



CREATIONS: Infusing creativity in science education through the arts

Angelos Alexopoulos (CERN)
On behalf of the CREATIONS Consortium*



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

The WIRED logo is displayed in white text on a yellow rectangular background. To the right of the logo is a colorful, spherical, wireframe-like structure that resembles a globe or a complex geometric form, with colors transitioning from blue at the top to red and orange in the center, and then to green and yellow at the bottom.

WIRED

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)



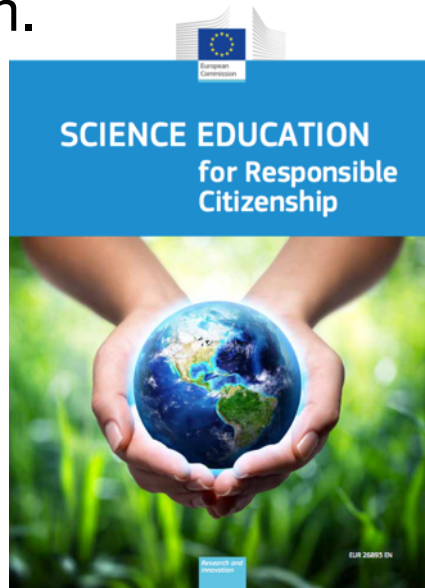
Arts Critical to STEM Learning Says Acting Secretary of Education

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

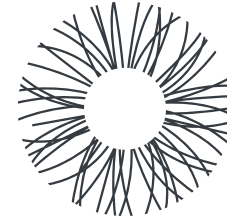
Students who are involved in the arts are:

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

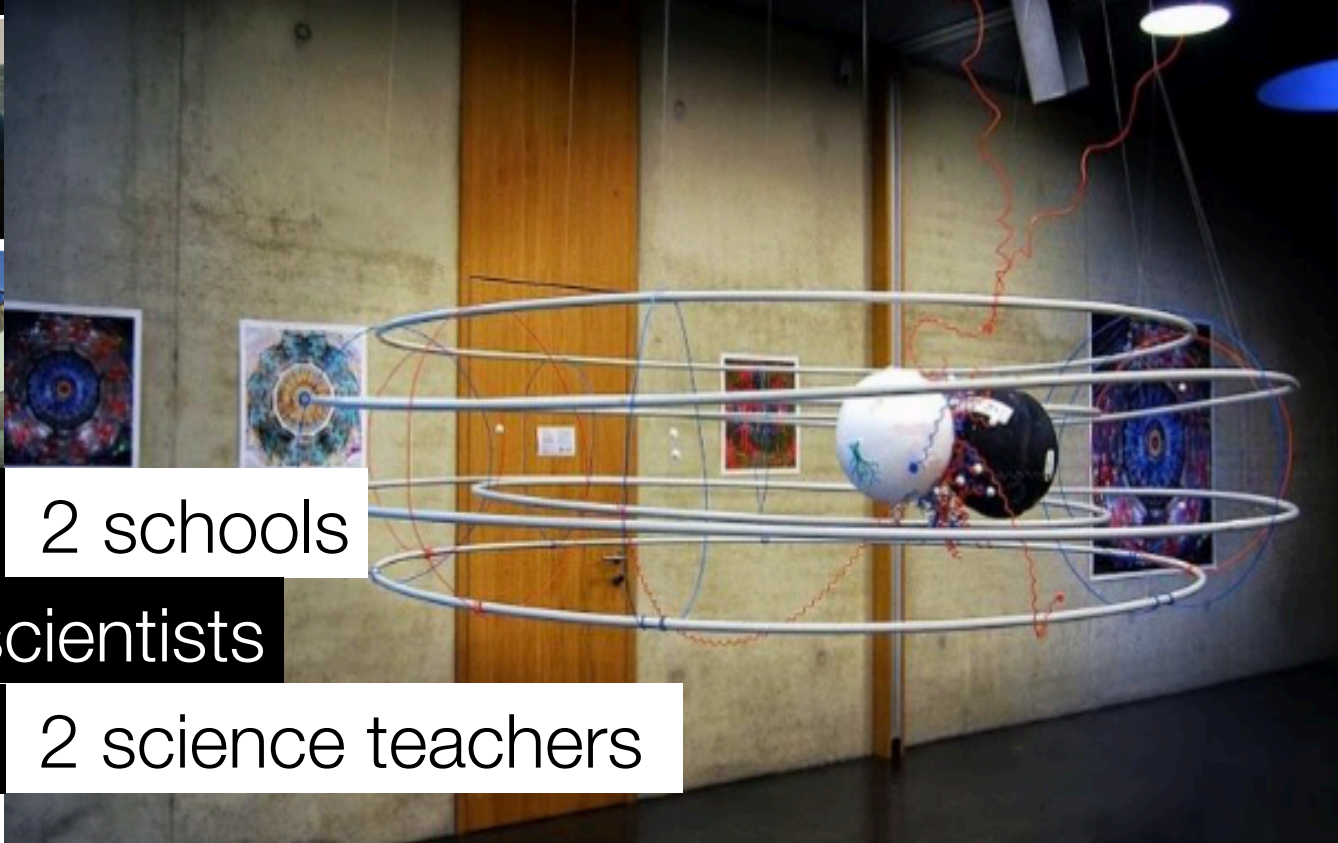
Science&Art@School



art@CMS

art of science
beauty in creation

1st SciArt workshop, Jun2013, Graz, Austria



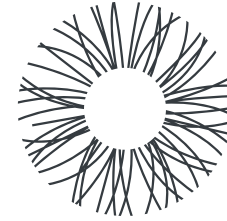
62 students 2 schools

4 HEPHY scientists

2 art teachers 2 science teachers

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

Science&Art@School



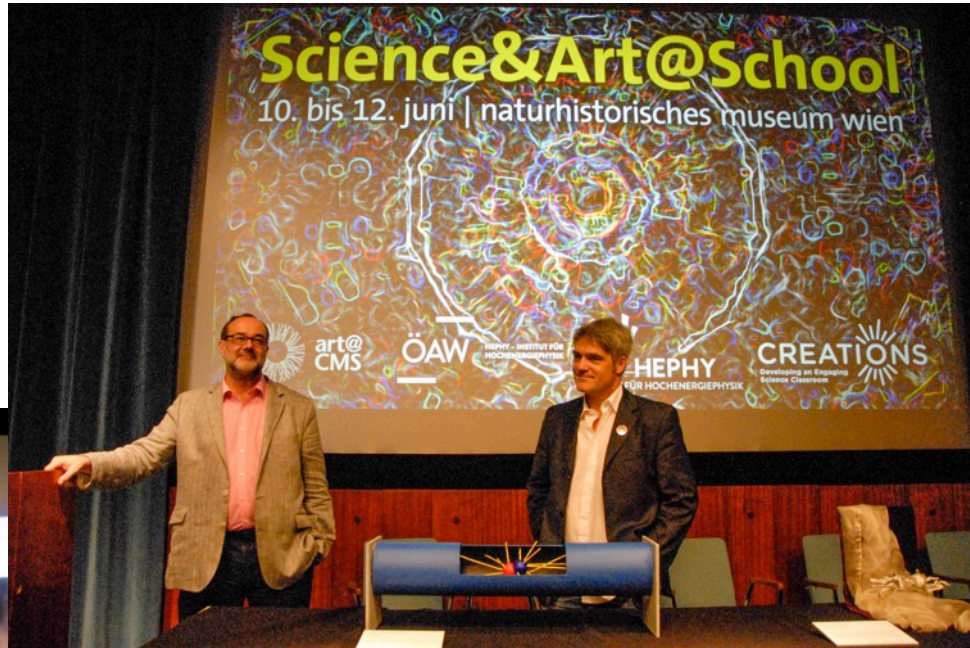
art@CMS

art of science
beauty in creation

4 years later...

>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



UNIVERSITÄT
BAYREUTH



UNIVERSITY OF
EXETER



HOCHSCHULE
RHEIN-WAAL
University of Applied Sciences



HØGSKOLEN STORD/HAUGESUND



ЦЕНТАР
ЗА ПРОМОЦИЈУ
НАУКЕ



HELLENIC REPUBLIC
National and Kapodistrian
University of Athens



UNIVERSITY OF
BIRMINGHAM



UNIVERSITY OF MALTA
L-Università ta' Malta

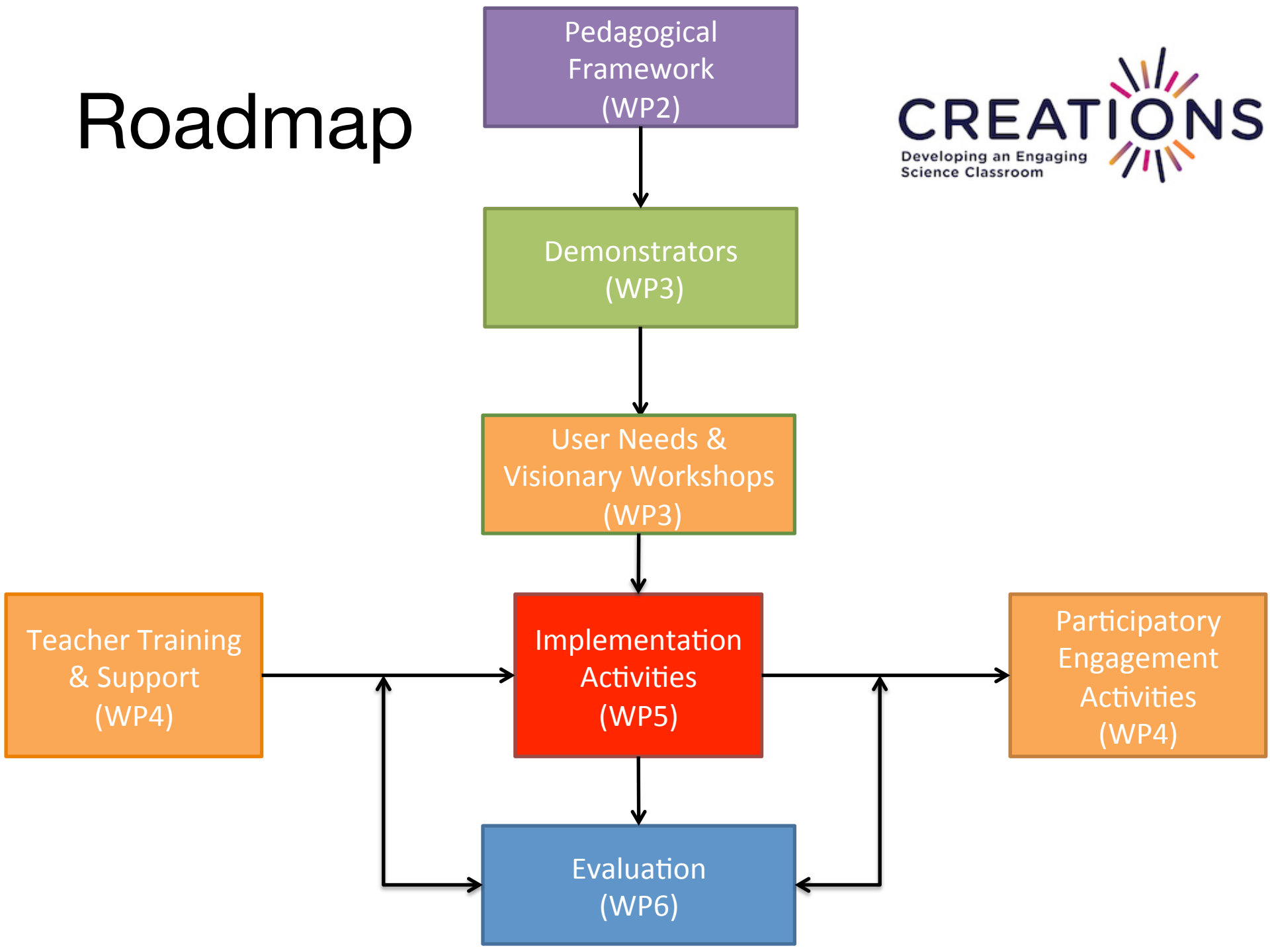


HELSINGIN YLIOPISTO
HELSINGFORS UNIVERSITET
UNIVERSITY OF HELSINKI



ΕΛΛΗΝΟΓΕΡΜΑΝΙΚΗ ΑΓΟΓΗ

Roadmap



Pedagogical features



Risk, immersion and play



Individual, collaborative and communal activities for



Balance and navigation



Interdisciplinarity



Dialogue



Ethics and trusteeship

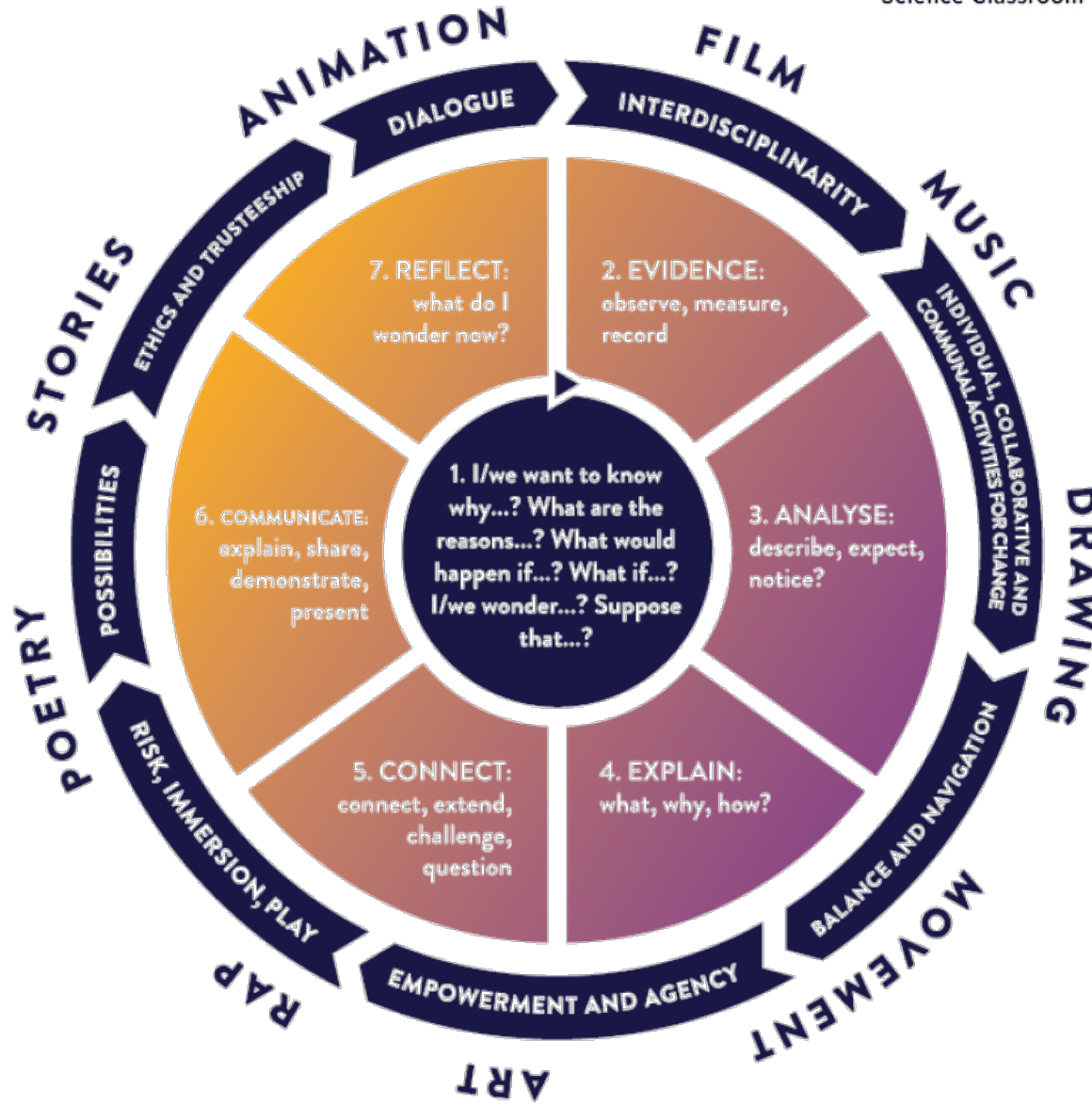


Possibilities



Empowerment and agency

Pedagogical features



Teacher training & support



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



About ▾

Programme

How to Apply

Location

Fees

Registration

Organizers

Contact Us




STEAM Summer School @steam_school · Jul 3

Getting to know the steam team #scicomm #steamsummerschool #icebreakers



Teacher training & support

CPD courses



1st
PLAYING WITH PROTONS
UK CPD COURSE
21-25 AUGUST 2017
CERN

PLAYING WITH PROTONS

Bringing together UK primary teachers, science education specialists and CERN scientists to develop creative approaches for engaging Key Stage 2 students with science, technology and innovation.

Masterclasses



CREATIONS implementation activities

up to 7 July 2017

288
Activities

596
Schools

12,447
Students

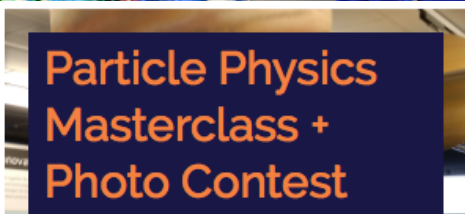
1,192
Teachers



Cultural Collisions at CERN

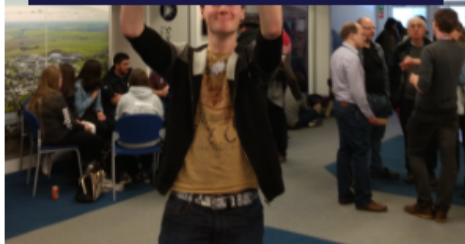


"Ghost Particles" - a Global Science Opera - the full broadcast



Particle Physics
Masterclass +
Photo Contest

Participation in STEM education is Cultural Collisions event at CERN from 21 to 25 February 2017 with the support of the UK and Vienna (Austria), as well as from the



07/03/2017

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



Learning
Science
through
Theater

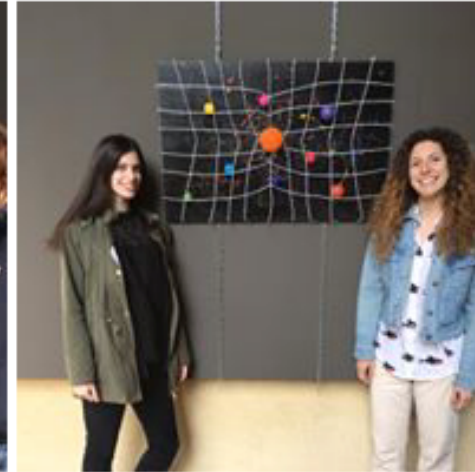
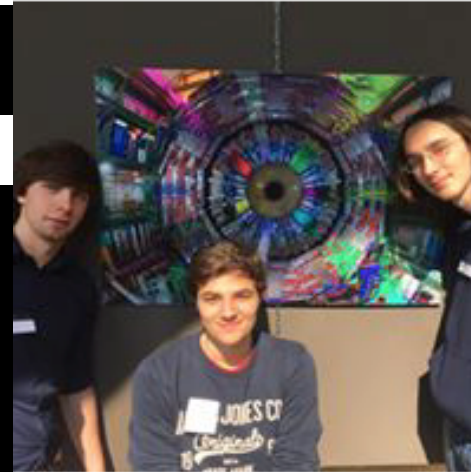
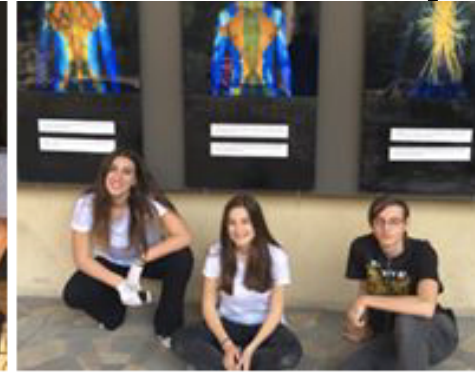
Art & Science across Italy

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



Istituto Nazionale
di Fisica Nucleare



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

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- M. Hoch, CERN/Vienna
- D. Menasce, INFN sezione di Milano Bicocca
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Città
metropolitana
di Milano



art@CMS
art of science
beauty in creation



I colori del Bosone di Higgs

Percorsi tra arte e scienza



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

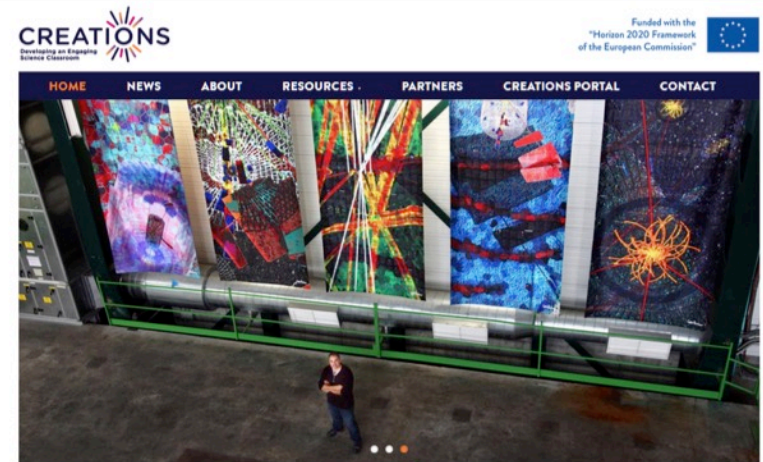


Stay tuned!

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>>](#)



*Contributors

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