



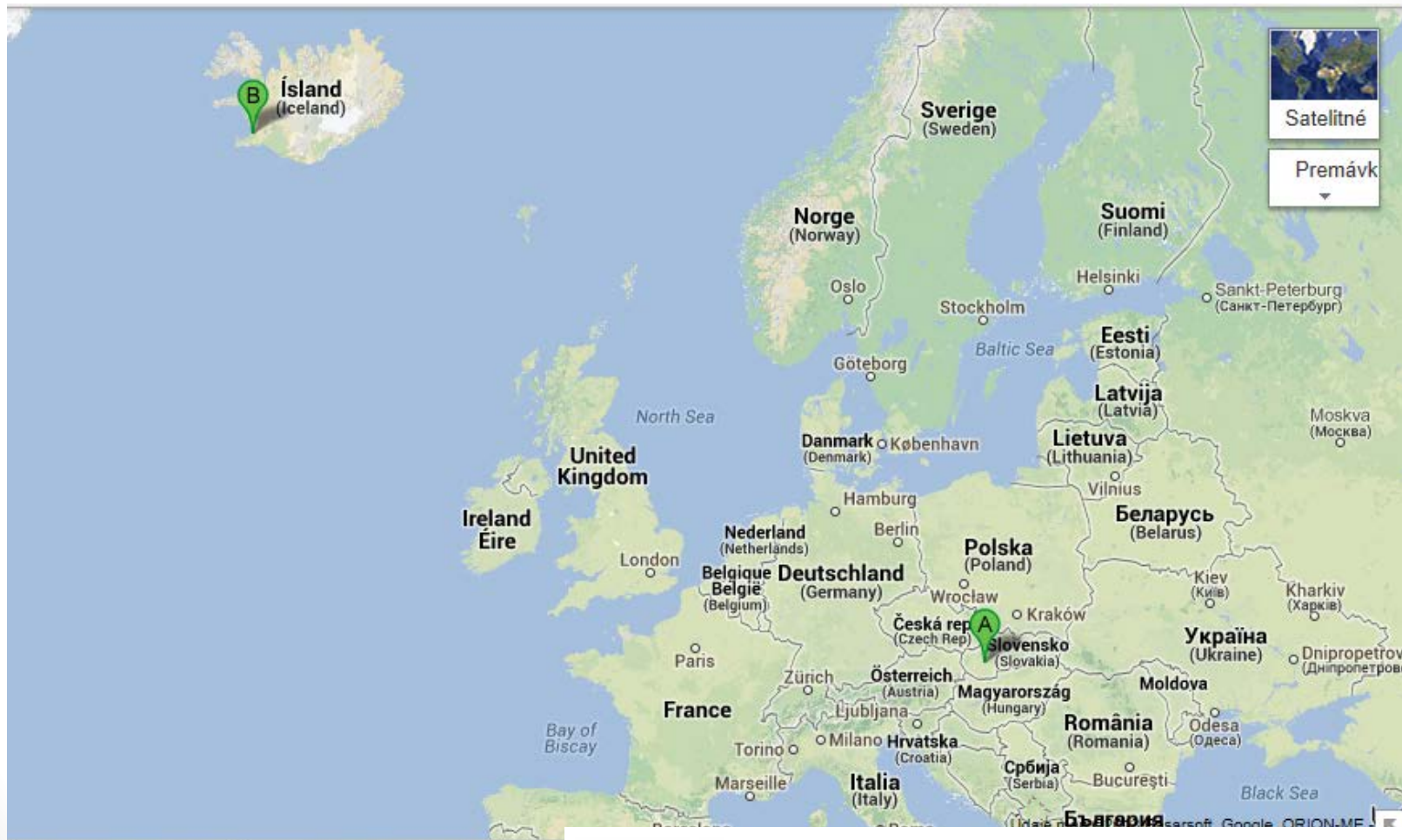
DYNAMAT IN SLOVAKIA

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Where are we?



Slovakia team

- Colleagues – university teachers
 - maths + physics, chemistry, biology
- PhD students – Theory of Maths Education
- Department of Mathematics
- Department of Computer Science

Slovakia Activities

- Project web
- Materials
- Courses with e-learning support
 - Pre-service teachers - 4 courses
 - In-service teachers – 4 courses

Project web

<http://www.dynamathmat.eu/>

Mathematics in the playground

Problem 7



In the picture is one of climbing frames in the playground, which is part of half-cylinder.

- What would be a developed area in the plane, if you draw the holes in the square grid?
- How many meters of rods would be needed for the construction of the climbing frame? The half-cylinder should remain consistent with its height.
- How many kilograms of yellow and red colour do we need for coating bars of climbing frame if we know the average price of a colour bar of 1m^2 .

Students wanted to find out how many kilometres of rods are obtained if all the bars of climbing frame are connected together.

COMPASS

Web page

<http://www.compass-project.eu/>

COMPASS

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Biodiversity

In this activity students will explore the evo...


Continue



Solar Car

Why are solar cars of interest in the EU and L...


Continue



Light bulbs

Why have traditional light bulbs been abolishe...


Continue



Food

This module explores the flow of energy in the...


Continue



Dangerous rain

When is rain dangerous? Where do floods come f...

Continue



Dangerous cold

Why do we need to try so hard to stay at the r...

Continue

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Food

- Which components of food are healthy and which are not? Why should we care about this?
- What are the effects of the individual components of food on the human body?
- What do our families eat? What are the likely effects of what we eat?
- How can we ensure that the energy we get from food is used up by the exercise we undertake?

Age of students 14-16

This module explores the flow of energy in the human body. Students explore the food they consume and the energy that they use in general day-to-day activity and in any additional exercise they do. They also look at the contribution that different nutrients make to the energy provided by different foods.

Students will eventually consider how they might eat a more balanced and healthy diet and how much exercise they might need to do to use the energy they consume in the food they eat.

Mathematics	Science
<ul style="list-style-type: none">• Proportionality• Percentages, fractions, ratios• Use of diagrams, charts and tables for data representation• Analysing data	<ul style="list-style-type: none">• Energy in food and energy flow• Meaning of calories, calorimeter• Carbohydrates, fats, proteins as nutrients and as components in food• Constituents of a balanced diet• Experimental work

link

PRIMAS

Web

www.primas-project.eu

PRIMAS

- Professional development
- Background

Processes of inquiry select all

- Exploring situations
- Planning investigations
- Experimenting systematically
- Interpreting and evaluating
- Communicating results

Issues for teachers select all

- Organizing student-led inquiry
- Using unstructured problems
- Developing concepts
- Asking questions
- Managing classroom interaction
- Supporting collaborative work
- Using assessment to promote learning

Discipline select all

- Mathematics
- Physics
- Chemistry
- Biology
- Science

PROFESSIONAL DEVELOPMENT

[▶ More articles](#)



Professional development modules
for inquiry-based, collaborative learning



PD Module 1: Student-led inquiry
How to ask productive questions for learning



PD Module 2: Tackling unstructured problems
Selection of mathematical techniques

TEACHING MATERIALS

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Animal footprint
Interpretation of observations



Learning to model
Guiding low achieving students



Hydratation of legumes
Teachers experiencing IBL as students

BACKGROUND

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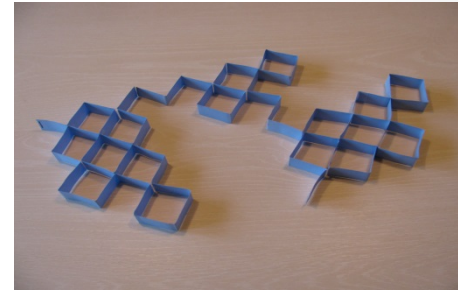


Pollen
Promotion of science teaching renovation



Fibonacci
For dissemination of inquiry-based education

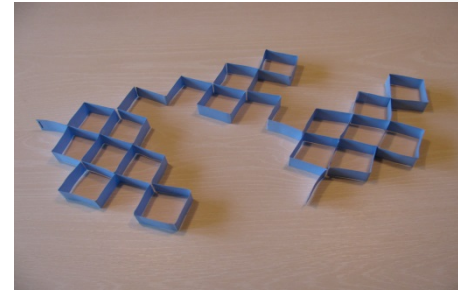
Mathematics B-day



Freudenthal Institute for Science and
Mathematics Education
Utrecht University
The Netherlands

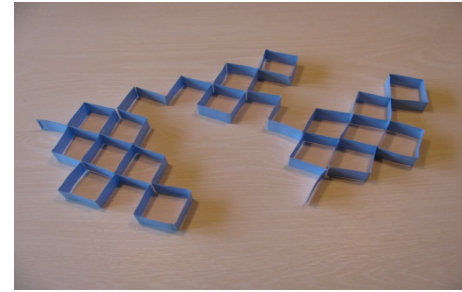
Henk van der Kooij

Mathematics B-day



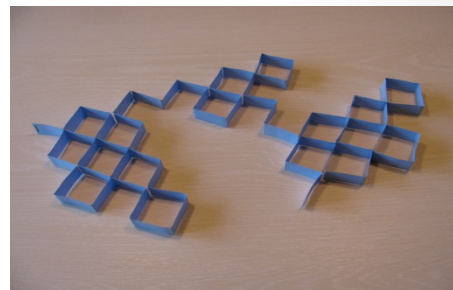
- open, divergent tasks in mathematical text (10 pages)
- mathematics investigation
- process skills in mathematics

Mathematics B-day



- team hand out one report
- communication within team
- using literature, internet, call a friend
- 7 hours of intense work

Mathematics B-day



Piloting in Slovakia

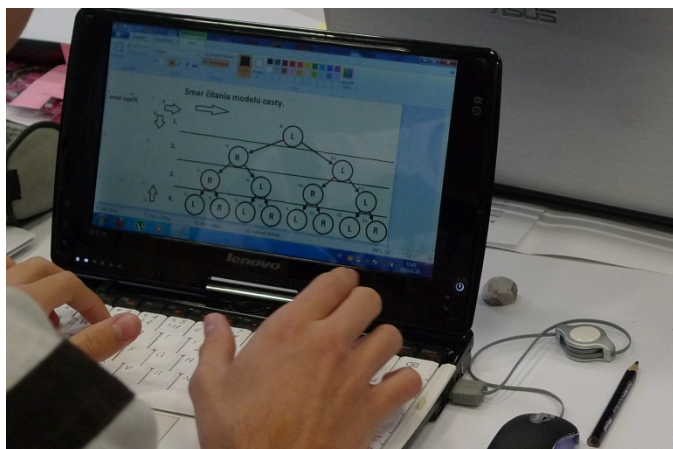
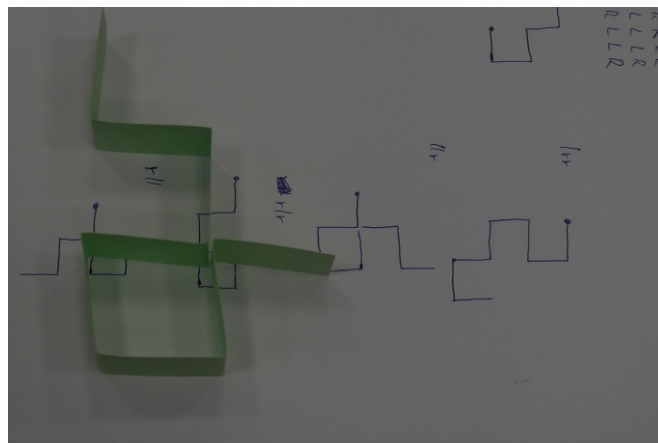
2011 Combinatorics games

- 40 pupils, 6 schools, 2 towns
- 10 teams

2012 Folding paper

- 117 pupils, 15 schools, 9 towns
- 29 teams

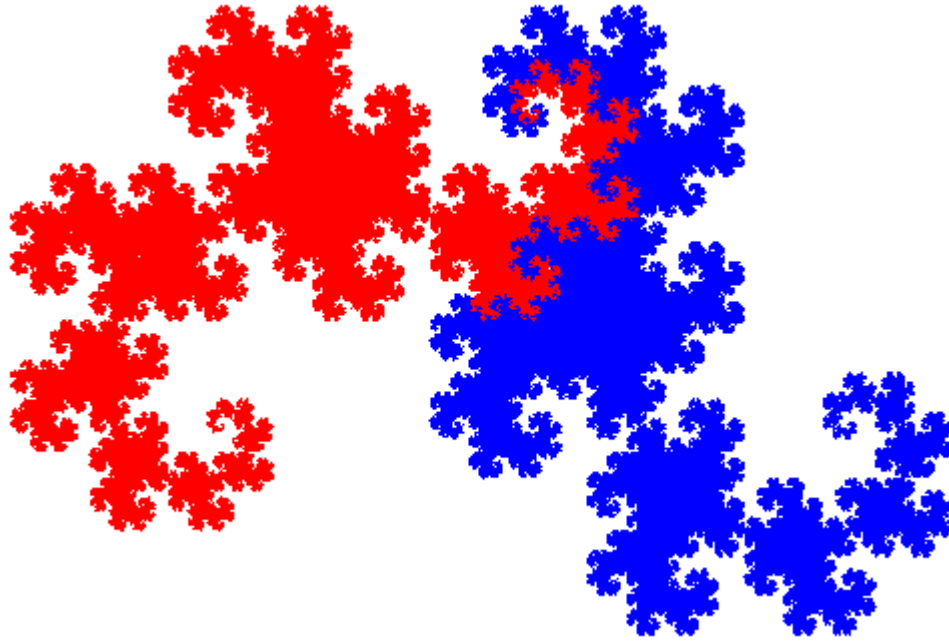
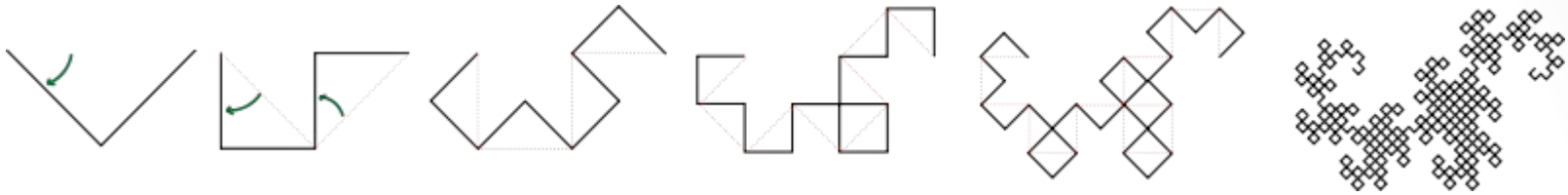
Mathematics B-day 2012

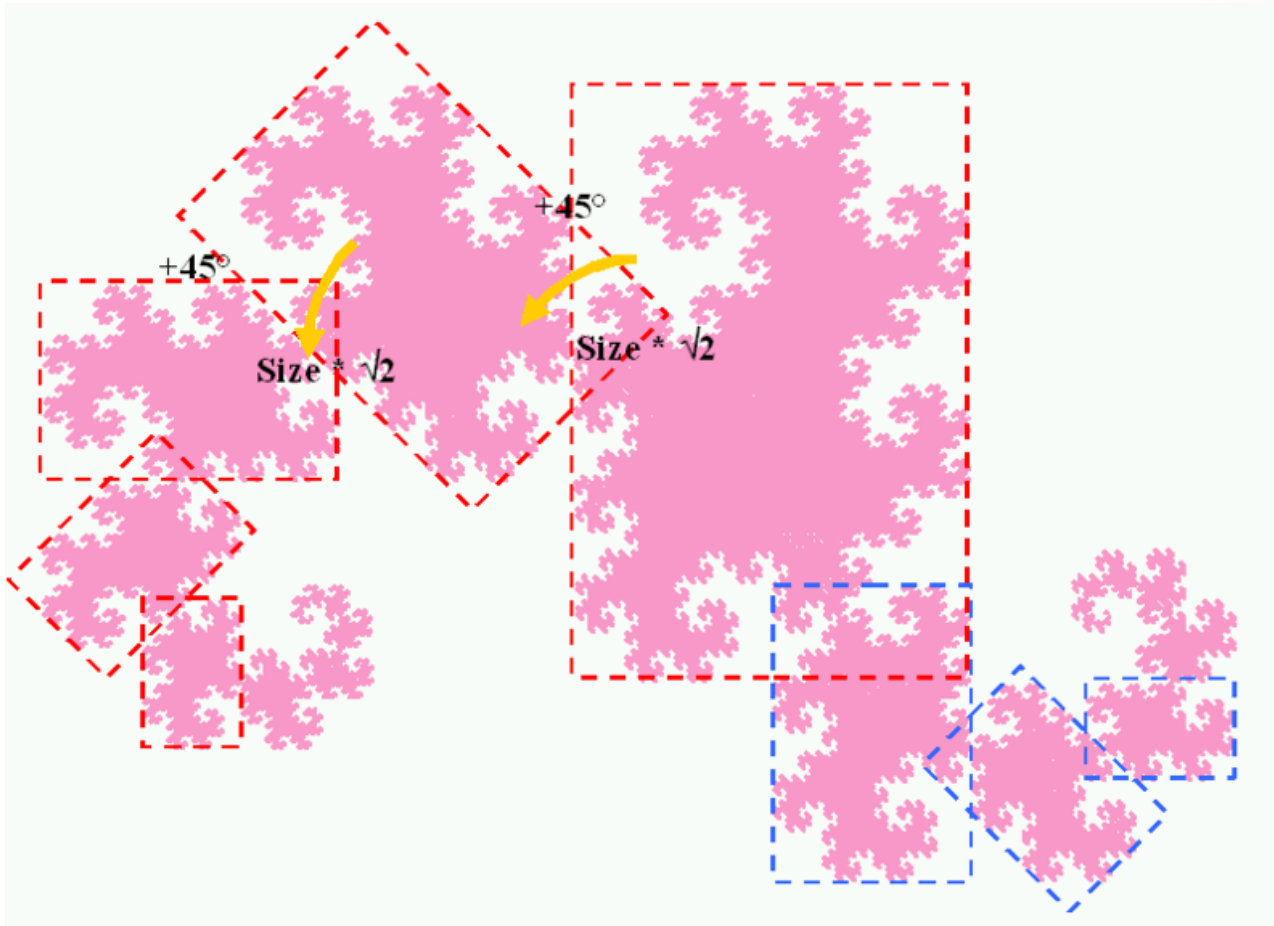


B-DAY applet

John Heighway 1960

Heighway fractal





Infinite number of similar parts.

Ratio of reduction is $\sqrt{2}$, rotation 45° and never intersects itself.

Thank you for your attention

