

mascil Final Conference

EDUCATING THE EDUCATORS

2nd conference on international approaches to scaling-up
professional development in maths and science education

7–8 November 2016 + 9 Nov Early Career Researchers' Day
in Freiburg, Germany



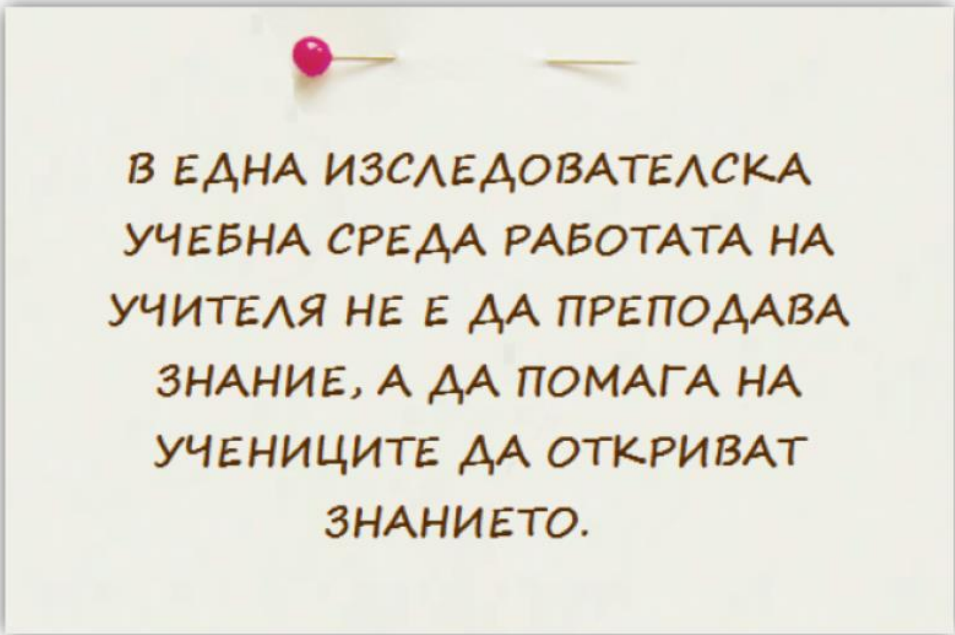
Финална конференция Educating the Educators II на проекта Mascil

Петър Кендеров, Евгения Сендова, Тони Чехларова

Преди финала...

Mascil и учителите

А какво се очаква от съвременния
учител?

A yellow sticky note is pinned to the background with a single pink pushpin. The note contains text in a brown, hand-drawn font.

В ЕДНА ИЗСЛЕДОВАТЕЛСКА
УЧЕБНА СРЕДА РАБОТАТА НА
УЧИТЕЛЯ НЕ Е ДА ПРЕПОДАВА
ЗНАНИЕ, А ДА ПОМАГА НА
УЧЕНИЦИТЕ ДА ОТКРИВАТ
ЗНАНИЕТО.

<http://www.math.bas.bg/omi/mascil/index.html>

Курсове за “размножители”



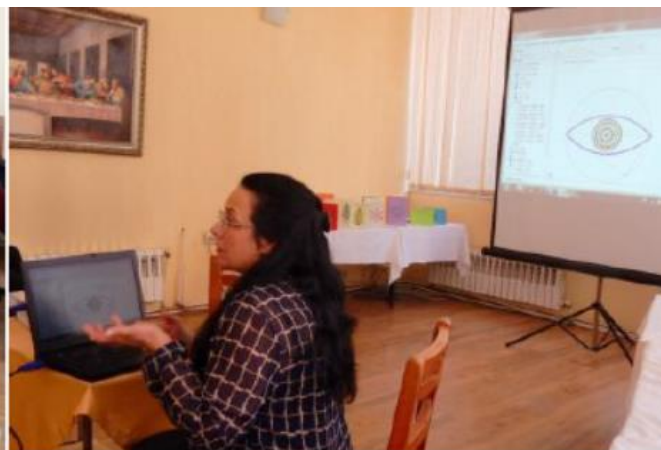
Размножители в действие

Don't preach facts, simulate acts!

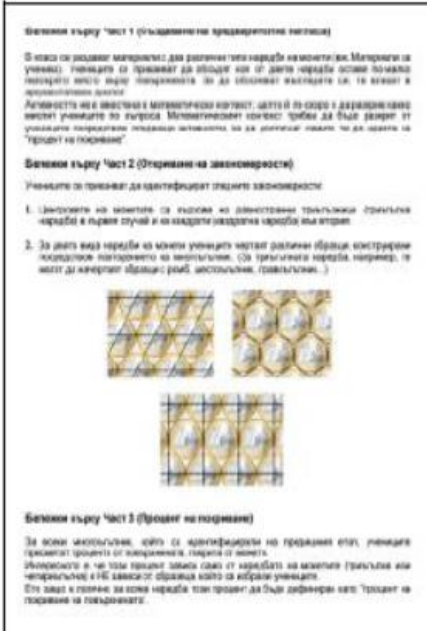








Обогатяване на партньорски ресурси



Ресурси от наши “размножители”

[illegible][illegible]

Задача 1. Составьте модель или сделайте макет конструкции плавильной лампы. Рассмотрите фото типа лампы на рис. 1, попробуйте сделать макет лампы. Чем не до конца развитая кристаллическая решетка в плавленном (аморфном) и более до развитой кристаллической решетке, почему плавленый макет лампы не горит. Подберите Алюминий для лампы (сделайте лампу, попробуйте и расскажите).



Вопросы к Конструкторской лаборатории по теме на тему: «Свойства металлов и сплавов».

Рассмотрите рисунок модели кристаллической решетки. Какие из металлов кристаллизуются по типу решетки? Какие из металлов кристаллизуются по типу решетки? Какие из металлов кристаллизуются по типу решетки? Какие из металлов кристаллизуются по типу решетки?

Вид решетки	Число атомов	Число связей	Число связей на атом
гранецентрированная кубическая	4	8	2
тетраэдрическая	2	6	3
ромбоэдрическая	6	10	1
гексагональная	7	12	0
фторидная	34	20	0

[illegible][illegible][illegible][illegible][illegible]

Представяне на собствени разработки в духа на Mascil



Семинар върху Mascil-ската задача на месец ноември, 2014

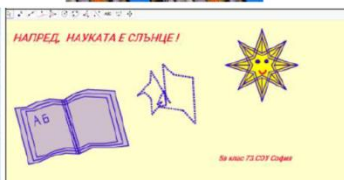
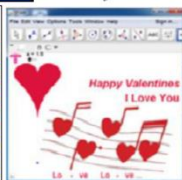
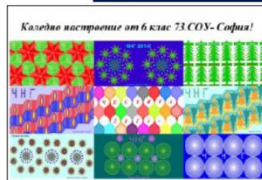
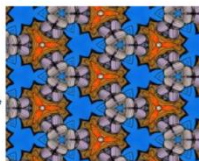
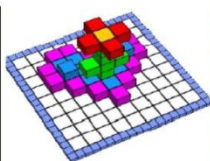


В ролята на застрахователи

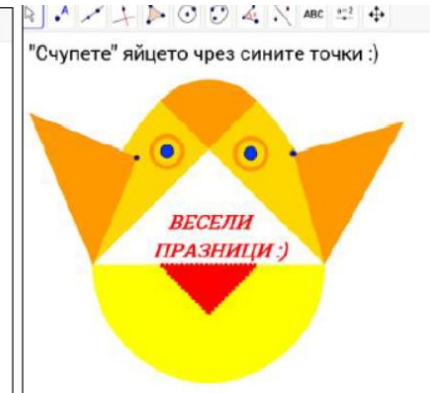
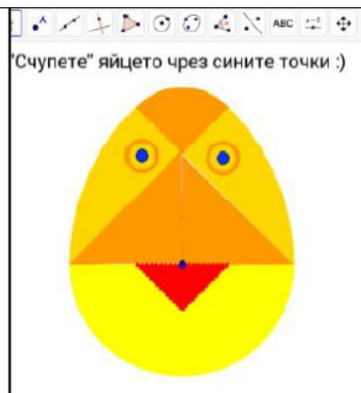


Вашите ученици в духа на Mascil

WP10_Case Study_Bulgaria



From explorations on the computer screen to the WoW





Исследователски подход на III и IV ниво



Инструментариумът

Инструментариум на MaScIL за професионално развитие на учители

Home Начини на работа Трудова сфера Изследователският подход и методики на ИПО

Добре дошли

Добре дошли в инструментариума на MASCIL, разработен в помощ на професионалното развитие на учители по математика и природни науки. MASCIL се стреми да подпомага учителите, желаещи да подобрят своята методика чрез възприемане на практиките на изследователския подход в образованието (ИПО), създаващи връзка с трудовата сфера.



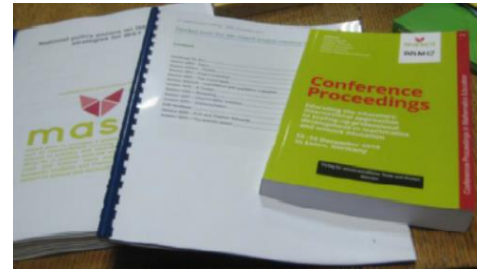
MASCIL PD TOOLKIT



Срещи с Националния съвет







Сътрудничество с партньорите по проекта



А една българска *Задача на месеца* се появява по испанската *TV*

<http://www.rtve.es/alacarta/videos/la-aventura-del-saber/aventura-del-saber-15-03-16/3523562>

La aventura del saber
De lunes a jueves a las 10.00h
[Portada](#) | [¿Qué es la aventura del saber?](#) | [Programas completos](#) | [Reportajes](#) | [Entrevistas](#) | [Series de cine](#)

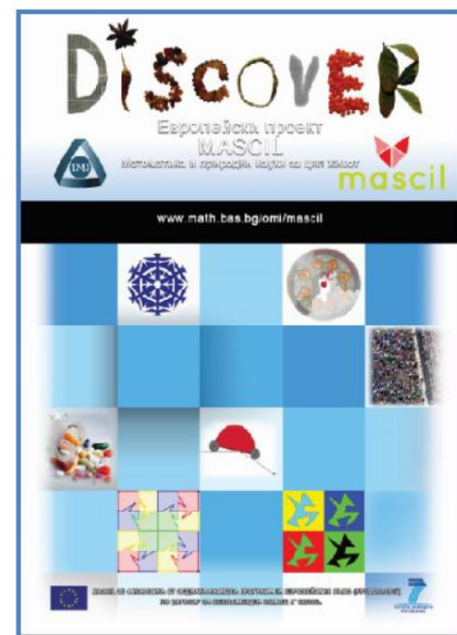
Working Problem

FRANCISCO JAVIER GARCÍA
Proyecto europeo MASCIL, Universidad de Jaén

Working Problem

Working Problem

Разпространяване на идеите на Mascil



Щанд в рамките на EMINENT



Project Evaluation

The mascil comprehensive evaluation aims to provide us with answers to the questions: What is/was the project impact? Were project goals achieved? The evaluation also serves to point out critical issues involved in implementation measures aimed at making inquiry-based learning (IBL) more widespread and to broadly connect mathematics and science education to the world of work (WoW).

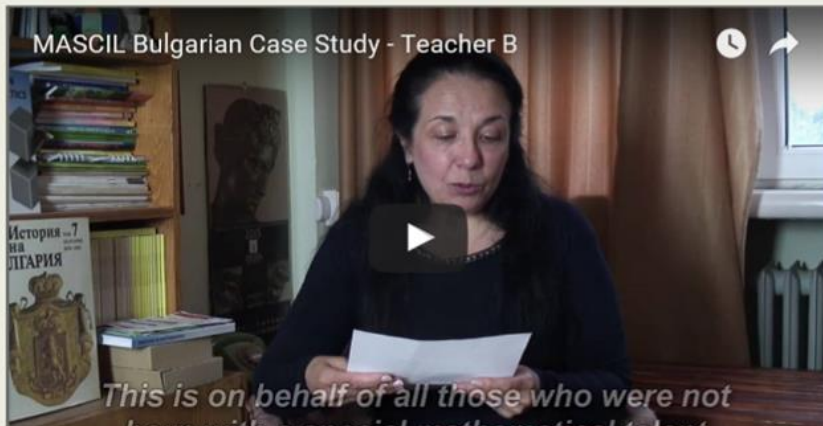
The mascil evaluation is twofold. The summative evaluation focuses on the overall impact of the implementation of inquiry-based learning and the connection of mathematics and science to the WoW in day-to-day teaching. The ongoing, formative evaluation targets the implementation and dissemination processes and allows for optimisation during mascil lifetime, as well as a deeper insight into the processes, thus contributing to project sustainability and the informing of future work.

The summative evaluation focuses on teachers involved in teacher training and IBL uptake during mascil. Main objectives of this evaluation are: Evaluating IBL implementation in partner countries at national and European levels; and gathering information to determine if change takes place.

MASCIL Bulgarian Case Study - Teacher A



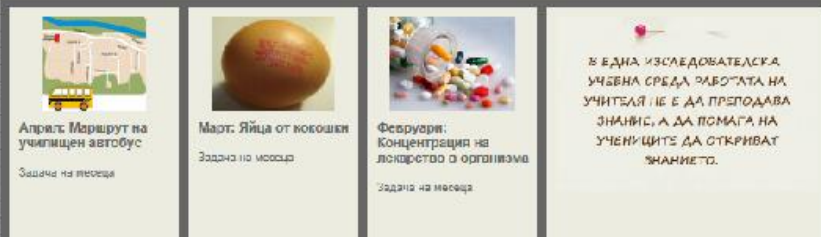
MASCIL Bulgarian Case Study - Teacher B



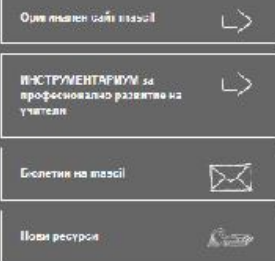
This is on behalf of all those who were not

Оценката

<http://www.mascil-project.eu/research/evaluation>



Пълните интервюта на доц. Евгения Сендова с Елисавета Стефанова и Стелиана Кокинова



<http://www.math.bas.bg/omi/mascil/index.html>

Първите отзиви

Гледах интервютата на Ели и Стела. Много ми допаднаха! Поздравявам ги! Нека да са все така творчески вдъхновени!

Благодаря и на акад. Кендеров, Тони и теб за всеотдайността ви към нас - учителите от проекта МАСКИЛ. Поздрави.

Нели Христозова

Поздравления за чудесните думи на колегите!

Боби Куюмджиева

Както винаги точни. Поздравления! Споделям мнението и на двете и се присъединявам към благодарностите за сайта и за подкрепата на Тони, Жени и Акад. Кендеров. Колеги, благодаря ви на всички за идеите и позитивизма, с който ме зареждате на срещите ни.

Нели Стоянова

Страхотни както винаги! Поздравления!

Без подкрепата на целия екип и специално на акад. Кендеров, Тони и Жени никога нямаше да стигна до нивото, на което съм сега и камо ли да взема 1 ПКС. Благодаря от сърце за оказаната подкрепа.

Поздрави: Динко

Сърдечни поздравления за поредните изяви. С пожелание към всички за много здраве и много нови успехи. Приятно ми е чета за успехи на колеги и вашите отзиви.

Присъединявам се към казаното преди мен. С много приятелски чувства към всички.

Катя Марчева

Най-сетне и аз си напълних душата и прочетох с интервюто и репортажа!

Специални поздрави на Ели и Стелето! Специални поздрави и на всички ни!

Дани Петрова

И самият финал:
Educating Educators & Mascil







От прозореца на заседателната зала...













What Counts in Professional Development?

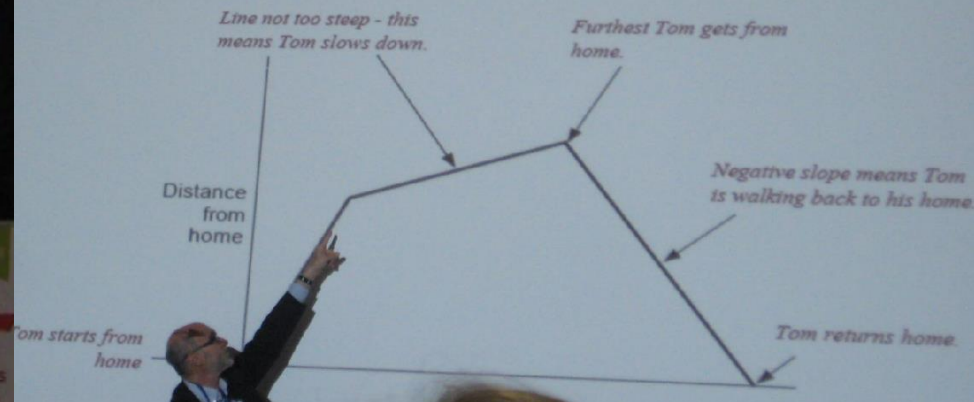
And,
Can we conduct PD at Scale?

Alan H. Schoenfeld
University of California
Berkeley, CA, USA
Alans@Berkeley.Edu



Students are given the chance to
annotate and explain...

A graph may end up looking like this:





Edit Rotate Delete



Нашия доклад: *Dynamic support of multipliers' personalization*





На постер-сесията



Българо-австрийската връзка





How a Bicycle Insurance Task connected Austrian and Bulgarian Students

Florian Stampfer^{1,2} Eugenia Sendova³

¹AECC Biology, University of Vienna,
²Department of Subject-Specific Education, University of Innsbruck
³ Institute of Mathematics and Informatics, Bulgarian Academy of Sciences




mascil – mathematics and science for life

- promoting a widespread use of inquiry-based science teaching (RST) in primary and secondary schools
- connecting mathematics and science education to the world of work
- following a holistic approach by carrying out a variety of activities, including the development of materials and running professional development courses



Problem of the Month, November 2014

Bicycle Insurance

Every now and then a bicycle is stolen. Therefore, it can be convenient to have bicycle insurance. Some friends of your mother start a small bicycle insurance company, and they come to you for some advice regarding the following issues:

- What can be a convenient (and fair) way to calculate the group premium for bicycle insurance?
- What can be a convenient (and fair) way to calculate the compensation for a stolen bicycle?

Your friends assure that the company will have approximately 1000 customers.

Your advice should come in form of a document where you explain the calculations that need to be done, and where you also register how you came to make these decisions.



Variety of Approaches

Assumptions

- bicycle per household
- average price of a bicycle
- salary
- indemnification rate

Calculations

- bicycle thefts per day
- percentage of stolen bicycles in an area
- insurance premium
- indemnification

The project received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101019719. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101019719. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101019719.

Step 1: Individual Discussion of the Task

Austria

- 9th graders
- Technical Secondary College, Innsbruck
- focus on the description of the revenues and expenditures of the insurance company with simple functions
- manual on how to set up a bicycle insurance

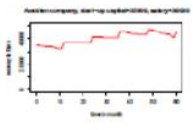
Bulgaria

- 11th graders
- Mathematics High School, Ruse
- assumptions and calculations for a profitable company
- slide to advertise their own bicycle insurance company




Step 2: Meeting of the Teacher Educators

- 5th project meeting in Vilnius, Lithuania
- different approaches in the two countries
- simple simulation programme to check the results of the students

Step 3: Exchange of Ideas as a Virtual Meeting

- translation of the reports/slides to English
- exchange of the reports/slides
- critical analysis of the reports/slides and discussion in each class
- preparation of questions

Virtual meeting (2.7.2015)

- introduction by the teachers
- questions and supplementary explanations by the students



Step 4: Continuing Exchange and Face-to-Face Meeting

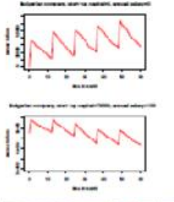
- adaptation of the simulation programme for the Bulgarian students

Bulgarian model

$$f(x) = 10000 \cdot \left(1 - \frac{1}{10000}\right)^x \cdot \left(1 - \frac{1}{10000}\right)^x \cdot \left(1 - \frac{1}{10000}\right)^x$$

$$f(x) = 10000 \cdot \left(1 - \frac{1}{10000}\right)^x \cdot \left(1 - \frac{1}{10000}\right)^x \cdot \left(1 - \frac{1}{10000}\right)^x$$

teachers



teacher education

- face-to-face meeting at the National Seminar on Inquiry-based Mathematics Education 2015 in Sofia, Bulgaria





До нови съвместни дейности!



Благодарим на всички за
вдъхновяващия принос!