marconi, 1861
ingresso gratuito

informazioni

<https://web.infn.it/artandscience/>
facebook.com/artandscienceacrossitaly/



Venice

4 schools

350 students

6 seminars by
AMVA4NewPhysics
PhD students

39 artworks by 94
students

17 artworks exhibited at
EPSHEP2017



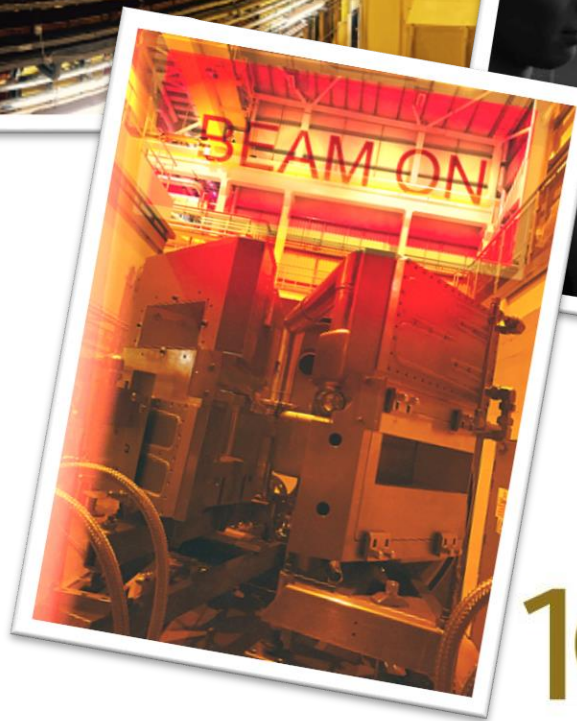
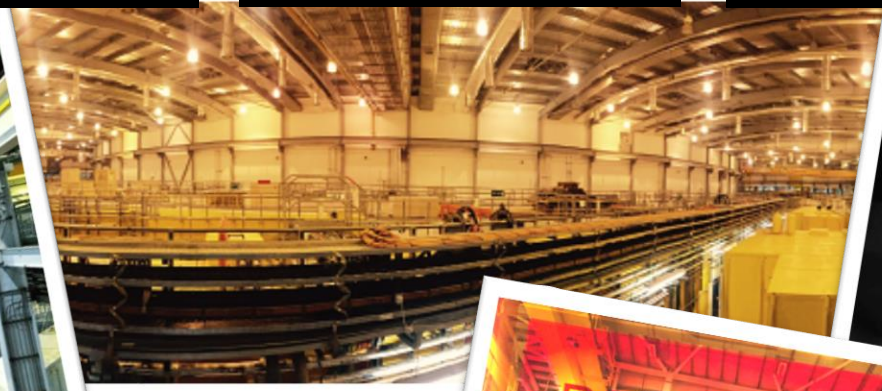
Particle Physics Masterclass Photo Competition

Incredible Science, Inspirational People, Astounding Places...

605 students

86 teachers

48 schools



*Rutherford Appleton Laboratory
@STFC_Matters*

Introducing Students to HEP: Fine Arts & Dance

Check UniBham poster on 3rd floor!

Physics & Fine Arts



Particle Dance



Neutrino Passoire

Follow the action on Twitter!
[@PP_UniBham](#) [@kostas_nikolop](#)



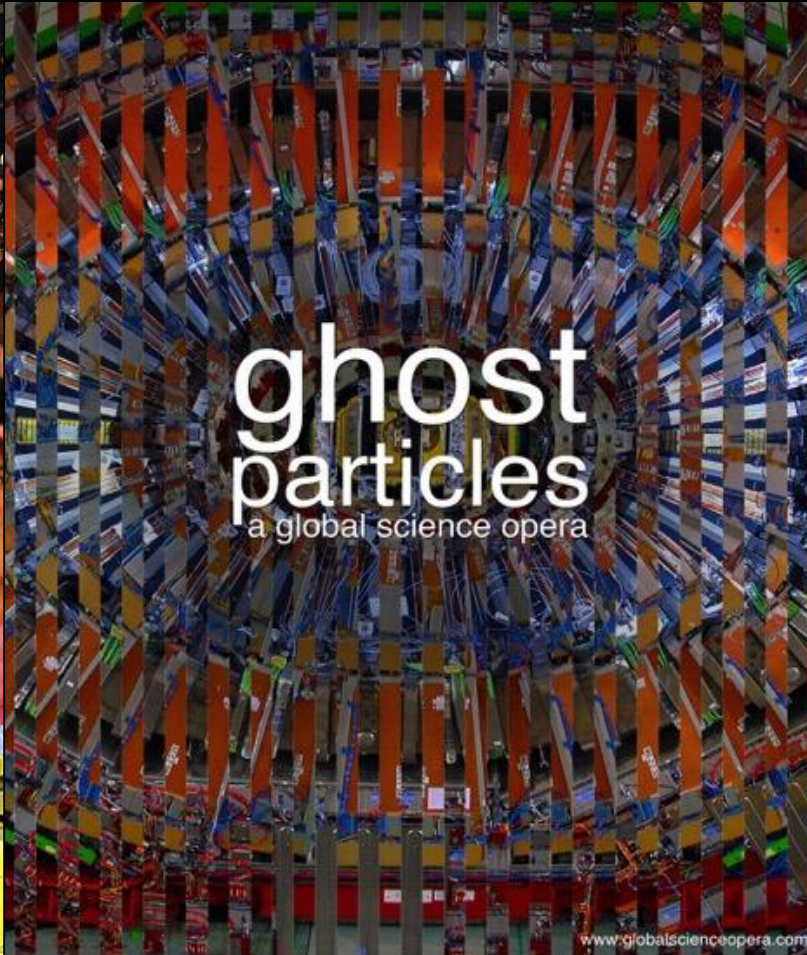
UNIVERSITY OF
BIRMINGHAM

SCHOOL OF
PHYSICS AND
ASTRONOMY

Global Science Opera



294 students 40 teachers 16 schools 14 countries



Using PwP to open up your school to the local community



Αναζήτηση



Συνεδριακό Κέντρο "Ν. Οικονόμου" - ΝΟΗΣΙΣ - 19/06/2017

Παρουσίαση δράσεων του προγράμματος

6ου Διαπολιτισμικού Δημ. Σχ. Ελευθερίου Κορδελιού

Παρουσίαση δράσεων του προγράμματος από τους μαθητές/τριες των ΖΤ1, ΖΤ2, Ε2 τάξεων με τους εκπαιδευτικούς: Κυριακή Ζερβού, Α. Ζερβού, 4:18:39 / 5:14:27 αρούλα Κυριακίδου, Ηλέκτρα Καρακατσάνη, Ελένη Δελημπέτη, Φίλιππο Γκούτζο



Ημερίδα Playing With Protons 19-6-2017 (CERN)

Using the Playing with Protons online community in Open Discovery Space: the portal portal.opendiscoveryspace.eu

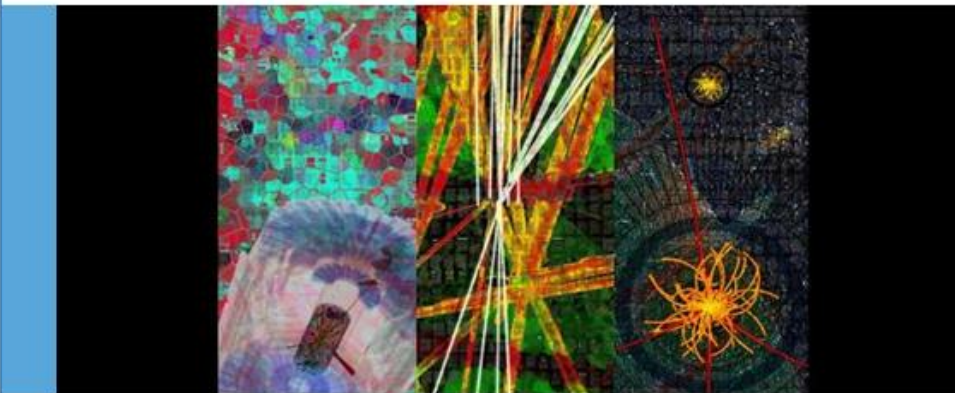
[Request new password](#)

linkup, create, share, grow

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Join our
teachers'
community

Learn more about ODS

Supports teachers in creating unique teaching resources, share them within communities of interest and grow in their professional life



CREATIONS Summer school 2017

"CREATIONS Summer School 2017 - Developing an engaging classroom" The CREATIONS Summer...

RESOURCES

EXPLORE OUR RESOURCES TO USE IN THE CLASSROOM AND PLAN YOUR LESSONS

819296
RESOURCES



COMMUNITIES

SHARE EDUCATIONAL CONTENT THROUGH COMMUNITIES OR START YOUR OWN

1254
COMMUNITIES



SCHOOLS

NAVIGATE THROUGH THE SCHOOLS OF ODS NETWORK

2590
SCHOOLS



TEACHERS

BEING CONNECTED WITH OUR TEACHERS FROM ALL OVER THE EUROPE

12232
TEACHERS



ODS ACADEMIES

FOLLOW THE ODS ACADEMIES TO IMPROVE YOUR PROFESSIONAL EDUCATION

165
ACTIVITIES



Using the Playing with Protons online community in Open Discovery Space

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Search Communities by:

Title: School: Country: Community Domain:

[Clear](#)

Sort by: [Hide Filters](#)


1 - 3 out of 3 for: "playing"



Playing with Protons Greece

Greece

Domain: Science

 96

Community This is a community by Greek primary school teachers of the Playing with Protons programme at CERN. In here you will find learning resources such as educational scenarios and lesson plans but also school initiatives and more on primary science education. All this has been developed by the CREATIONS team and most importantly by the teachers themselves who, together with you,...

[Visit the community to see more](#)

[Register](#)


Using the Playing with Protons online community in Open Discovery Space

inspiring SCIENCE
education

// About Us // English

Resources Digital Tools Repository Communities Schools People Academies

Home | [Playing with Protons Greece](#)



Playing with Protons Greece

Greece
Domain: Science

Parent Community: **CREATIONS**

Community


This is a community by Greek primary school teachers of the [Playing with Protons](#) programme at CERN. In here you will find learning resources such as educational scenarios and lesson plans but also school initiatives and more on primary science education. All this has been developed by the [CREATIONS](#) team and most importantly by the teachers themselves who, together with you, constitute an ever-growing community of passionate, innovative and creative primary science educators.


You are also encouraged to get involved with our parent [CREATIONS community](#) in which you can discover creative approaches based on the arts for an engaging science classroom that have been developed by 16 partners from 10 European countries.


Playing with Protons

[Playing with Protons](#) is an education initiative led by the [CMS Experiment](#) at [CERN](#) that brings together primary school teachers, CERN researchers and science education specialists to develop creative approaches to engaging K-6 students in science, technology and innovation. Stay tuned for news and updates on [Facebook](#) and [Twitter](#).

Managed By:






Stephanos Cherouvis


Angelos Alexopoulos


Tina Nantsou


Created on: 21.08.2016
Last visited: 29.08.2017

Network of related communities

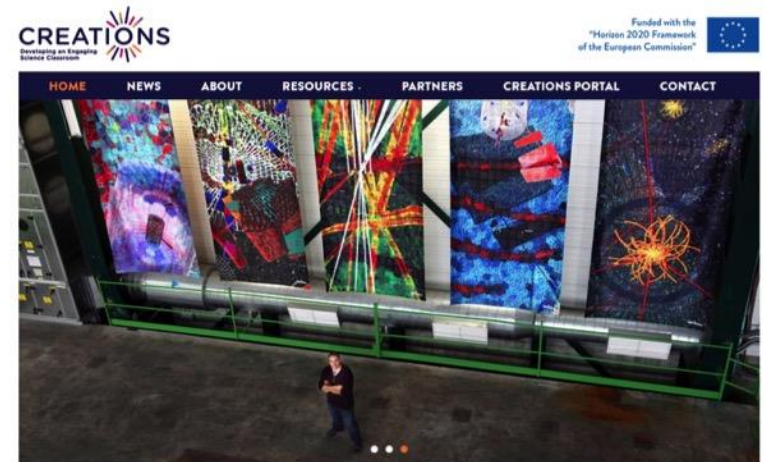
    

Stay tuned!

Web: www.creations-project.eu



@CreationsEU



21/12/2016
The CREATIONS Summer School introduces innovative approaches and activities that involve teachers and students in Scientific Research through creative ways that are based on Art. The Course focuses on the development of effective links and synergies between schools and research infrastructures in or
[read more](#)



01/03/2017
Ciencia Show is a Spanish stand-up science national contest for students. In 5 minutes they have to explain a scientific topic in front of the audience. Together with this contest we also provide a workshop for teachers in communication skills and a Big Van science stand-up show for students. You can
[read more](#)

