International Challenge on Informatics and Computational Thinking

Informatics Europe
Best Practices in Education Award 2015

Valentina Dagiene, Wolfgang Pohl

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Informatics @ School

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- ~ 1980: hardware, algorithms
- ~ 2000:
  - Using computers mislabelled „informatics“
  - Informatics education in final school years only (if any)
  - Attracting the „wrong“ students
- Tools needed to:
  - Improve and clarify the image of informatics
  - Promote informatics / computational thinking
  - Increase visibility of informatics at school
  - Attract the „right“ students

Contest as educational tool

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- A contest / challenge may
  - Motivate students
  - Inspire teachers
  - Set standards
- Inspiration: Mathematical Kangaroo
- Doing it right for informatics:
  - No prior knowledge of informatics required
  - „Do it digitally“: Participate online
  - Demonstrate that „It's Informatics!“

Let's solve some tasks …

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Ice cream

Kits:	A	Intermediates:	
Castors:	A	Seniors:	
Juniors:	A	Elite:	

At the LIFO ice cream parlour the scoops of ice cream are stacked on your cone in the exact order in which you ask for them.

What do you have to say in order to get the ice cream shown in the picture?

I would like to get an ice cream with ...

... Chocolate, Smurf and Strawberry!

... Strawberry, Smurf and Chocolate!

... Chocolate, Strawberry and Smurf!

... Strawberry, Chocolate and Smurf!

Let's solve some tasks …

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Loading Lisas

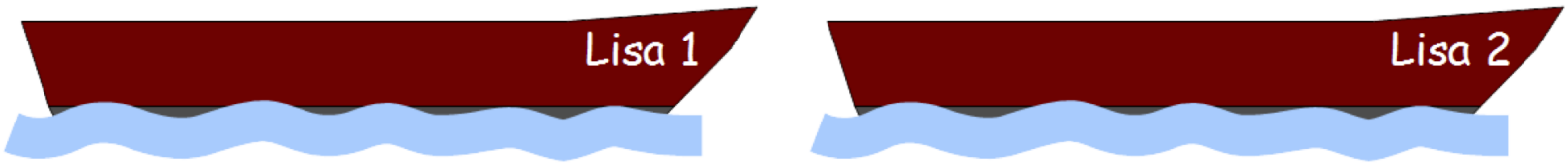
Kits:		Intermediates:	B
Castors:		Seniors:	A
Juniors:	C	Elite:	

Two fishermen own two boats, named "Lisa 1" and "Lisa 2". Each boat can hold a maximum cargo of 300kg.

The fishermen are given barrels filled with fish to transport. On each barrel is a number that shows how heavy the barrel is in kilograms.

You must make sure that neither boat is overloaded.

Drag barrels onto the two boats so that the maximum possible load of fish is carried.



Let's solve some tasks …

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Monster

Kits:
Castors:
Juniors: C

Intermediates: B
Seniors: A
Elite:

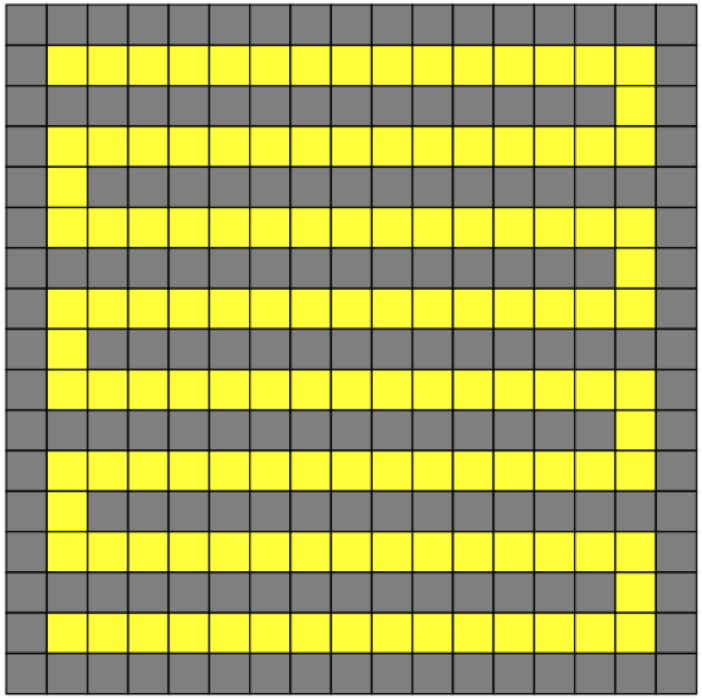
In the basement of a castle lives a monster. The monster is hiding in one of the yellow rooms. The monster can only stay in yellow rooms.

You want to catch the monster. Click on any yellow room. This will reduce the total number of yellow rooms by half. Click again on another yellow room, etc.

When there is only one yellow room left you have caught the monster.

Find the lowest number of rooms you need to click to trap the monster.

Save the lowest number of clicks required as your answer.



The Bebras Boom

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- 2004: First Bebras Challenge in Lithuania
- 2005: First Intl. Bebras Workshop in Lithuania
- Early adopters:
  - 2006: Estonia, Germany, Poland, The Netherlands
  - 2007: Austria, Latvia, Slovakia
  - 2008: Czech Republic, Ukraine
- 2014: 927.668 participants from 35 countries
  - 847.583 from 24 European countries + Israel
- 2015: up to 9 further countries expected to join

The Bebras Boom (2)

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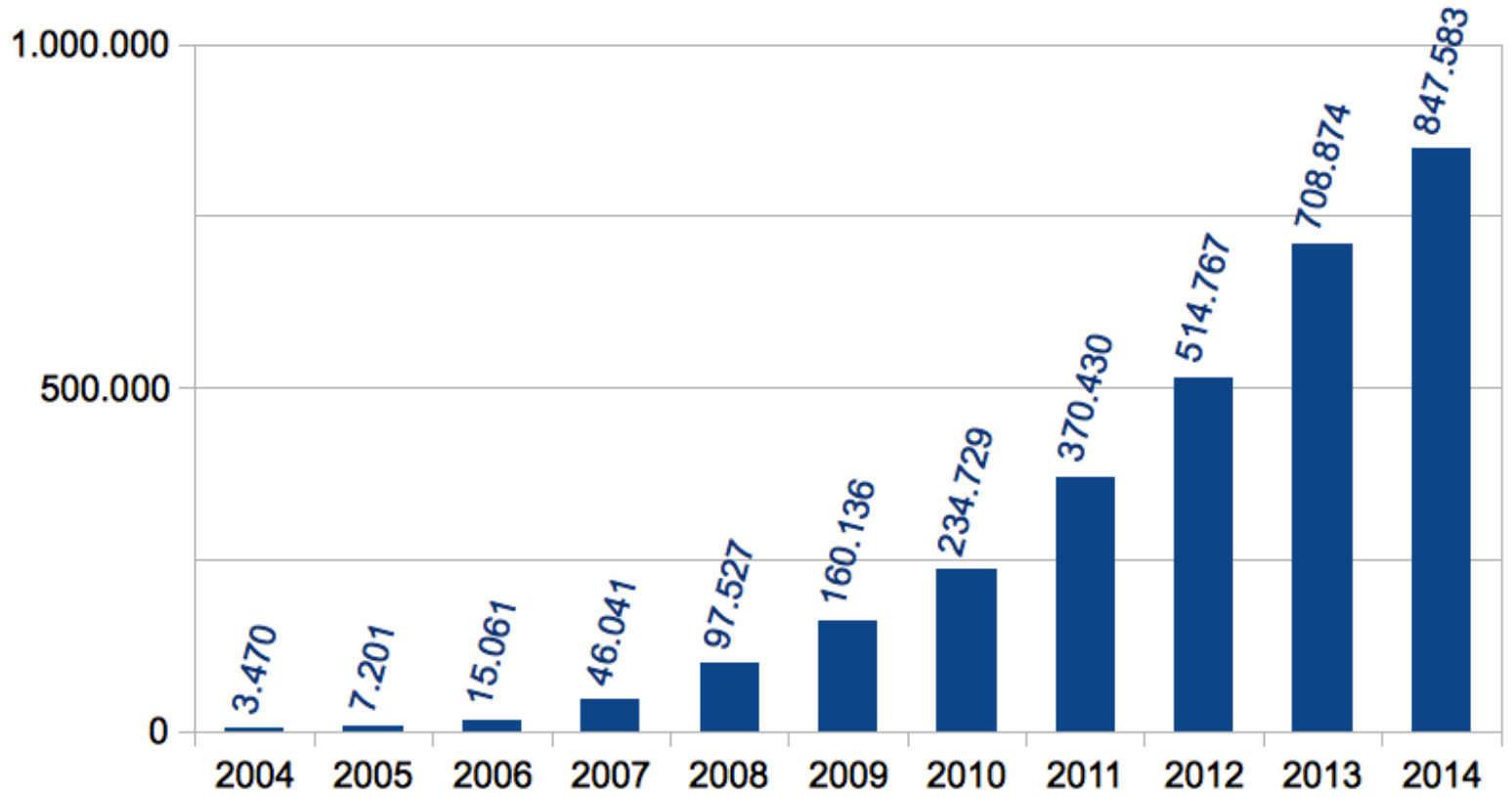

Participation in European Bebras Challenges

Bebras 2014: 927.668 p.

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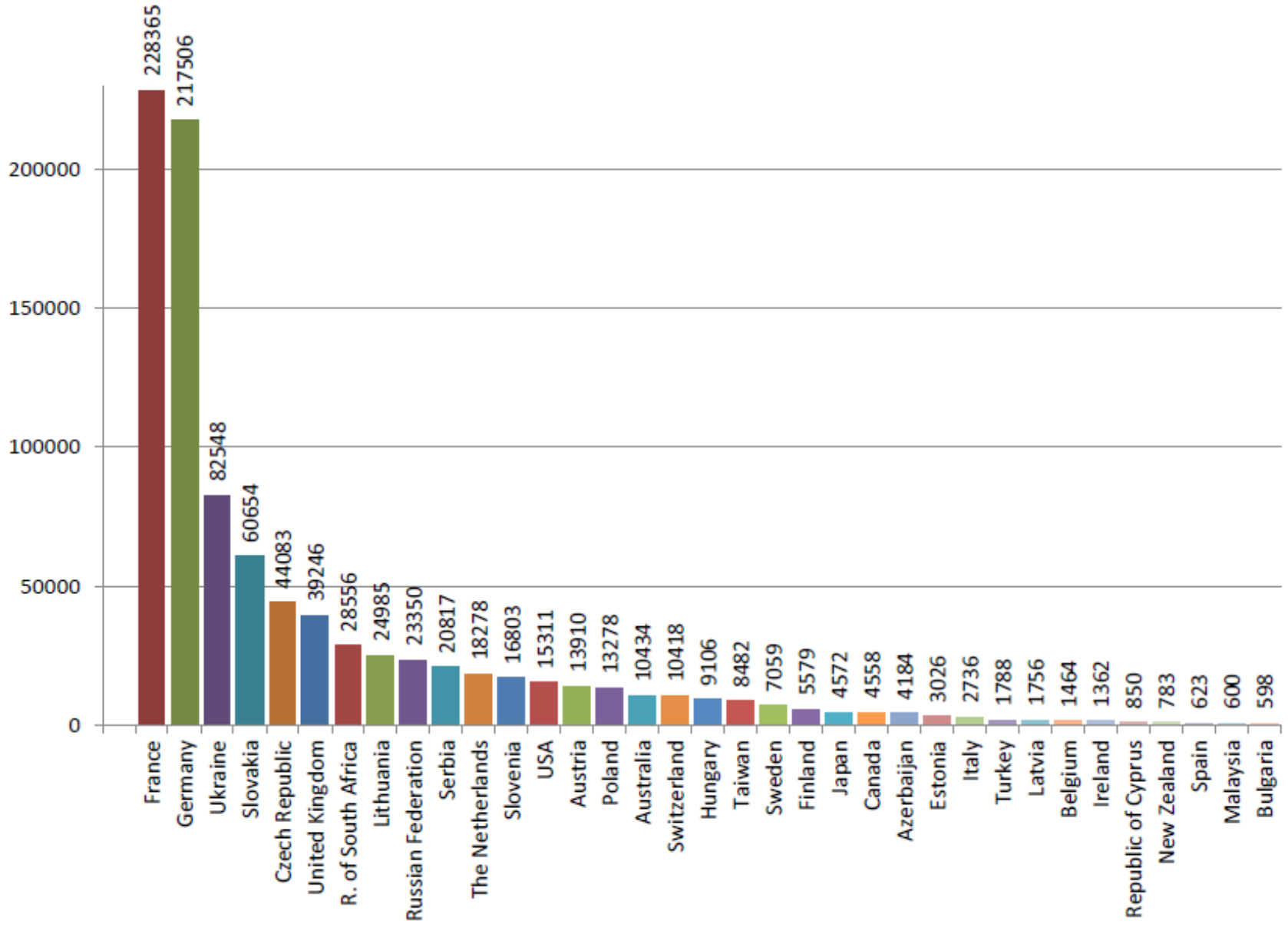

Beyond Participation

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- Task Booklets
  - Explain about informatics background: „It's Informatics!“

Beyond Participation

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- Task Booklets
  - Explain about informatics background: „It's Informatics!“
  - Remember „Loading Lisas“:

It's Computational Thinking:

Concepts - Decomposition (DE), Evaluation (EV)

In many areas of life, people like to optimise things – typically in order to maximise their profit. Computers are often used for optimisation: for finding the shortest route, for determining optimal loads like in this task, and so on. In some optimisation tasks, it can be sufficient to use a "greedy" approach: to take the most profitable step next. But in most interesting applications, greediness fails and does not deliver optimal solutions. More complex algorithms have to be used. Unfortunately, for many optimisation tasks it is only possible for Computer Scientists to develop algorithms to find close-to-optimal solutions.

Beyond Participation

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- Task Booklets
  - Explain about informatics background: „It's Informatics!“
- Contest Archives
- Bebras App (Austria)
- Educational Material based on Bebras tasks (Switzerland, …)
- Bebras tasks in school textbooks (Czech Rep., Germany, …)
- … even used in college-level teaching

Mission Accomplished?

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- Ideas of informatics presented to wide audience
  - Youth (incl. girls: up to 50% female participation)
  - Teachers
  - General public
- Visibility of informatics at school increased

EuroCampus

EUROCAMPUS
- Über uns
- Ihre Ansprechpartner
- Schulevents
- Schulverein
- Stellenangebote
- Eltern Aktiv
- Neu in Shanghai
- Anmeldung / Abmeldung

INFO
- Aktuelles
- Fragen & Antworten
- Thema Luft, Luftwerte, AQI
- Pressebereich

> Home > Services > Archiv > Projekte in der Sekundarstufe > Schuljahr 2014 / 2015

266 Schüler der Sekundarstufe nehmen am "Informatik-Biber" teil

Zum dritten Mal haben Schüler aus den Klassen 6 bis 11 der DS Shanghai EuroCampus am "Informatik-Biber"-Wettbewerb teilgenommen. Insgesamt kniffelten 266 Schüler, im Team oder alleine, an den Informatikaufgaben. 20 Schüler erreichten mindestens 170 Punkte. Yang Xu und Eloy M. de Andrade lösten die Aufgaben im Team komplett fehlerfrei und machten 216 von 216 Punkten.

Eine Liste der Schüler mit mehr als 170 Punkten steht hier als Download zur Verfügung.

Herzlichen Glückwunsch an alle!

IHR ANSPRECHPARTNER

Robert Meyer
Lehrer
Fachleitung Mathematik

E-Mail senden

PROJEKTE DER SEKUNDARSTUFE

Hier kommen Sie zur Projektübersicht

Mission Accomplished?

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- Ideas of informatics presented to wide audience
  - Youth (incl. girls: up to 50% female participation)
  - Teachers
  - General public
- Talents detected
  - Teachers use Bebras to promote informatics courses
- Visibility of informatics at school increased
- Vivid community of Bebras organisers founded
- Educational research stimulated
  - Many publications related to Bebras, by members of Bebras community
  - International research cooperations

Bebras: Informatics is fun!

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Thank you for awarding us!
Бобер