

Continued fractions, beavers and Euclidean algorithm

During their free time, pupils contemplate new energy sources and count beavers

By Yekaterina Semenova

For the second year, Minsk pupils have had the opportunity to take part in a scientific-engineering competition, with 256 applying across 191 projects. In all, 72 were chosen for the final and four winners were selected to represent Belarus at the Intel International Science and Engineering Fair, being hosted by the USA in May.

One of the BSU Lyceum's floors currently resembles a museum, with stands presenting each project. On judging day, one author acted as a guide, to explain their innovation. One of the 8 categories, 'Informatics', saw 11th former Pavel Batsylev, from Starrye Dorogi, demonstrate a mobile app solving chemistry tasks: *Chemistry X10*. After entering data, the app can give a detailed answer. He

explains, "I felt too lazy to do my chemistry homework, so I wrote a programme to solve the task!"

Pavel's classmates soon began using the app, vastly improving their marks; his teacher has chosen not to apply any punishment to the ingenious young man.

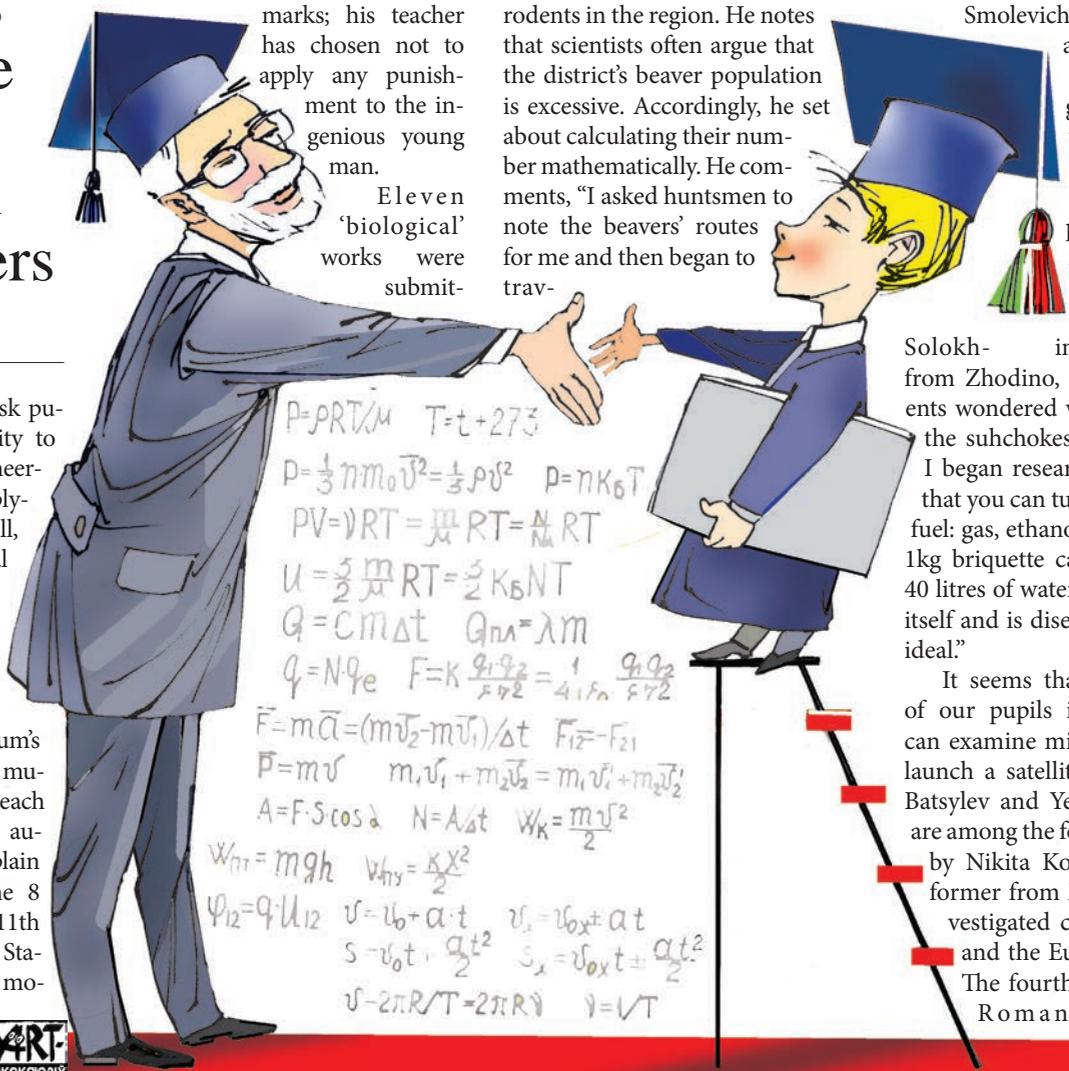
Eleven 'biological' works were submitted:

on uses for tea, duck-layers and, even, beavers. Alexey Goroshchik, an 11th former from the agro-town of Kurkovo, in the Smolevichi District, has managed to count all the rodents in the region. He notes that scientists often argue that the district's beaver population is excessive. Accordingly, he set about calculating their number mathematically. He comments, "I asked huntsmen to note the beavers' routes for me and then began to

travel across the region, counting the beavers' lodges. Knowing that each tends to house four beavers, I was able to verify this and discovered that their overall number in the Smolevichi District is 362: an acceptable figure."

Young ecologists demonstrated their knowledge of environmental pollution and the processing of waste, including how to use sunchoke as fuel. Yelizaveta Solokhina, an 11th former from Zhodino, explains, "My parents wondered what to do with all the sunchoke at their dacha, so I began researching and realised that you can turn them into cheap fuel: gas, ethanol and briquettes. A 1kg briquette can be used to boil 40 litres of water. The plant reseeds itself and is disease resistant, so it's ideal."

It seems that the imagination of our pupils is boundless: they can examine microorganisms, and launch a satellite into orbit. Pavel Batsylev and Yelizaveta Solokhina are among the four winners, joined by Nikita Kondratenok, a 10th former from Minsk who has investigated continued fractions and the Euclidean algorithm. The fourth victor is Vitebsk's Roman Polyakov, with his magnetic levitation brushless solar motor.



Small grants — big opportunities

By Sergey Smirnov

Over 30 projects in the sphere of ecotourism to be financed in the Grodno and Brest regions by the United Nations Development Programme (UNDP)

The results of the contest of local initiatives in the sphere of ecotourism, launched by the USAID project, have been announced. Out of approximately 100 applications 18 have been selected for financing in the Grodno Region and 13 have been chosen in the Brest region. Each of the initiatives will receive up to \$15,000, with the total amount of financing standing at around \$0.5m.

For example, it's planned to develop projects in the Grodno Region, aimed to create ecotourism paths and recreational grounds for families who have children with special needs. There are plans to create a barrier-free environment in the farmsteads Osniki and Na Ozere. An Internet portal will be developed to inform people about barrier-free tourism resources in the region. A similar initiative will be implemented at the farm U Rysya, in the Svisloch District.

The contest of small grants was announced with a view to create the necessary infrastructure in ecotourism and to promote ecotourism projects, which would develop into tourism destinations, approved and supported by UN.

Ice thaws early this spring

By Violetta Dralyuk

Floods begin on Gomel Region rivers

The ice has broken in some places, with water levels rising, thanks to unexpectedly warm February weather. The Regional Centre for Hydrometeorology and Environmental Monitoring notes that ice is now floating on the Uborti, near the village of Krasnoberezhie, in the Lelchitsy District, as well as on the River Dnieper, near Rechitsa. Both are showing high water levels, with the upper Sozh, near Krichev, rising by 18cm within 24 hours. Other rivers are showing daily rises of just 2-10cm.

Traditionally active rivers have burst their banks: in the Petrikov, Zhitkovichi, Loev, Vetka, Dobrush districts. However, in Gomeloblgidromet, experts assure us that danger is some way off, with 43cm remaining before the River Pripyat, near the village of Chernichi, in the Petrikov District, comes close to flooding.

This spring is notably different to last, when snow remained well beyond the norm. Residents of the Gomel Region have already begun to prepare for high waters, recalling those of 2013, when more than 3,000 farmsteads were flooded. Sandbags have been stockpiled and rescue services are on alert, while dams are being examined. Last year, those in the Petrikov and Zhitkovichi districts broke, almost causing disaster. The two vulnerable points are receiving close attention, so that action can be taken if necessary.

Pupil unexpectedly finds nano-satellite

By Vladimir Samsonov

Lyceum pupils from Belarusian State University win Baltic science-engineering competition prizes

Lyceum pupils from the Belarusian State University introduced three projects at the recent competition in St. Petersburg. 11th formers Anton Shemyakov

and Sergey Shemyakov won a third degree diploma for *Dense Iterations*, as did 10th former Ivan Saechnikov, for his system of nano-satellite location. 11th former Maxim Trigub received a special award from the youth jury for his *Multi-Rotor Flying Vehicle*.

This year, more than 1,300 works were entered in the con-

test, by pupils aged 13-18 from Belarus, Russia, Ukraine and Kazakhstan. In all, 213 were short-listed for presentation at the fair, on the themes of mathematics, physics, programming and computer technologies, biology, chemistry and technology. The jury included well-known scientists and representatives of large companies.



Lyceum student-winners

Less checks — better results

Customs officers around the country have improved their work significantly

By Sergey Smirnov

In the past year, there have been changes in the organisation at the Belarusian border, aimed at the reduction of terms and quality of customs inspections. Thus, from May 1st, transport inspections, veterinary, phytosanitary, sanitary and quarantine services, located at checkpoints across the state border, came under the operational administration of the border committee. "The optimisation of a number of domestic customs stations, with the transfer of vacated staffing positions into border checkpoints is nearing completion," said the Deputy Chairman of

the State Customs Committee of Belarus, Sergei Borisyyuk.

Today the work of customs authorities on the border is organised so that it has become more accurate, with only around 1 vehicle from 100 being inspected today. At the same time, the effectiveness of the customs authorities has increased, with about twenty thousand violations being prevented in 2013, a quarter more than in 2012.

Within the framework of customs control, is the use of patrol dogs. About 53 attempts to smuggle drugs were successfully discovered, and more than 260kg of drugs and psychotropic substances were seized.



At Privalka checkpoint