

## Beaver competition 2006 in Estonia

In Estonia, the Beaver competition was held from the 8<sup>th</sup> to the 14<sup>th</sup> of November 2006. The competition was held on 3 levels: Benjamins (up to grade 8), Juniors (grades 9 and 10), and Seniors (grades 11 and 12). The examination system was provided by Miksike LearningFolders (<http://www.miksike.ee>). The system of online tests developed by Miksike is a web-based environment with accounts for teachers and their students. Every student was given 15 questions to answer in 45 minutes.

The questions were selected from those that had already been in the Lithuanian Beaver competition 2006 or that had been created in Balsiai workshop. The distribution of the topics was carefully followed: every level had

- 1 or 2 questions on computer history,
- 1 or 2 questions concerning computer ethics,
- 2 or 3 questions concerning computer software,
- 1–3 questions on computer hardware,
- 1 computer-related problem on geometry,
- 1 or 2 questions on algorithms,
- 1 or 2 questions concerning information comprehension,
- 1 question concerning logics,
- 2 or 4 questions on other fields of discrete mathematics (combinatorics, graphs, binary system, etc.).

Now, since the competition is over, the tests for all three levels are available for unlimited use in the Miksike environment. The questions in Estonian and Russian have been included to this document (due to some organisational problems, questions in Russian were not available in competition time).

The publicity made for the competition consisted of a short note in the all-Estonian teachers' magazine, e-mails to relevant mailing-lists, direct e-mails to high schools and a note in the Miksike environment (seen by every visitor of the environment).

There were 518 Benjamin, 644 Junior and 324 Senior students competing. The maximum score for Benjamins was 120 points (8 points for each question), the maximum score for Juniors and Seniors was 60 points (4 points for each question). We do not have statistics factored by single questions, but the overall results show that the maximum score was achieved only in Benjamins' group, and the average result, being 50.1% in the Benjamins' group, was 47.4%, and only 41.1% in the Juniors' and Seniors' group, respectively. Looking at the histograms constructed for the results of each group, it seems that the Seniors' questions might have been too difficult for the competition. But on the other hand, for a young competition as Beaver, the top-level problems should not be too easy, otherwise the best would lose interest about this competition in the future. It is worth mentioning that the student that won in the Seniors' group (52 points), was only in grade 10.

The schools that gave more than 100 competitors in total, were Võru Town

Centre Gymnasium (232), Võru Kreutzwald Gymnasium (224), Pärnu Ülejõe Gymnasium (166) and Kärkla Gymnasium (165).

The histograms of student distribution are as follows.

