



# **INFORMATICS EDUCATION AND CONTESTS IN FINLAND**

**7th BEBRAS workshop  
Druskininkai, Lithuania, May 11th 2011  
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# FINNISH SCHOOL SYSTEM

- optional pre-school
- compulsory 9 years comprehensive school
  - primary school (grades 1-6, class teachers)
  - secondary school (grades 7-9, subject teachers)
- upper secondary school (2-4 years)
  - concludes with nationally graded matriculation examination
- vocational studies

		age
upper secondary school	vocational school	18-19
		17
		16
comprehensive school		15
		14
		13
		12
		11
		10
		9
pre-school		8
		7
		6

# INFORMATICS EDUCATION IN FINNISH SCHOOLS – NATIONAL CURRICULUM

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**Informatics is not a compulsory subject in Finnish schools!**

**There is no national level curriculum of informatics!**



# INFORMATICS EDUCATION IN FINNISH SCHOOLS – NATIONAL CURRICULUM

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- informatics is mentioned in "thematic group subject" technology
  - pupils learn to use different technical devices and programs
  - pupils understand ethical questions concerning technology
  - pupils can value technical questions for the future
  - ...
- ... only principles, no precise definitions of what skills pupils should have

# INFORMATICS EDUCATION IN FINNISH SCHOOLS

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- recommendations of a workgroup (2003)
  - defines what pupils should know of informatics at the end of grades 6 and 9 of comprehensive school
  - "ICT should be used in different subjects so that pupils can use information technology versatily in their studies"
- National Strategy of Using ICT at Schools (2010)
  - sets goals in 8 different areas of using ICT at schools
  - recommendations of actions that should be taken years 2011-2015
  - estimation of total costs 315 million euros
  - no funding is yet guaranteed

# INFORMATICS EDUCATION IN FINNISH SCHOOLS

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- new national curriculums of all subjects are under preparation

**The first proposal made last year didn't include informatics as an individual subject!**

# INFORMATICS EDUCATION IN FINNISH SCHOOLS – COMPREHENSIVE SCHOOL

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- in grades 5-9 schools can have optional subjects
- in many schools informatics is an optional subject in grades 8 and 9
- there's no national level curriculum for these studies  
... so in practise every teacher can decide what to do during these lessons

# INFORMATICS EDUCATION IN FINNISH SCHOOLS – COMPREHENSIVE SCHOOL

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- usually these optional studies include
  - using common office applications: presentation, text processing and spreadsheets
  - internet, web pages
  - security issues
  - ...
- sometimes
  - programming
  - computer graphics
  - ...



# INFORMATICS EDUCATION IN FINNISH SCHOOLS – UPPER SECONDARY SCHOOL

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- many upper secondary schools have no courses of informatics
- if there are such courses the topics are same as in comprehensive school
- using ICT varies a lot in upper secondary schools
- goal: ICT should be used in some way in matriculation examination year 2014

# INFORMATICS CONTESTS IN FINLAND – DATASTAR (DATATÄHTI)

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- organised by science and mathematics teacher association (MAOL) and Finnish universities
- first held 1991
- originally 2 age groups
  - secondary school pupils
  - upper secondary school students
- after 2006 only one age group
- 10 best students get a student place in certain universities
- best students also form Finnish teams in Baltic Olympiad in Informatics and Olympiad in Informatics

# INFORMATICS CONTESTS IN FINLAND – DATASTAR

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- tasks

- essays on informatics (2-4)
- programming tasks (2-4)

- participants in last years

2002: 30	2006: 24	2010: 15
2003: 28	2007: 27	
2004: 26	2008: 33	
2005: 34	2009: 43	

- <http://www.maol.fi/kilpailut/neljan-tieteen-kisat/datatahti/> (in Finnish)

# INFORMATICS CONTESTS IN FINLAND – BEAVER-CONTEST



# INFORMATICS CONTESTS IN FINLAND – BEAVER-CONTEST

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- [www.majava-kilpailu.fi](http://www.majava-kilpailu.fi) (some parts also in English)
- organised first time last year
- 1472 participants from 42 schools
  - Benjamin: 481 pupils (215 girls)
  - Junior: 938 pupils (272 girls)
  - Senior: 53 students (5 girls)
- Best scores
  - Benjamin: 156/162
  - Junior: 163/172
  - Senior: 168/168 (6 students)

# INFORMATICS CONTESTS IN FINLAND

## – BEAVER-CONTEST – AGE GROUPS

upper secondary school <b>SENIOR</b>	vocational school	18-19	grades 8-9
		17	
		16	
		<b>JUNIOR</b>	
14			
<b>BENJAMIN</b>  comprehensive school		13	grades 4-7
		12	
		11	
		10	
		9	
		8	
		7	
pre-school		6	

# INFORMATICS CONTESTS IN FINLAND

## – BEAVER-CONTEST: BENJAMIN

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- most difficult task:  
"Who ate the jam" – 14 % right answers
- easiest tasks:  
"Stack of Plates" - 74 % right answers  
"Water Supply" - 71 % right answers
- "Email: Update your data" – only 40 % right answers

# INFORMATICS CONTESTS IN FINLAND

## – BEAVER-CONTEST: JUNIOR

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- most difficult task  
"Who ate the jam?" – 16 % right answers
- easiest tasks  
"Error in statistics" – 75 % right answers  
"BeaverBook" – 71 % right answers



# INFORMATICS CONTESTS IN FINLAND

## – BEAVER-CONTEST: SENIOR

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- most difficult task
  - "Painting doors" – 42 % right answers
  - "XO" – 53 %
- easiest tasks
  - "Beaver in his canoe" – 94 % right answers
  - "Encoding pictures" – 83 %

# INFORMATICS CONTESTS IN FINLAND – BEAVER-CONTEST

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- choosing the questions was quite difficult as informatics is not a subject in Finnish schools
- apparent risk is focusing on general problem solving skills
- some pupils (Benjamin, Junior) apparently "guessed" all the answers
- most Senior participants were from upper secondary schools specialised in mathematical studies



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