Inclusive Science

SCIENCE ON STAGE 2019 CASCAIS

THE EUROPEAN NETWORK FOR SCIENCE TEACHERS

Secondary School Vasil Levski, v. Glavinitsa, Silistra region,Bulgaria

NATURAL PHARMACY

AIM OF THE PROJECT : Study, experiment, preparation and application of ointments, alcohol extracts, syrups, compresses, inhalants prepared from natural plants

CHEAPEST AND AVAILABLE MATERIALS:

- ❖ natural materials - water, plants, sea salt;
- ❖ household goods - oil, sugar, flour, gauze;
- ❖ reusable glass containers.

RESULTS:

The school children acquire:

- ➢ advanced practical skills and key competences not only in natural sciences;
- ➢ rethink their free time;
- ➢ new topic of conversation and hobby:
  - they learn about products of different character and scope – technology / educational /;
  - create in school nature pharmacy with herbal products; leaflets, individual notebooks and a folder of recipes; demonstration sessions;
  - they see maning in life, namely the building of a social heritage – health.

The SCHOOl "Natural Pharmacy" is always available for injuries, coughs, muscle aches ...

Together in creating
a natural "pharmacy" –
at home and at school,
by everyone **for** everyone.

Rumyanka Galchavova

Inclusive Science

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THE EUROPEAN NETWORK FOR SCIENCE TEACHERS

Vasilka Krasteva | Fifth Primary School "Hristo Botev“ School | Kyustendil | Bulgaria

Butterfly Festival

The Children's Feast at the Polskoskakavishki Waterfall

Goal: This project uses an attractive, an innovative and an inexpensive way to familiarize the children of Kyustendil with the species of butterflies distributed in protected areas.

Method: Learning by playing; teamwork.

1. A team of children is formed

2. Finding information about butterflies

3. Preparing butterfly puzzles and costumes

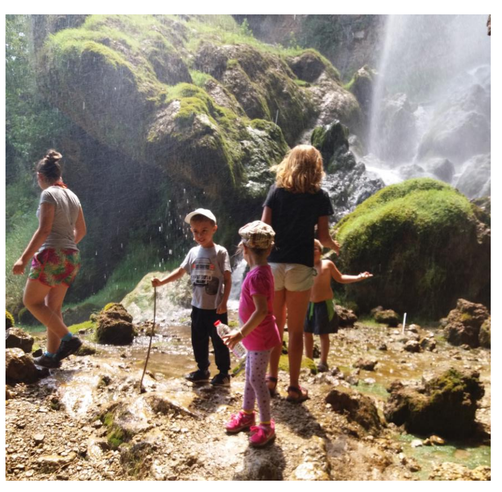
4. The Children's Feast at the Polskoskakavishki **Waterfall**

Carnival of the Butterflies

What do we know about butterflies?

Sport games

Hiking to the waterfall



5. Analysis and Achievements: 1) knowledge about the lifecycle, significance and species of butterflies; 2) puzzles and butterfly costumes; 3) texts/information about the butterflies.

Materials: old paper/plastic/packing – an inspiration for rewilders and recycling designers.

Conclusion: The children create butterfly costumes and puzzles to learn about the lifecycle and the significance of the butterflies from the Polskoskakavishki Waterfall area, while understanding the usefulness of reusing old plastic and paper.

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THE EUROPEAN NETWORK FOR SCIENCE TEACHERS

Efi Dariou | 1st Primary School of Tseri | Nicosia | Cyprus

Embodied Maths for 21st Century

Engaging students with different abilities and disabilities

Unit overview

This project aims to promote the active participation and autonomous learning of **ALL STUDENTS, with different abilities and disabilities** (inclusion of SEN students), by **using multi-sensory technologies and innovative activities for embodied learning**, in order to support conceptual understanding of basic concepts of geometry.

Embodied Learning Stations

Figure 1: The Angle Makers

Figure 2: Robot Mouse Bingo

Figure 3: Blue – bots routes

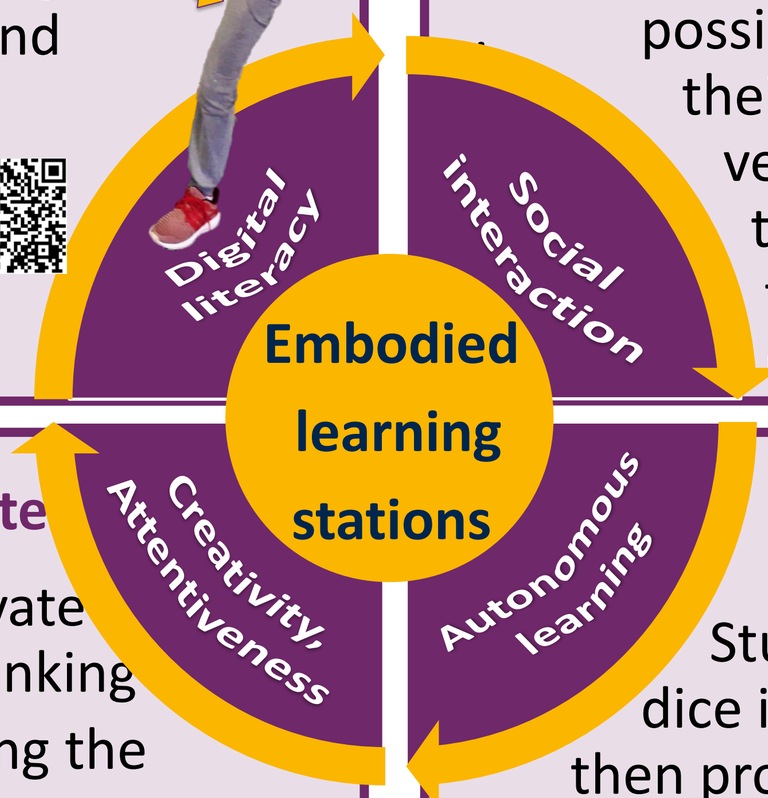
Figure 4: Riddle me this

"The Angle makers"

During the implementation of this application, students take the role of "angle-makers" and have the opportunity to experience the world of mathematics and geometry through a more playful and entertaining learning experience (Figure 1).

Riddle me this

Different kind of geometric shapes are placed on the ground. The Riddler reads riddles, and according to the information provided, group members need to identify the correct shape and stand on it as soon as possible or program their Engino vehicle, in order to guide it to the right shape (Figure 4).



Blue-bots Route

Students cultivate algorithmic thinking by programming the Blue-bot in order to follow the path that includes the geometric shapes they have grouped, on the basis of specific criteria (Figure 3).

Robot Mouse Bingo

Students roll the dice in turn and then program the robot mouse to move on a predetermined track as many steps as the dice indicates (Figure 2). At the point where the mouse stops, there is a mathematical problem, which all students need to collaboratively solve and check if the solution appears on their bingo card.

Activities based on a set of multi-sensory and motion-based technologies, supports embodied learning in heterogenous classrooms, where students with different abilities and disabilities co-exist, ensuring the active participation of ALL STUDENTS.

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THE EUROPEAN NETWORK FOR SCIENCE TEACHERS

Antouanetta Kontou & Antonis Ktoris| Archangelos Gymnasium | Nicosia | Cyprus

"Here Comes The Sun"

Inclusive Learning Through Constructions

Effective Inclusive Learning

Hands on Science - Experiments - Decision Making & Constructions

Agentic Engagement - Student's Learning - Students' Engagement


Greenhouse Construction

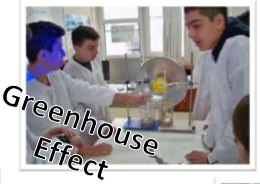

Isolated Water Tank


Sun Dial


Solar Heater


Sun Flares


Strawberry Statistics


Greenhouse Effect


Earth-Sun Movement


Earth's Radius


Experimenting


Model Construction


Distillation

The goal regarding this project was the unification of two theories, into the teaching process, in order to improve students results via inclusive learning. The first one is the Agentic Engagement. This theory suggests that in order to maximize students' effort and learning outcomes, students should choose their own learning environment. The second one is the "Hands On Science" approach, where students learn by doing instead of just watching or listening.

The decision was to built an innovative Greenhouse that uses Solar Energy to heat the Greenhouse during the cold nights. At first this seemed impossible to students and it led them into studying, experimenting and constructing. Their final proposal was to construct Solar Panels that would heat up still water. The hot water would be kept in an isolated tank and it would be used in the Greenhouse's underfloor water pipes, in order to keep it warm.

The project lasted three year and it combined areas from Science, Chemistry, Geography, Biology and Mathematics. The experiments and the constructions related the project included all students in all stages. Students were motivated to work in the projects that they designed, and these resulted in an unexpectedly successful inclusive learning.

National Awards Granted:

Education Leaders Award 2019 · Technological Innovation in Education TEKE 2018 · Technological Innovation in Education TEKE 2017

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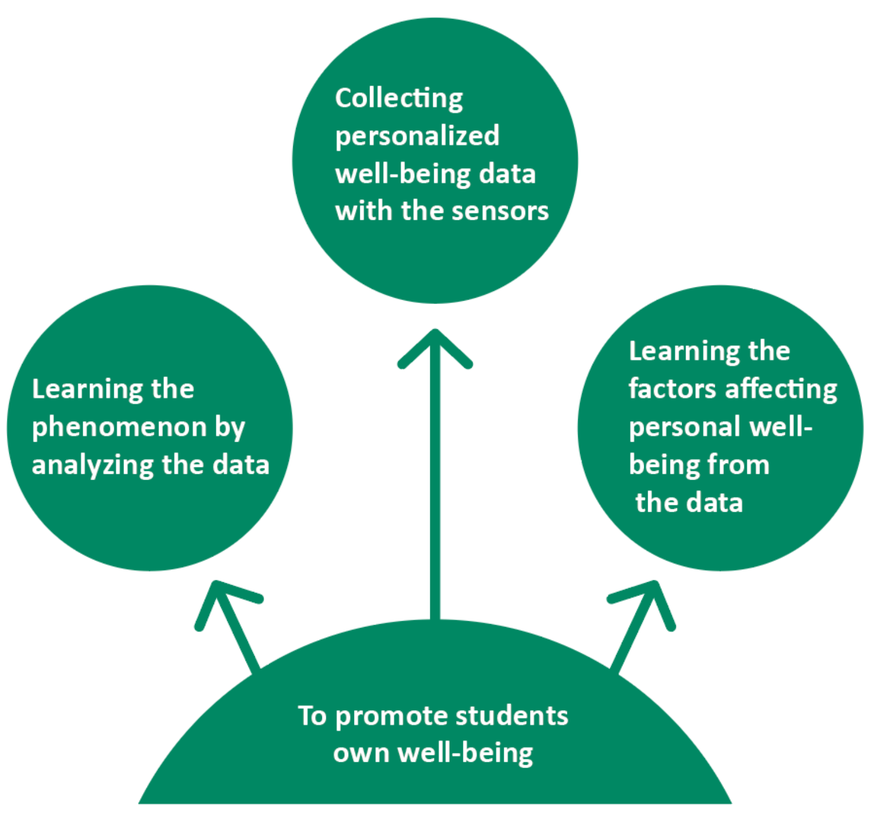
THE EUROPEAN NETWORK FOR SCIENCE TEACHERS

Tom Nevanpää, Kirsti Koski, Hannu Moilanen | Teacher Training School, University of Jyväskylä | Jyväskylä | Finland

Exercise, well-being and measurement course in Jyväskylä Teacher Training School

- The course was based on the idea of multidisciplinary thematic studies, which is included in the new Finnish national curriculum for the upper secondary school (2016).
- The course integrated several different disciplines (physics, chemistry, physical education, health education, biology, maths, ICT and phychology).
- The main aims of the course were, firstly, that students measure their own body and its various physiological statistics (e.g. pulse, blood pressure), with sensors and, then, link the measured data to the studied phenomena (e.g. stress). Finally, the aim was to help students to study and find causal relationships between various measurements and phenomena.
- Themes of the course were physical activity, stress, rest and sleep management as well as nutrition.
- As part of the project, students got feedback on their well-being analyses from experts.



Students' experiences and evaluation of the course were very positive:

- Students found learning during measurements more interesting
- They also said that well-being analysis of themselves was useful (97 %) and it improved their personal well-being (78 %)
- Students liked the experts' lectures.
- However, 84 % of the students felt that the most effective learning method were the experimental measurements they did on their own bodies.

Material and equipment used in this project:

- sensors with applications
- Students' learning diaries
- visits and lectures by experts
- A computer platform for working and learning (peda.net)

Students experimented with methods of sensor-based learning in multidisciplinary teaching in upper secondary education. The aim was to combine the use of sensor technology and learning from self-produced well-being data to promote their own well-being.

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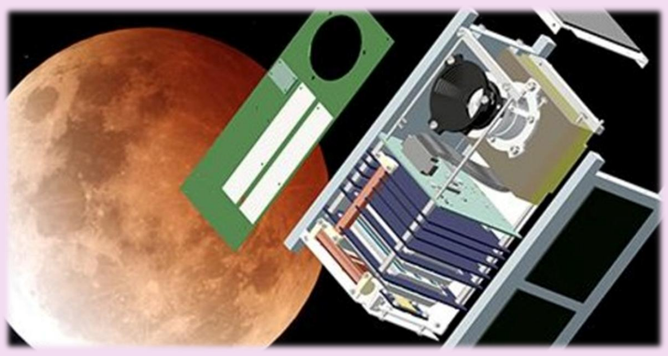
Marion Bugnard, Eric Martinet| Ecole primaire Cachin, Lycée Europole| Grenoble| France

Sharing Science with Amical'Sat

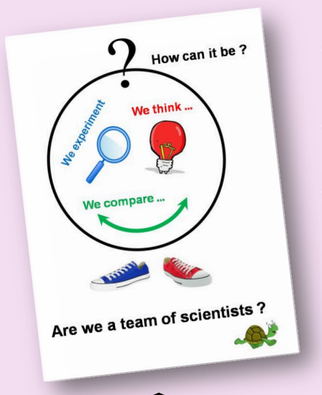
Space Exploration from Preschool to University

2019 – AMICal Cubesat launched

- CSU-Grenoble : Nano & Instrumentation
- democratization of Newspace at an early age
- AMICalSat @CSUG : Inspire, Train, Share

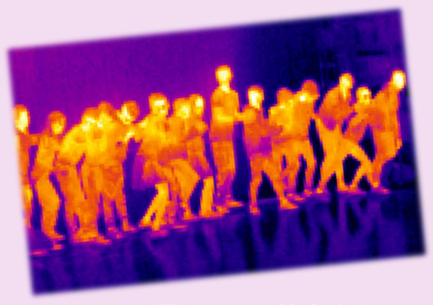


Sharing as a scientist community



- investigation by school "Labs"
- high school student tutors
- project peer reviews, workshops

Building a *NEWSPACE* network fostering inclusive science & creativity



Team #4 Mars Base prototyping

Investigation & review with high school mentors as young role models – autonomous team work

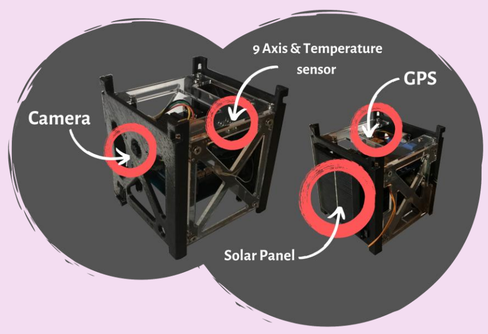
Team #2 Propulsion

Team #3 Power engineering

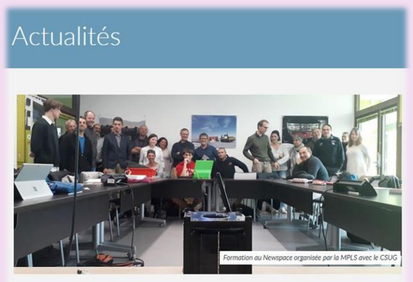
optimizing rover

Sun-synchronous orbit

Team #7
High school
Cubesat
challenge



Team #8 – Cubesat show



SatNOGS

evaluation of CNES kit – teacher training
review by Newspace scientists
radio-ham open data (SDG2030)

Dare to fail ☺ & fun

Kids from disadvantaged areas as young scientists :

- **address complex challenges, use peer review**
- **take risks for innovation, develop solidarity & responsibility**

Young students as role models boosting project authenticity

Newspace : a culture without gender bias to learn STEM skills

Collège Gérard PHILIPE
IEN-FONTAINE
CARDIE GRENOBLE
Cité Scolaire Internationale

Thanks to the *Sharing Science* team: M. Barthelemy, A. Kuhn , N. Penin, S. Thuillier, S. Labatte, C. Blanc, M. Salvete, E. Daunas, S. Pierre, N. Patermo, J. Fragola, engineering & -high school students

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THE EUROPEAN NETWORK FOR SCIENCE TEACHERS

Tanja Schapat, Dr. Tobias Mahnke | Carl-Strehl-Schule | Marburg | Germany

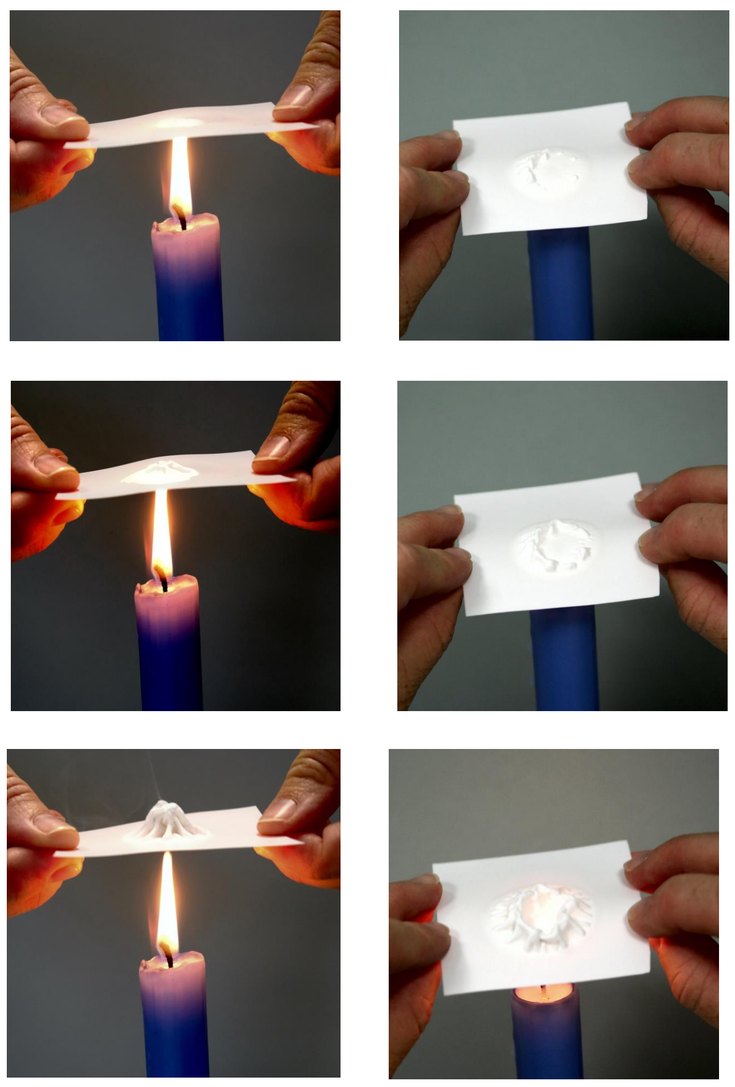
blista

Crater and summit
two faces of a candle

A lot of schools hold the opinion that experimenting with students with severe visual impairments creates a lot of problems [1]. This often results in exclusion of those affected from the community of learners.

This is a problem because experiments done by students play an important role in the process of knowledge acquisition [2]. Most experimental settings are focused on visual perception but there is more to that!

Flames are and have always been fascinating for humans.
The multitude of aspects that result from that are the basis for the observations and examinations presented here.



Swell-paper is used to create thermo-grams of different areas of the flame (above). The product of combustion CO_2 is collected in a closed system and detected immediately. An optophone, here in the third picture on the left, is used to show the change acoustically. The shape of the flame is represented tactually by using modelling clay (below).

Conclusion: Small variations of commonly shown experiments are often enough so that more than the visual sensual channel are adressed. This way chemistry becomes "graspable" for everybody. The different per-ceptions support the learning process of every learner.

[1] H.-J. Becker, S. Fechner, L. Brauckschulze, *Nachrichten aus der Chemie* **2016**, *64*, 352–358
[2] kultusministerium.hessen.de/schulsystem/bildungsstandards-kerncurricula-und-lehrplaene/kerncurricula/sekundarstufe-i/chemie , Seite 14, abgerufen am 31.10.2018

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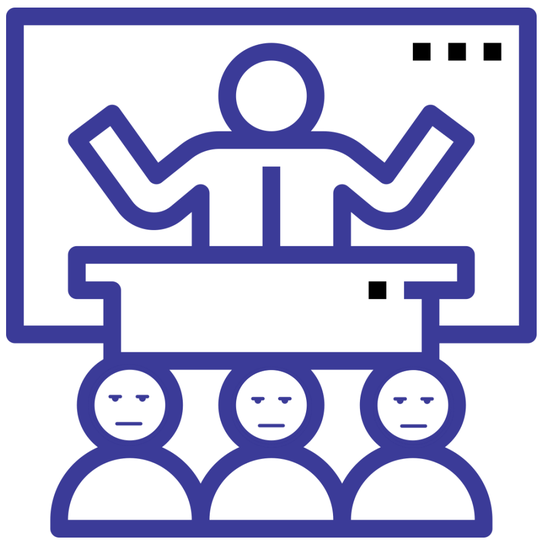
Bence Toth, Zsolt Zsigo | Center of Vocational Centre Bánki Donát Polytechnical School | Nyíregyháza

Learning by solving real problems



How the typical study groups are work:

- Based on usual task solving
- Boring lessons
- Too much children / teacher
- Bored children in the classroom

The solution is:

-Find a topic for the students

-Look for goal

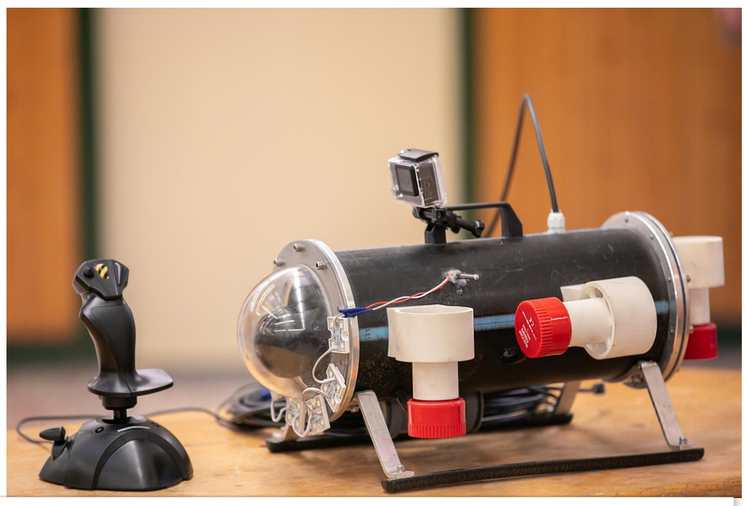
-Find real solutions for real problems

New communication form: consultations

Project based work

Virtual Study group

Water is the foundation of life, without water there is no life on the Earth. Everyone know these facts. The underwater exploration robot which developed by us can also perform activites that a diver could not be able to do, and it is cost-effective. The robot make its job with remote control on a predefined route and can perform predefined tasks. The prototype was produced two years ago which awarded ont he Youth Innovation Competetion, and based ont he experinces, we started build a new robot. Water must be treated with care. This is forcing more and more people and users to change and transform their water habits.



Nowadays one of the biggest challenges how to facilitate the life of people who have disabilities. For this purpose many device have been developed so far which can assist in many situation for the people who need. My device is able to help the communication in the sign language. The fundamental conception of my equipment is the flex sensors. When a person gestures, the flex sensors bend with the fingers. In the sign language not only fingers moves but hands as well vertically and horizontally. These motions need to be detected too. If the scanned data is equal with the language's word value the Arduino sends the word's audio files to a speaker.

One way of tracking the processes in the muscles is to measure the electrical activity of the muscles. Electromyography (EMG) records electrical activity in the muscles. Surface electrodes glued to the skin surface can lead to the combined activity of many motor units. The integrated EMG signal obtained by the rectification of the recorded EMG signals is proportional to the force exerted during muscle contraction and can be used in practice. The amplitude of the integrated EMG signal is ultimately proportional to the number of motor units activated. As muscle strength increases, more and more motor units are activated (recruitment), so the amplitude of the EMG signal increases.

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David Rigmand | Brediland Primary | Renfrewshire | Scotland

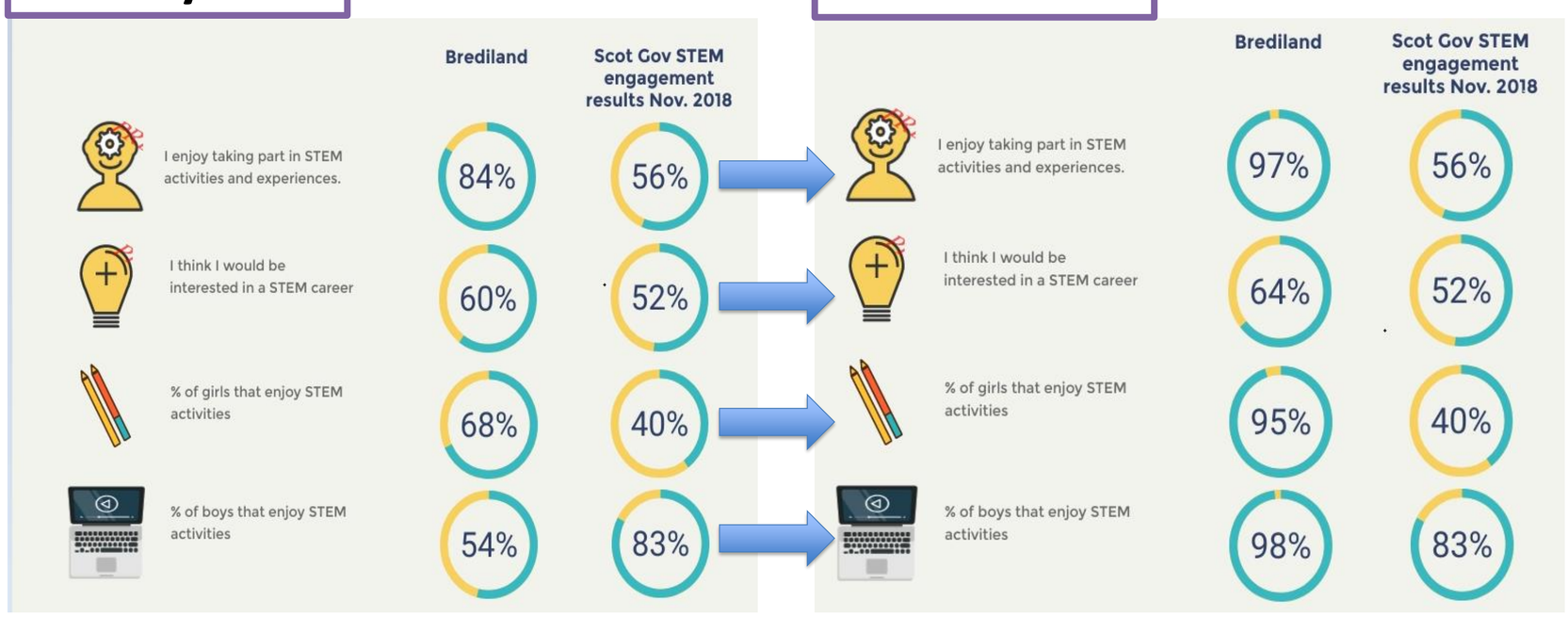
Can we power classroom objects with renewable energy?

Brediland Primary School in partnership with Glasgow Caledonian University

This project – funded by the Royal Society - has taken innovative approaches in achieving excellence and equity through partnership working with an ultimate purpose of achieving a successful learning community. The children involved developed a wind turbine, alongside Glasgow Caledonian University, to explore the question: 'Can we power classroom objects with renewable energy?' A unique partnership in which a team of five Masters students at the university created a wind turbine with Brediland Primary as their final university project; an excellent opportunity to create links for the children to education and the world of work.

This project was also designed to be sustainable for future generations at Brediland as the wind turbine can be be redesigned. New groups of children each year will experience this rich input of cultural capital alongside an insight into multi-disciplinary STEM careers, working in partnership with engineers, contributing to a successful learning community in a progressive manner. Primary 6 children (age 10-11) participated in so many exciting experiences; the image to the right shows the children investigating the most suitable shape, angle and optimum number of blades to generate the highest voltage output from a model Scottish Power wind turbine.

BREDILAND PRIMARY SCHOOL



The recent 'Education Scotland Corporate Plan 2019-2022' document highlights that not only must we support children in applying skills to add value to learning but we must also encourage innovative ways of working 'in partnership with all our stakeholders to deliver the best possible outcomes for all learners'. This inclusive partnership approach has allowed all children involved to participate in invaluable learning experiences and has inspired them to learn more about the STEM subjects.

A partnership approach connecting STEM at all levels has ensured positive engagement. We aim to share this practice, working from early years onwards whilst driving forward the transition of STEM to STEAM, ensuring positive destinations for our young people. Follow us: @BREDILANDSCHOOL

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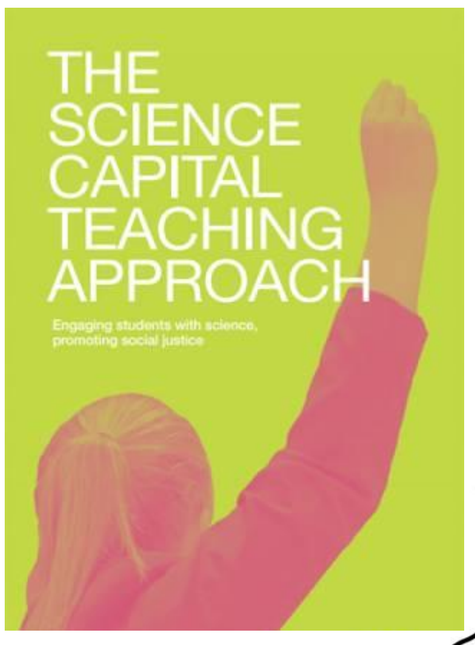
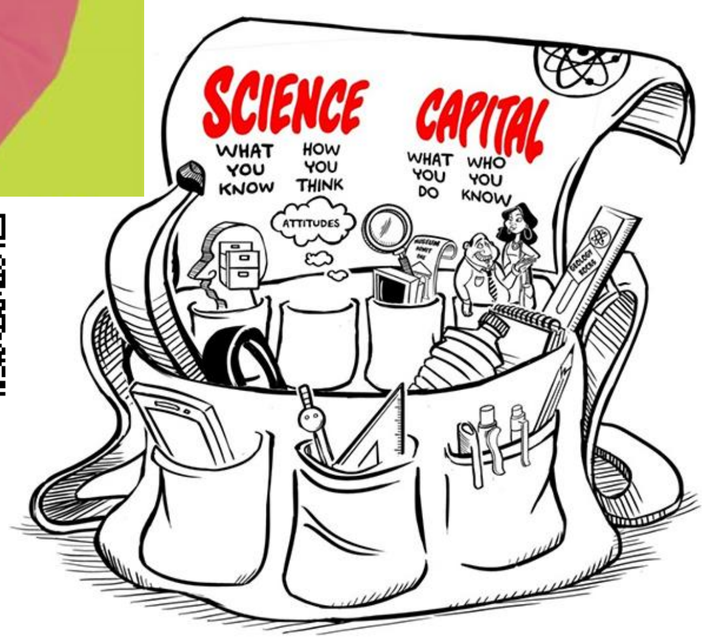
Paul Tyler| Mearns Primary School | Glasgow | Scotland

Science Capital in a Primary Setting



Developing families Science Capital

Science capital can be thought of like a bag, containing all the science-related knowledge, attitudes, experiences and resources that you acquire through life. How full your bag is determines how likely you are to continue studying science.



Our school have adapted the Science Capital Teaching Approach to be used in a primary school setting.

We identified strategies teachers could use in class and areas we could develop across the school community.

Developing partnerships has been central to developing the Science Capital of our pupils. We have engaged with businesses, industries and academics to improve our STEM programme.

We have developed sustained, meaningful partnerships rather than one off visits, or activities.

Partnerships made through our STEM and Developing the Young Workforce Programmes.

Our Pupil Science Lab Technicians have an important role supporting science across the school. They assist teachers, organise resources, deliver workshops to classes and teach parents.

Our high-altitude balloon project brought the whole school community together and provided an experience that pupils will never forget. It is definitely something we will repeat in the future.

At Mearns Primary School we have seen a marked increase in the interest of our pupils, and their families, in science. Many more of them are talking about continuing to study science and have an interest in pursuing science related careers.

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Miguel Hernández Portillo | I.E.S. Victoria Kent | Málaga | Spain

Physics and Chemistry´s hands on activities for a blind student

OBJECTIVE: To create materials that facilitate the access of a blind student to the curriculum of Physics and Chemistry in year 8, modifying the teaching-learning process.

RESOURCES:

- HUMAN RESOURCES: Physics and Chemistry teacher, monitor, two Special Needs Teachers and the student's parents.
- TECHNOLOGICAL RESOURCES: provided by the Spanish National Organization of the Blind.
- MATERIALS RESOURCES: These are simple and inexpensive materials used to design all activities.

ACTIVITIES: All activities (30) have been made with easy-to-find materials. Our student has acquired information through direct experimentation by manipulating many objects with their hands. The activities, which have been adapted to our student´s disability, have been designed for a slower learning pace and have been repeated every so often so that the student reinforces what they have learnt.

The student has been assessed orally on the practical activities that they have carried out each term throughout the school year.

Conclusion:

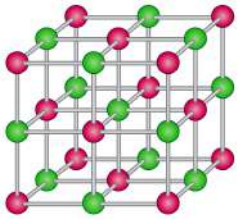
These activities have allowed our blind student to understand concepts of science, to increase their motivation and make many discoveries and to strengthen their learning with a slower and more repetitive learning rhythm.

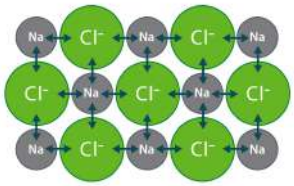
Anna Stiby and Daina Lezdins | Nacka gymnasium| Nacka | Sweden

Making chemical bonding crystal clear

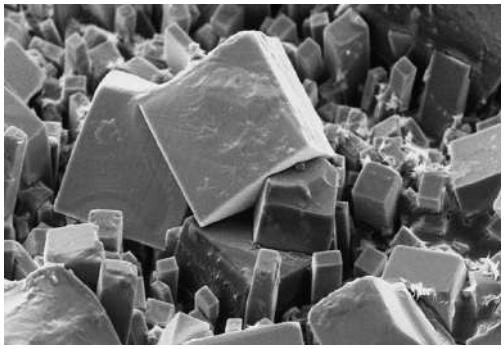
Chemical bonding is one of the most important topics in chemistry at upper secondary school. However, students and teachers generally find it to be a challenging topic. Usually, chemical bonding is taught using models. In this project, we combined theoretical activities with the practical growing of crystals.

The three different types of crystals that were cultivated were fast-growing crystals of urea (A), which could begin growing after 15 minutes, and two slower-growing types of crystals, those of ammonium dihydrogen phosphate (B) and of potassium aluminum sulphate (C).





The pictures above show different models of a sodium chloride crystal. The electron microscope picture below shows what a sodium chloride crystal looks like in reality. We discussed with the students different ways of presenting crystals and ionic bonding.



Conclusion: A combination of theoretical activities, such as models, reviews and worksheets, together with the practical growing of crystals, improved the students learning of chemical bonding and crystals.

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It's all in our Hands!

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A collection of experiments dealing with the hand

Science on Stage Switzerland

Dr. Sacha Glardon, Gymnasium Bäumlihof, Basel and
Thomas Scheuber, Gymnasium Kirschgarten, Basel

The Human Hand

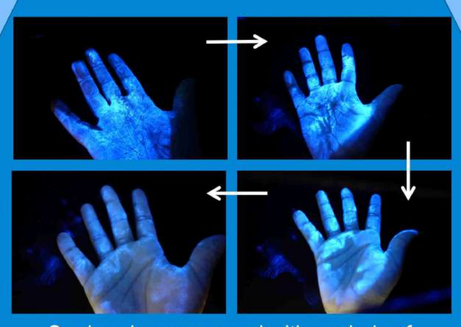
Our hands are fascinating precision tools. We grasp, indicate, touch, write, communicate and work with our hands. The upright walk freed our hands and they developed into fine motor and multifunctional gripping organs. And the brain's evolutive development (cerebralization) has progressed in parallel to ensure the sensory and motor performance of the hand.

Project Description

With various experiments we try to approach the phenomenon "hand" from different angles. The experiments include complex anatomy, gripping force, sensory functions, genetics, physiological processes as well as behavioral biology and cultural issues. Various aspects and basic concepts of biology are addressed.

Hygiene

With how many people did you shake hands today?



Our hands are covered with myriads of bacteria and we wipe them of everywhere.
Hygiene and proper hand washing are shown with flueorescent substances

Grip Strength

The grip strength of our hands is essential in many tasks of our everyday life.

Hand strength and finger strength are measured with hand dynamometers and are displayed in relation to size and gender

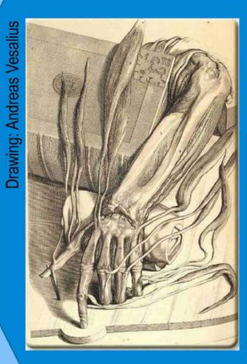
Gestures

What does the gesture in the middle of the poster mean?

Gestures are often dependent on the culture. There are only a few hand gestures that are universally understood.
Picture memory of gestures with their different meanings

Tendons

Only a few muscles are located in the hand itself. Muscles in the forearm are responsible for most hand movements. They are connected over tendons with the finger bones.



Bend your middle finger and lift the other fingers one after each other.

Ethology & Culture

Genetics & Evolution

Anatomy & Physiology

Sensor & Motor Function

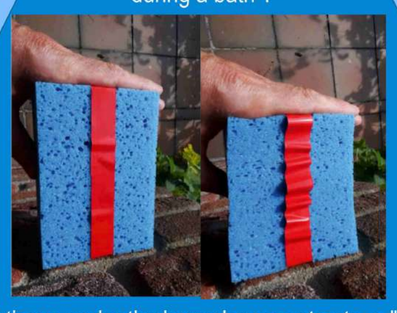
Handedness

Why are there right- and left-handed people? Do left-handers have more disadvantages in daily life?

Right-handed people are more common in all cultures and countries (about 90%).
Twin research: every 4th identical pair of twins shows 1 right-handed and 1 left-handed person
The handedness and the laterality can be investigated with simple tests

Skin

Why do our fingers wrinkle during a bath ?



If the tissue under the horny layer contracts, a "break in symmetry" happens. If you want to grab wet objects, it's beneficial to have profiled fingers:
Shriveled skin increases the friction
> evolutionary adaptation
Model with sponge and tape

Homunculus

On the cerebral cortex, the exact representation of the the whole body can be found: One gyrus mapping the somatosensory and another one the motor homunculus.

The proportions of the "homunculus" (= Latin: Little person) result from the respective biological significance.
Identify the receptors for cold and touch on the hand

Perception

Neuronal plasticity can lead to a misperception: A plastic hand is perceived as one's own.

The simultaneous stimulation of a plastic hand and your own hand creates an illusion.

Collection of Experiments

- Measuring gripping and finger force: Correlation with gender and size
- Thermography: Measuring thermoregulation with a thermal imaging camera
- Muscles and tendons in the hand: Agility
- Papillary pattern of the fingers: Analyzing individual fingerprints
- Ratio: index finger : ring finger (D2 : D4) shows fetal testosterone levels
- Phenotypic features on the hands and their inheritance pattern
- Test your handedness and laterality (i.e. left-right preferences)
- Hand Tapping Tests: Investigation of the coordinative performance
- Test the motor program of the handwriting
- Determine the number of cold receptors on the had
- Illusion experiments with a mirror

Future prospects & Ideas

- Robotics (in collaboration with physics)
- Neuroprostheses (in collaboration with physics)
- Bionics (in collaboration with physics)
- Reaction tests (in collaboration with physics)
- Chirality (in collaboration with chemistry)
- Healing hands - alternative medicine
- Graphology
- Fast finger movements in the music
- Braille
- Comparison of primate hands
- Sign language

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SCIENCE ON STAGE 2019 CASCAIS

THE EUROPEAN NETWORK FOR SCIENCE TEACHERS

15 students |Faden TOPUZ |Ferhat Uzunlulu Secondary School | Isparta| Türkiye

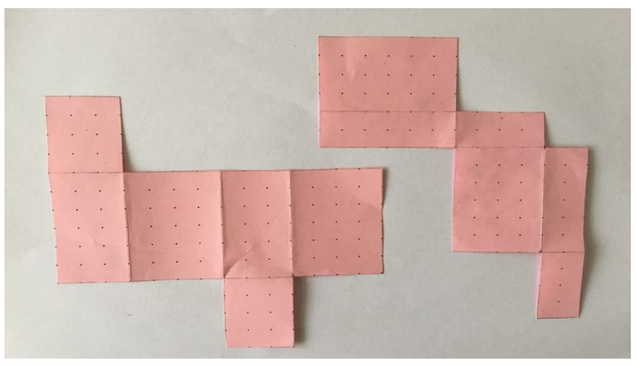
GEOMETRY BY GEOGEBRA

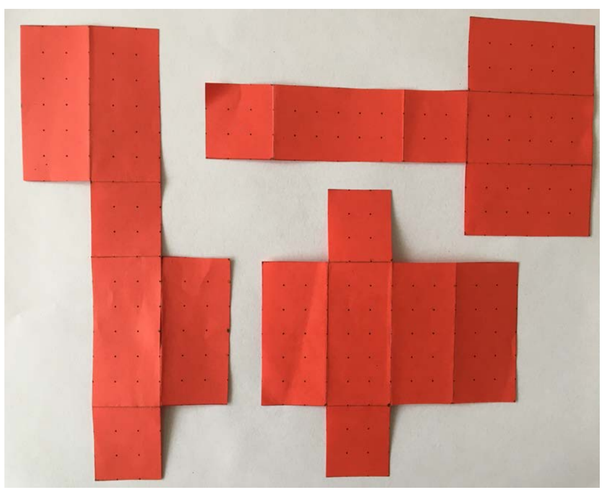
The fact that the drawing of the teachers on the board is not possible to be correct causes misconceptions while learning the new subjects.

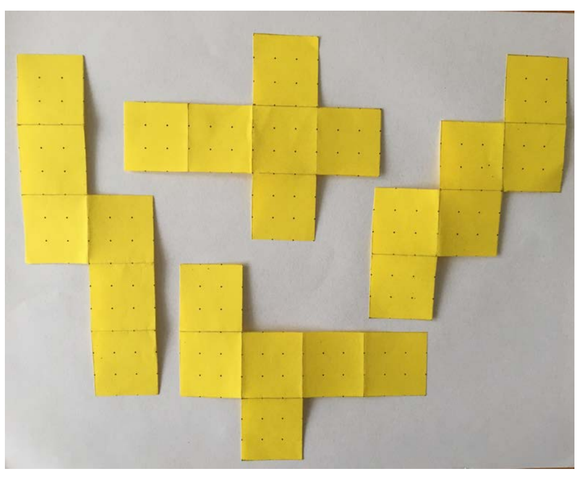
Geometry teaching becomes difficult with the wrong visualizations that settle in the mind. When these situations are taken into consideration, it is seen that with the dynamics of GeoGebra, students can realize the correct geometric formations in the applications in the project.

In this way, it was determined that the students could define the concepts correctly.

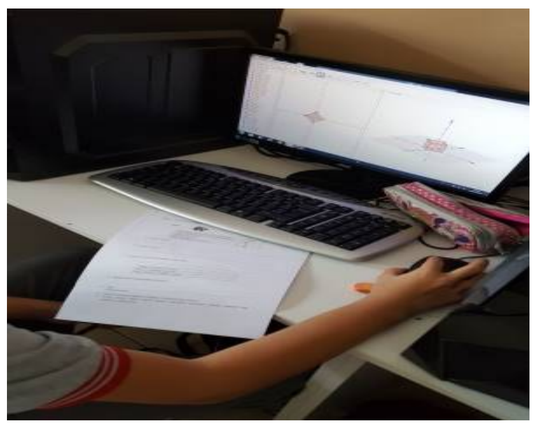
The support of the GeoGebra application with concrete material formations has gone beyond teaching to use only computers.

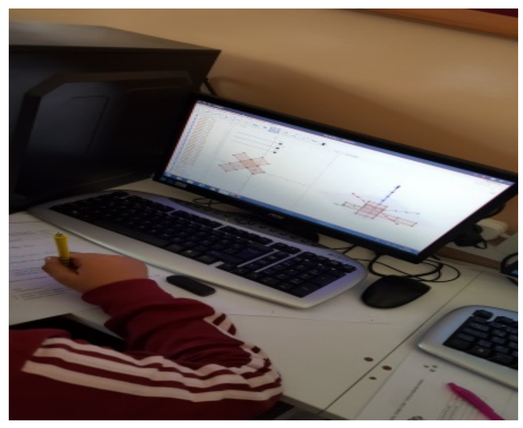




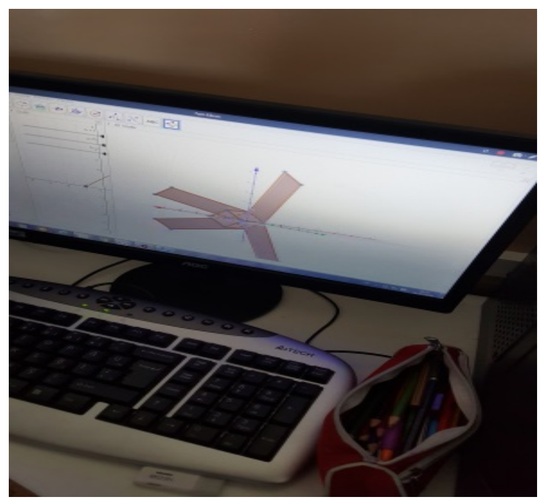


APPLICATION PROCESS





- The use of Geogebra was guided by the worksheets in the discovery of concepts. Screen recording program recorded each student's own process. Dynamic materials were drawn to isometry papers and concrete materials were formed.



In my classroom applications

I have observed that the use of GeoGebra in geometry

- teaching attracts students' interest,
- reduces their anxiety about learning and
- increases their motivation.

Conclusion: Students have stated that they could learn the expansions of objects (by going out of common drawings), drawings and their features with GeoGebra application, they could check the accuracy of the solutions by means of software, they have had the opportunity to process geometric shapes in more detail and they have had the opportunity to use computers in the course. It is aimed to continue the project on other subjects of the geometry and at other levels.

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THE EUROPEAN NETWORK FOR SCIENCE TEACHERS

Sarah Eames | Sandfield Close Primary School | Leicester | England

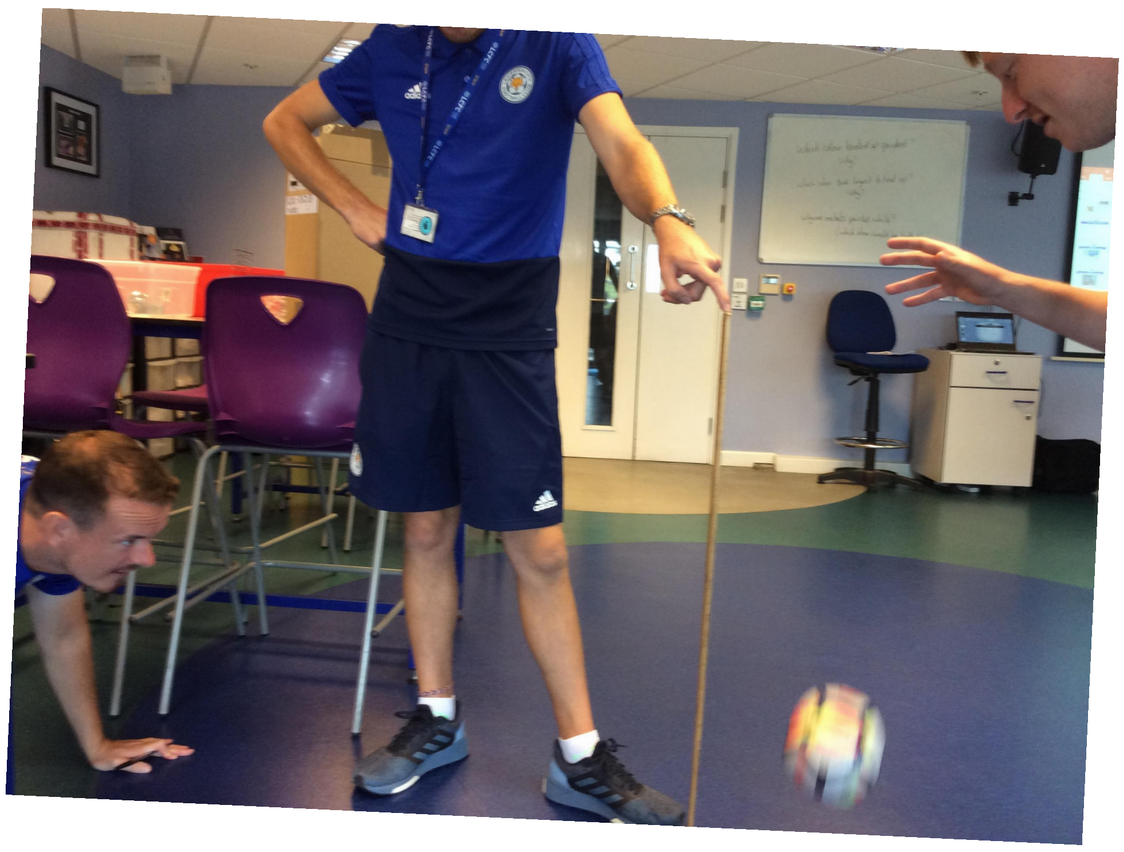
Premier League Primary Stars Primary Science Project

Linking football, space and working scientifically.

This is a series of lessons that encourages children to be curious about the world around them, in this case using football and space as a context. What materials make a football stadium? Why are they used? Can children design a comfortable chair? Football Clubs can grow beautiful grass pitches on earth, but what would happen on Mars? Children solve this in **Pitch Perfect,** this involves controlling variables, keeping records for several weeks, comparing plants and producing a conclusion.

Other lessons include:

- **Be a Sport** - classifying and sorting a variety of sports, it also encourages children to create a simple game looking at materials and creating rules.
- **Feel the pressure -** an independent investigation into the effect of ball pressure on bouncing.
- **Match Fit -** how astronauts and footballers have to prepare to perform.
- **Get a Grip -** investigating friction and gravity.
- **The Roar of the Crowd** - using dataloggers to investigate sound.
- **Kick Off, Lift Off** - exploring how a ball is kicked and making and launching a rocket.



A collaborative project with the Primary Science Teaching Trust, the National Space Centre and Leicester City Football Club's Community Trust to inspire children and create a realisation that science is all around them.

@sarahpurplee

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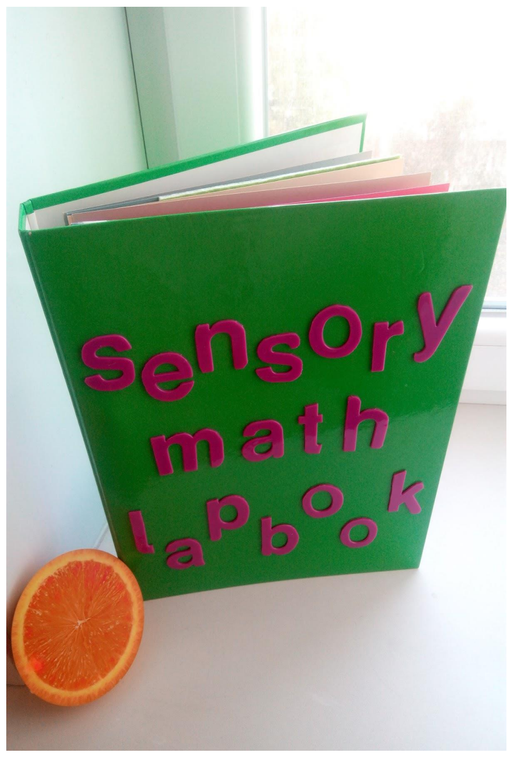
THE EUROPEAN NETWORK FOR SCIENCE TEACHERS

Olena Kovalova | Secondary School №8 | Kramatorsk | Ukraine |

Sensory integration in mathematics.

Use of sensory analyzers at mathematics lessons in for training of fractions.

Sensory support has great importance for children with special needs. Visual analyzer, followed by auditory and tactile analyzers have the most important value for activity. The purpose of using Sensory Math-Lapbook is to help students to improve their knowledge and understanding of the topic “Fractions” Using cards, objects with different surfaces and colors, we help students to be active in the classroom. Printed task tables are attached together with the visibility for each page of the Sensory Math-Lapbook. Students fill in them when performing actions with parts or writing the results.



Sensory stimulation helps a child to stay longer focused and attentive, as well as remember the new topic “Fractions” more quickly.

By teaching children with the help of Sensory Math-Lapbook , we have made this process easy, interesting, and creative!

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THE EUROPEAN NETWORK FOR SCIENCE TEACHERS

Olesya Likhachova | “V.G. Korolenko Kharkiv special school” | Kharkiv | Ukraine

Mind Games

The main goal of proposed extracurricular activities is increasing and consolidation children’s motivation to learn different subjects and improve their self-perfection. We have created a system of teaching methods, which developed students’ interest to STEM subjects and activate their cognitive skills.

The objective of the project: A lot of impressive educational games which have been used for the blind students (children with disabilities). Those innovations have developed the cognitive potential and creativity of the experimental group. Kids’ adaptation to the new materials and situation have been seriously improved.

An active collaboration of educator with the students during the preparatory phase has provided additional stimulus for the further work and motivated them to implement their own ideas.

The cognitive-developing games are a sort of “the golden key” to students’ activity, because a wish and a positive attitude is the best basis of motivation a child to work.