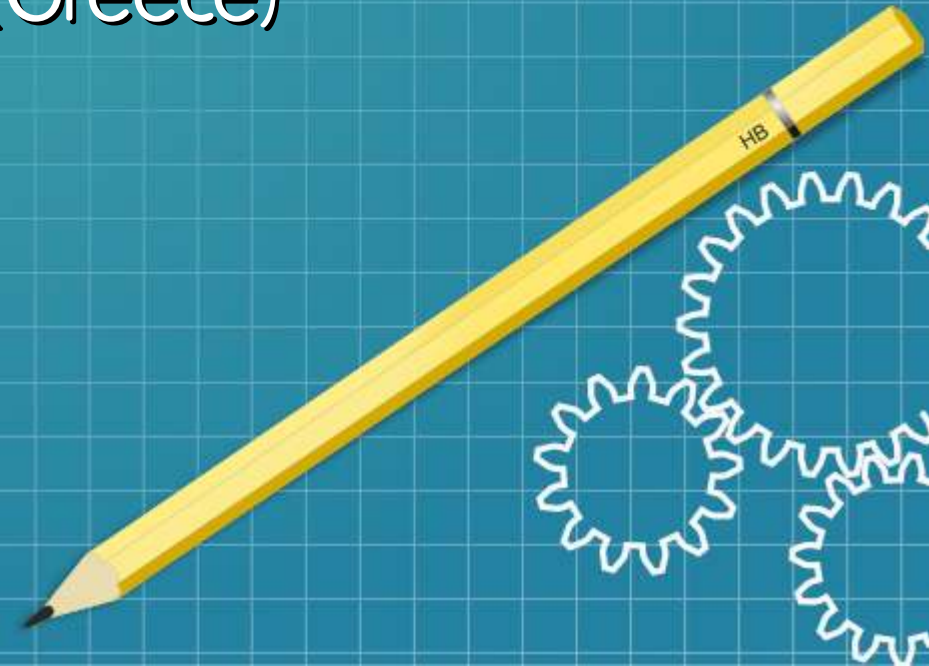




STEM Activities in Primary Education

Chania / Crete (Greece)



E.K.F.E. Khanion

Greek partner of “CREATEskills”, in cooperation with C.D.P.E.

Introduce "EKFE"...

- ...an Educational Structure, where L.C.P.S. (...E.K.F.E.) stands for Laboratory Center of Physics Science
- Our main goal is the support of teaching Science at pri. & sec. Schools, in a “hands-on” and “lab-oriented” way
- Living in today’s digital ERA we *had to* and we *are already* adapted to different, modern and innovative ways of teaching.
- We stay in continuous contact and cooperation with our teachers, the Chania Directorates of Primary and Secondary Education and the School Counselors of Chania



E.K.F.E. Khanion

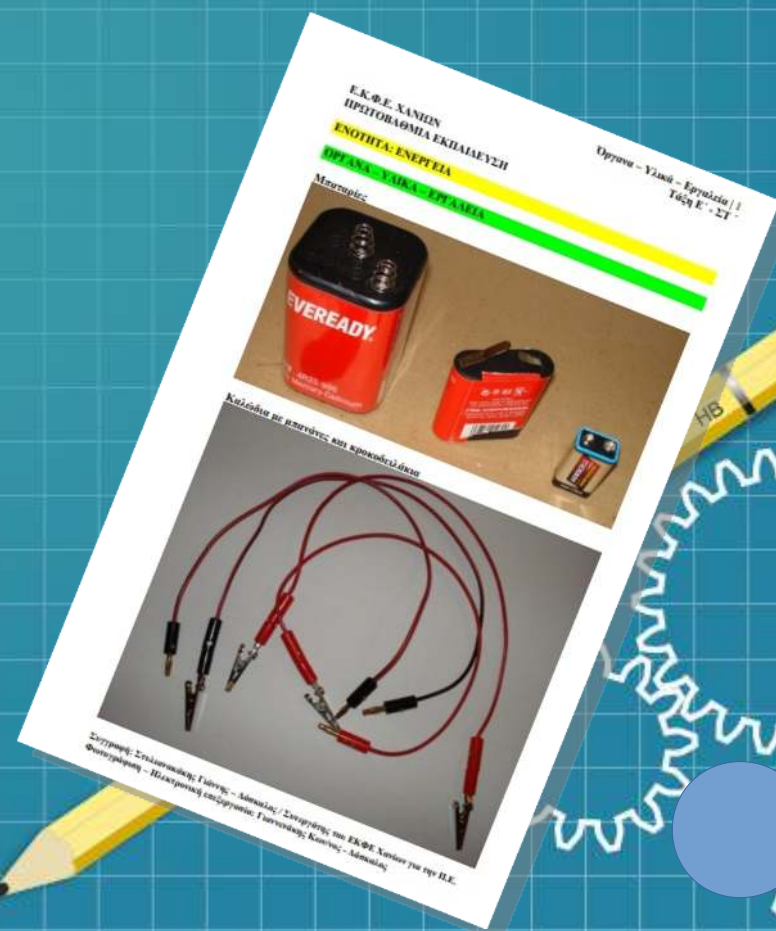
Greek partner of “CREATEskills”, in cooperation with C.D.P.E.

Main Activities of E.K.F.E. Khanion (concerning Primary Education)

- Set up of “Physics Science laboratory” at Schools →
- Web repository with hands-on and practical in-classroom activities →
- Implementation of inquiry and innovative teaching methods →
- Teacher’s training programs in STEM teaching methods →
- “Celebrating Science at Chania”. School collaboration public activity. →
- Public presence and dissemination of activities (web page, social media, press). →

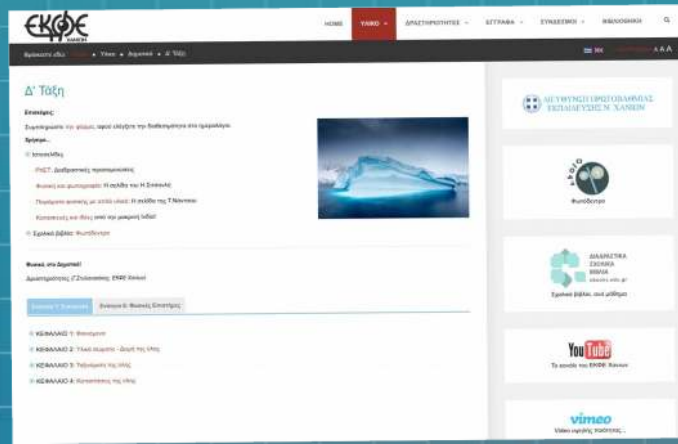
...in cooperation with schools: "Physics Science laboratory"

- Visiting schools in place, discussing with teachers, exchanging ideas, "how" can it be done, "what" materials is needed, "where" could it be found etc...



...modern ways of exchanging knowledge: Web repositories

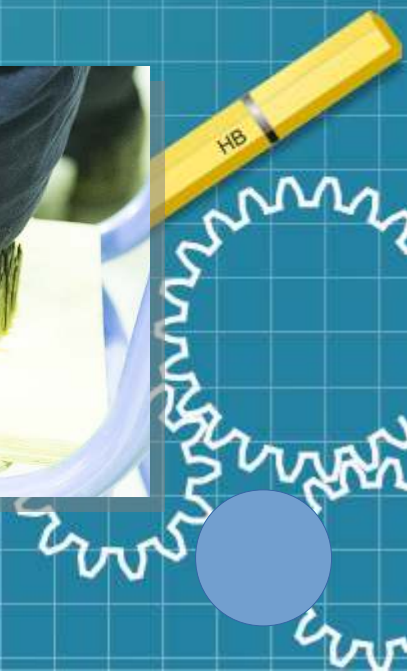
- At ekfechanion.eu web page:
 - a **digital library**, constructed according national curricula, with **activities** ready to be **implemented** in classroom.
 - **Web Links** to pages with **digital material**, useful in teaching science
 - Training material that helps the teacher on **strengthening** the in-class presence.



Implementation of inquiry and innovative teaching methods

- A lot of students* visiting us, participating a different learning method with activities, interaction with nature, “funny” simulating constructions, in a friendly presentation of physics science.
- ...welcoming some children with special needs was a very strong experience to us...

**more than 1600 students were with us, in 2017-18*



...in cooperation with C.D.P.E. and School Counselors: Teacher's training seminars in STEM teaching methods.

- Seminars at our place (L.C.P.S.) where the teachers are ...
 - ...participating in short presentations with spots on Theory (physics, chemistry, biology)
 - ...learning techniques, tricks, how to 's
 - ...collaborating with each other in workshops (the main training part...)
 - ...are getting students (sometimes, grouchy ones!)

Seminars at school's place, where...

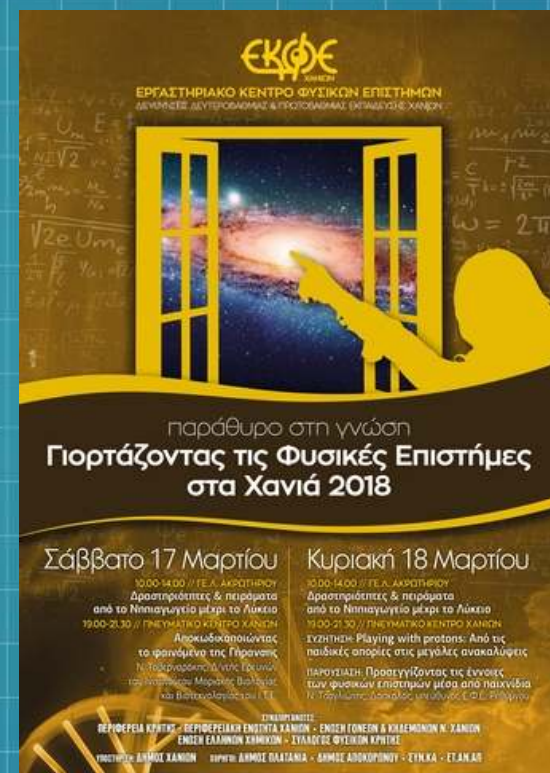
- a well equipped school is the meeting point for teachers of the neighboring area.



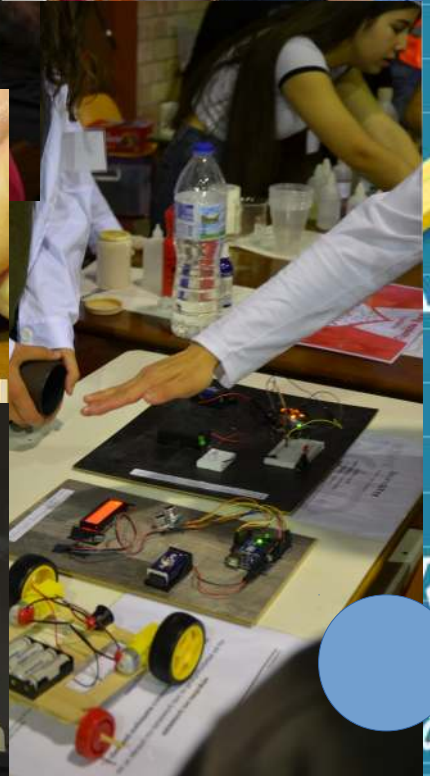
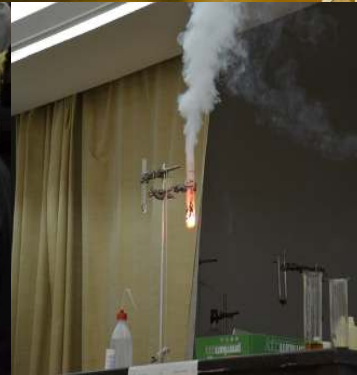
EKFE, CDPE, CDSE, counselors, children, students, teachers, parents, public...: "Celebrating Science at Chania".

- Started on Mar.2014, as a whole day public activity with the participation of 10 schools. On its 4th ... sequel was extended to a two-days activity, and the participants at 35 schools* (pre-primary too !)
- The daily program consists of two parts:
 - 1st "hands-on-activities": Students are getting teachers, introducing the visitors to their experiments, constructions, ideas... science in a point of STEM view!
 - 2nd "popularization of Science": A scientist, professor or educator is our guest, leading a public discussion about in a social learning matter.

* 7 pre-primary and 11 primary schools, more than 300 members



“Celebrating Science at Chania”: Highlights!



L.C.P.S.'s Public Presence

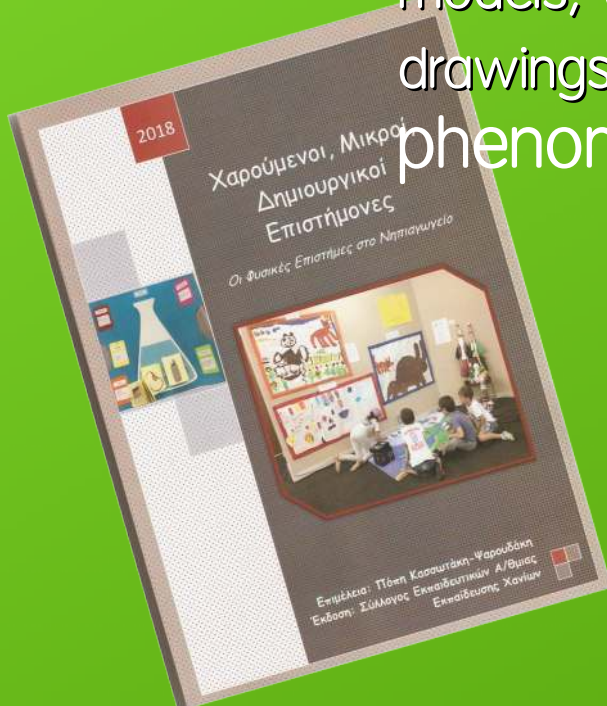
- Web site at <https://ekfechanion.eu>
- Facebook page at <https://www.facebook.com/ekfechanion>
- Twitter (@EKFEChanion), Skype (ekfe.chanion) accounts
- Dissemination of activities through articles at **local press** (classic and e-press) , radio and **TV**.



Pre-School Education

- Pre-primary teachers of Chania participated training seminars in teaching science (Nov.2016, LCPS & Chania Dep. of Pre-Primary Education)
- The in-classroom implementation of the earned knowledge gave some impressive results...
- The young “scientists” constructed models, wrote stories, painted drawings, interacted with physical phenomena, exchanged results...

Happy, creative, young scientists



- These activities collected, presented at our “Celebrating Science”, and printed in a nice publication.

School Activities: "Digital Creation Festival"

*KEPLINET, CDPE, **CDSE

- Student's digital creation festival, organized in 13 Greek towns (... and also Chania)
- The children (6-18) are "playing" with algorithms, creating digital models, using special software, making automation systems...



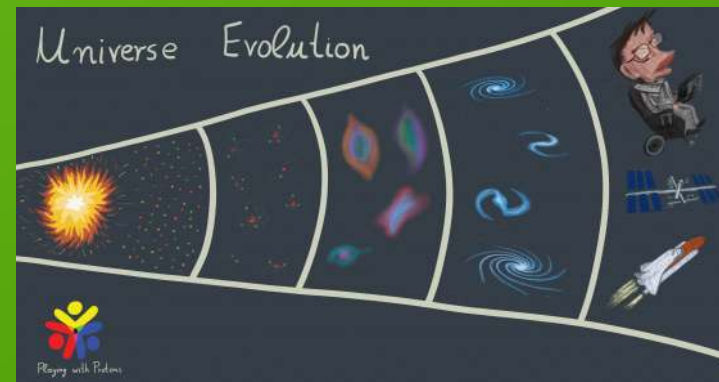
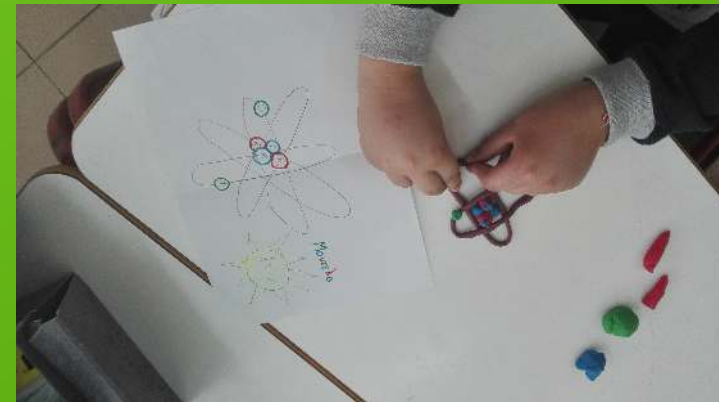
**Center of Informatics and New Technologies*

***Chania Directorate of Secondary Education*

School Activities: "Little Explorers in Action"

16th Primary School of Chania, t. E.Tsialou / H.Papaemmanouil / M.Rizou

- Based in CERN's project, "Playing With Protons"
- Subject: A first "touch" with particle Physics, Physics, Astrophysics, Cosmology, through School – based activities and visits to science museums.
- Effective Learning Environment
 - Through questioning and dialogue children are motivated to express views regarding scientific research and basic scientific facts.
 - Drawing , dance and theatrical performances involves student's artistic self expression
 - Children present their drawings and artifacts and also a theatrical performance to the public.
 - Students make use of CERN virtual tours and visit the Educational Laboratory of Science



School Activities: "STE(a)M activities"

Primary School of FRE – Apokoronas / Chania, t. S.Michelakis

- STE(a)M activities in daily basis...
- The school is organized and equipped accordingly . to support the innovating and inquiry learning.
- The young students get in touch with S.T.E.M. through games, constructions, drawing, drama, through project process.
- Highlights...
 - Bridge constructions with ...spaggeti
 - School garden planting
 - Hydraulic systems with simple materials
 - Use of robotic systems
 - YouTube channel (...full of creativity !)



School Activities: "Scientix"

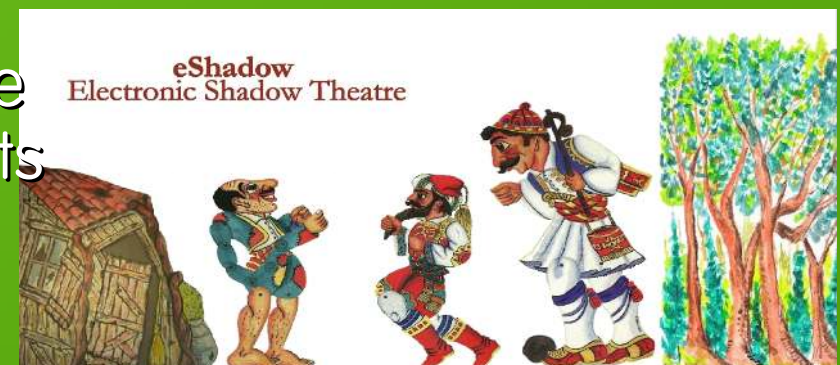
Mavromatakis Primary School / Chania, t. C.Manolakis

- Awarded (2017) in european contest about STEM, for the project about the book "Le théorème du perroquet" (Guedj Denis):
 - Math teaching following a historic path, finding people and ideas behind, solving puzzles, making constructions, creating a special ... "parrot"!
 - Children, teachers, parents involved and cooperated...
- "Science Fair: A public celebration for "STEM" sciences, involving kids from 2,5 y - 12y old.
- Two – school collaboration, with children working in workgroups (age-seperated). Whistles and music, solar ovens, electricity and water-dynamics, fun and friendship, was the result.
- Teacher's training STEM workshop about nano-technology, guided by the Scientix Ambassador C.Manolakis.
- "Coding with bee-bot and scratch" Introduction to programming language, for children



Technical University of Crete, TUC (Chania)

- Science & Informatics Open Day for children (prof. E.Psilaki)
 - The personel of T.U.C. is guiding the junior visitors and their parents to the world of new technology and STEAM practices.
- E-shadow (mr N.Moumoutzis)
 - Digital creation lab, where the traditional Shadow Theater gets Electronic...



Conferences, Seminars, Activities



- Annual Conference about S.T.E.M. in education
- FossCOMM (Annual international meeting / conference about open source software and applications in education.
- Annual Conferences for inquiry /innovative teaching methods with the use of modern technology
- Science On Stage
- Scientix Greece
- Annual school festivals by the end of the school year, concerning creativity, arts, digital technology, implemented in schools during the year.



Educational Contests

- Panhellenic contests for educational robotics in Primary School
- Scratch game contests
- Physics / Mathematics / Biology Panhellenic Contests for primary school students
- Constructions contest (local and national)
- Various local contests concerning STEM activities...



The prize "ceremonies" are open for the public, usually in well-known places (for example in Culture Center of Chania or Eugenides Foundation in Athens)





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Thank you!

Nikos Anastasakis – Manolis Miliarakis – Hara Andreadou



ΔΙΕΥΘΥΝΣΗ ΠΡΩΤΟΒΑΘΜΙΑΣ
ΕΚΠΑΙΔΕΥΣΗΣ Ν. ΧΑΝΙΩΝ

