

## Participation of Vologda residents in All-Russian Schoolchildren Olympiad: performance results and ways of development

*The article presents the results of the study on the performance of the region's schoolchildren of the final stage of the All-Russian Olympiad over the past 10 years, based on the open data of the Ministry of Education and Science of the Russian Federation and the Vologda Oblast Department of Education. The article reveals the Oblast to be the country's leader in the Olympiads training efficiency. The groups of disciplines are distinguished by the results achieved (high, average, low). The article provides information on educational institutions that trained the largest number of winners. The article outlines key problems on the Olympiads training and proposals for improving the region's performance results in the All-Russian Olympiad.*

*General education, All-Russian Schoolchildren Olympiad, work with gifted children, Vologda Oblast.*



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At present, the issue of systemic work with gifted children is being addressed at the national level, due to changes related to modernization processes in the economy, in the course of which the importance of intellectual and creative potential increases considerably. As a result, the problem concerning talented youth selection and support in modern education comes to the fore. The relevance of the given direction is emphasized in such documents of the federal level, as 'The Concept of Long-Term Socio-Economic Development of the Russian Federation' for the period up to the year 2020 (approved by the Governmental Decree of 17 November 2008, No. 1662-p), and the National Educational Initiative 'Our New School', 'The Concept of a National System for Identifying and Developing Young Talents' [1].

Holding school subject Olympiads is one of the most effective methods of identifying gifted youth. Chairman of the Russian Council for Schoolchildren Olympiads, Academician V.A. Sadovnichiy notes high significance of the Olympiads in promoting Russia's intellectual competitiveness [4].

The All-Russian Schoolchildren Olympiad [8, p. 84], administered by the Ministry of Education and Science, has been leading in significance and the number of contestants. It is held in four stages: school, municipal, regional, and final.

The All-Russian Schoolchildren Olympiad performs the information and indicator function, being a valuable information source on the status of the work with gifted schoolchildren, demonstrating the level of training, breadth of vision and thinking of the best

students from various regions of the country, which represent common education space [10, p. 240].

In this connection it is interesting to consider the performance results of the schoolchildren from the Vologda Oblast at the final stage of the All-Russian Olympiad as compared to other regions of the country. The author analyzed the oblast schools' efficiency on the basis of the open information (orders, reports) of the Oblast Department of Education for the last 5 years, since the official data of an earlier period had not been found.

**Olympiad schoolchildren training efficiency and effectiveness in various regions.** The largest number of winners of the final stage of the All-Russian Olympiad has been observed in the most densely populated subjects

of the Russian Federation, such as the cities of Moscow and Saint Petersburg, the Moscow Oblast, the Republic of Tatarstan, the Chelyabinsk Oblast, Perm Krai (*tab. 1*). Throughout all regions in general, the correlation between the number of the Olympiad winners and the population size was rather high (correlation coefficient value by multiple data series made 0.86).

The level of education quality and efficiency of schoolchildren training in Russian regions is more objectively reflected in the population size data. When calculating the number of Olympiad winners per 100 thousand people of each region, the Kirov Oblast, Saint Petersburg, the Vologda Oblast, the Republic of Kalmykia, the Republic of Tatarstan and Moscow are among the leaders (*tab. 2*).

Table 1. Regions leading in the number of All-Russian Olympiad winners and prize-holders

Place	Region	Total number of winners for 2003 – 2010
1	Moscow	1127
2	Saint Petersburg	593
3	Moscow Oblast	414
4	Republic of Tatarstan	411
5	Chelyabinsk Oblast	315
6	Perm Krai	260
7	Nizhny Novgorod Oblast	208
8	Kirov Oblast	205
9	Krasnodar Krai	203
10	Sverdlovsk Oblast	196
13	Vologda Oblast	143

Source: The number of All-Russian Olympiad winners for 2003 – 2010. Available at: <http://begingroup.com/ru/top/research/988>

Table 2. Regions leading in the number of All-Russian Olympiad winners and prize-holders in relative figures

Region	Total number of winners for 2003 – 2010	Coefficient (the number of winners per 100 thousand people)
Kirov Oblast	205	14.51
Saint Petersburg	593	12.98
Vologda Oblast	143	11.69
Republic of Kalmykia	33	11.54
Republic of Tatarstan	411	10.92
Moscow	1127	10.76
Perm Krai	260	9.57
Yamalo-Nenets Autonomous Okrug	50	9.21
Chelyabinsk Oblast	315	8.97
Mari El Republic	63	8.96

Source: The number of All-Russian Olympiad winners for 2003 – 2010. Available at: <http://begingroup.com/ru/top/research/988>

It is noteworthy, that on the territory of practically all regions leading in the number of Olympiad winners, specialized secondary educational institutions for gifted schoolchildren, that trained more than 50 All-Russian Olympiad winners and prize-holders have been functioning (Saint Petersburg Lyceum No. 239; Advanced Educational Scientific Centre of Moscow State University – A.N. Kolmogorov School, Moscow; Moscow Lyceum No. 1303; Moscow Lyceum ‘The Second School’; Chelyabinsk Lyceum No. 31; Kirov Physics and Mathematics Lyceum; Yekaterinburg Gymnasium No. 9; Vologda Multi-discipline Lyceum; etc.). In many regions effective schoolchildren training has been also conducted in supplementary education centres (Kirov supplementary education centre for gifted schoolchildren; Saint Petersburg mathematics education centre; Moscow centre for continuous mathematical education, etc.)

The total number of schools, that have trained one and more All-Russian Olympiad winners made up 2202, with 100 best schools of Russia (0.2% of the total number of schools) training 38.3% of the Olympiad winners (2976 people).

According to the analysis of dynamics of the number of All-Russian Olympiad winners in each region for the 2003 – 2010 period per the region’s population, the Kirov Oblast, Saint Petersburg, the Vologda Oblast, Moscow have been leading in the Olympiad winners training, based on the results obtained throughout the period under review. At the same time, the top 10 list of regions varies depending on the year of the Olympiad. Besides, considerable variability and distribution of the regions within the top 10 list indicates that the quality of schoolchildren training is a rather dynamic category.

**Performance results of the Vologda Oblast schoolchildren in certain subjects.** By absolute figures, the oblast is among 10 leading regions in such subjects as Chemistry (5th place), History (9th place), Geography (8th place), English (9th place).

When calculating the number of winners per 100 thousand people, the oblast falls within the top 10 list of the regions in the following subjects (*tab. 3*): Chemistry (1st place), History (1st place), Geography (3 place), Biology (4th place), Literature (4th place), Physics (4th place), Russian (7th place), English (8th place), Computer Science (10th place).

Table 3. The number of times the region was in the top 10 list in relative figures

Region	The number of subjects, in which the region’s representatives fell within the top 10 (in relative figures)	List of subjects in which the region’s representatives fell within the top 10
Vologda Oblast	9	English, Biology, Geography, Computer Science, History, Literature, Russian, Physics, Chemistry
Republic of Tatarstan	9	Astronomy, Computer Science, History, Biology, Literature, German, Russian, Physics, French
Saint Petersburg	8	English, Computer Science, Astronomy, Mathematics, Physics, German, Russian, French
Perm Krai	8	Computer Science, History, Literature, German, Law, Russian, French, Economics
Moscow	8	English, Astronomy, Computer Science, Mathematics, German, French, Chemistry, Economics
Kirov Oblast	7	Biology, Literature, Mathematics, Civics, Law, Physics, Economics
Republic of Kalmykia	7	English, Geography, History, Civics, Law, Chemistry, Ecology

Source: The number of All-Russian Olympiad winners for 2003 – 2010. Available at: <http://begingroup.com/ru/top/research/988>

Two schools of the Vologda Oblast were among the best at Olympiad winners training in certain subjects (*tab. 4*).

Analyzing the dynamics of the number of winners representing the Vologda Oblast at the final stage of the All-Russian Schoolchildren Olympiad, the author notes, that since 2005 and up to now the number of subjects in which Vologda schoolchildren competed at the final stage has increased from 11 to 18 (*tab. 5*), and starting with 2007, the number of All-Russian Olympiad winners and prize-holders has been stable (yearly not less than 20). At the same time, competition results

in Humanities have been increasing, while the results in the Mathematical and Natural Sciences have been decreasing. Thus, in 2012 the oblast's schoolchildren received 16 out of 24 diplomas (67% out of the total number of awards) in History, Law, Social Studies and Literature (in 2007 and 2008 – 42% and 33%, respectively). However, while in 2007 and 2008 the oblast's schoolchildren have received 11 and 14 diplomas in Mathematics and Natural Sciences respectively (55% and 60% out of the total number of awards), in 2011 and 2012 the number of diplomas made 9 and 7 (41% and 33%).

Table 4. The position of the region's educational institutions in the rating on schools leading in certain subjects

Subject	Educational institutions	Number of winners	Place
English	Municipal Educational Institution 'Secondary Comprehensive School No. 1 With Intensified English Studies'	4	4
History	Vologda Oblast Budget Educational Institution 'Vologda Multi-discipline Lyceum'	5	2

Source: The number of All-Russian Olympiad winners for 2003 – 2010. Available at: <http://begingroup.com/ru/top/research/988>

Table 5. The number of diploma winners and prize-holders among Vologda Oblast schoolchildren by subjects of the final stage of the All-Russian Olympiad

Subject	Year								Total
	2005	2006	2007	2008	2009	2010	2011	2012	
Chemistry	3	2	4	5	4	4	7	4	32
Law	0	2	4	2	3	1	6	5	23
History	0	1	2	2	3	3	5	5	21
Physics	1	2	0	5	2	2	2	1	15
Literature	1	1	0	0	3	2	3	4	14
Geography	0	0	1	2	4	2	1	0	10
Computer Science	2	3	3	0	0	0	1	0	9
Biology	2	1	1	2	2	0	0	1	9
Russian	0	1	3	2	0	2	1	0	9
Обществознание	-	-	0	0	1	3	2	2	8
English	-	2	1	2	1	1	0	0	7
Mathematics	0	0	1	2	0	1	0	1	5
Ecology	-	-	-	1	1	1	0	1	4
German	-	0	0	0	1	0	1	0	2
Economics	0	0	0	0	0	0	0	0	0
French	-	-	0	0	0	0	0	0	0
Astronomy	-	-	-	-	-	-	0	0	0
Physical Training	-	-	-	-	-	-	-	0	0
<b>Total number of awards</b>	<b>9</b>	<b>15</b>	<b>20</b>	<b>25</b>	<b>25</b>	<b>22</b>	<b>29</b>	<b>24</b>	<b>167</b>

Source (hereinafter): The Orders of Vologda Oblast Department of Education. Available at: <http://www.edu35.ru/index.php/archive-news>

The best results were achieved by Vologda schoolchildren in the following subjects:

- Chemistry, Law, History (more than 20 diplomas)
- Physics, Literature, Geography, Computer Science, Biology, Russian, Social Studies, English (7 – 15 diplomas)
- Mathematics, Ecology, German ( 2 – 5 diplomas).

There have been no winners or prizeholders in such subjects as Economics, French, Astronomy, Physical Training. Regional stage of the All-Russian Olympiad in Technology, Art (Global Art Culture) and Fundamentals of Health and Safety is not held in the Vologda Oblast.

After the principle for selecting participants at the final stage of the Olympiad was changed in 2010, the number of the Vologda Oblast participants has risen (*tab. 6*), while

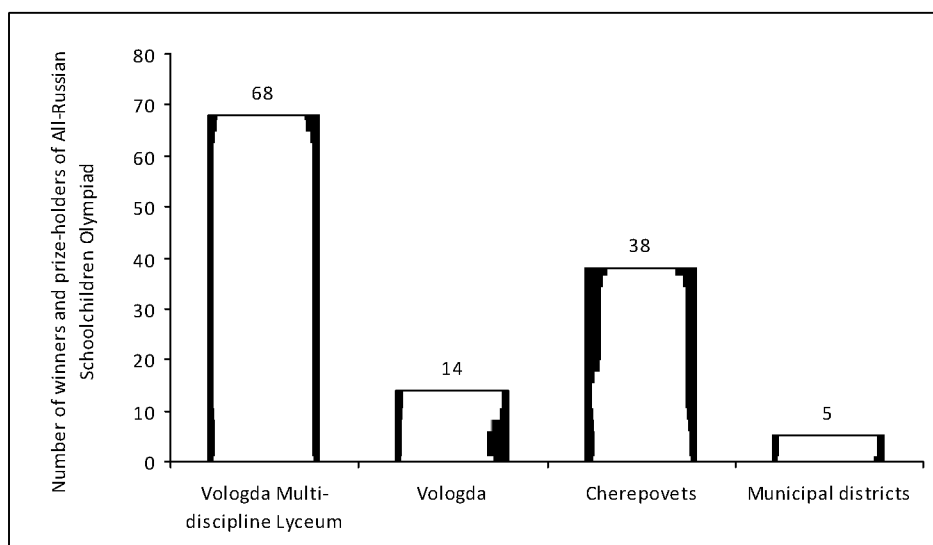
performance results have declined (the ratio of winners to the total number of participants). Since regions have no fixed quota for participation at the final stage, and the list of participants is determined according to the overall rating of regional stage winners and prizeholders throughout the country, the regions have been given the opportunity to propose more participants in subjects with highest results. For example, the Vologda Oblast was presented at the 2010 Olympiad by 12 contestants in Law and 7 competitors in Social Studies, while at the 2011 Olympiad – by 12 and 9 contestants in History and Chemistry, respectively.

Analyzing Olympiad performance results of the oblast’s educational institutions for the last 5 years [5, 6], Vologda Multi-discipline Lyceum is revealed to be the leader with 54% of all awards received by the region (*figure*).

Table 6. Vologda Oblast performance results at the final stage of the All-Russian Schoolchildren Olympiad

Indicator	2009	2010	2011	2012
Number of participants	58	66	76	69
Number of awards	25	22	29	24
Performance results, %	43	38	36	35

Territorial distribution of All-Russian Olympiad winners



Cherepovets obviously excels Vologda according to the results of the region's two largest cities. First of all, this can be explained by the fact that part of the most talented schoolchildren of Vologda study in the Multi-discipline Lyceum, geographically located in Vologda, but having the status of a regional educational institution. Therefore, the Multi-discipline Lyceum results are not taken to the account of Vologda. Stable results in Humanities have been achieved by Cherepovets Girls' Humanities Gymnazium and Vologda 'Secondary Comprehensive School No. 1 with Intensified English Studies' (*tab. 7*). Only four educational institutions of the region have trained 5 and more Olympiad winners, indicating insufficient number of schools specializing in Schoolchildren Olympiad training. Winners and prize-holders of the final stage of the Olympiad have been trained in Veliky Ustyug, Gryazovets and Cherepovetsky Municipal District. Many representatives of the municipal districts have been among the winners and prize-holders of the Vologda Multi-discipline Lyceum.

Thus, a total of 25 educational institutions of the oblast (including 10 lyceums, gymnasiums, schools with intensified studies of subjects, 15 secondary schools) have trained All-Russian Olympiad winners and prize-holders. As for the performance results of these educational institutions, only 13 of them have an Olympiad winner. A far greater number of municipal districts' representatives among the final stage contestants indicates gifted children distribution uniformity across the Oblast's territory [2, p. 82].

Geographical distribution of educational institutions with final stage winners in Humanities is significantly wider than of the institutions that trained winners in Mathematical and Natural sciences (*tab. 8*). This is explained by the fact that high level of training required for at present to victories in the final stage of the

Olympiad in many subjects (Mathematical and Natural Sciences in particular), can be ensured only by well-qualified teachers and coaches, the number of which is extremely small in the oblast. In addition, training in practical subjects (Physics, Chemistry, Biology) can be successful only if conducted in well-equipped laboratories.

**Problems and prospects of Schoolchildren Olympiad training in the region.** To sum up, the Vologda Oblast has been among the leaders in the performance results of the final stage of the All-Russian Schoolchildren Olympiad for the last 10 years. The number of subjects, in which the region's schoolchildren achieve high results, has been increasing. Vologda Multi-discipline Lyceum is among the best educational institutions of the country with regard to schoolchildren training for the Olympiad. However, the region's results in a number of subjects are, as a rule, low. There has been a trend of decreasing results in Mathematical and Natural Sciences. So, the problems of Vologda schoolchildren Olympiad training are the following:

- personnel: lack of qualified personnel for training schoolchildren for regional and final stages of the Olympiad;
- organizational: non-existent regional stage of the All-Russian Olympiad in certain subjects of the list, approved by the Ministry of Education and Science of the Russian Federation; lack of the oblast command centralized training for the final stage; lack of consistency in work with gifted children at all educational levels;
- scientific-methodological: insufficient attention to the Olympiad training in the programmes of professional education and teachers professional development; poor cooperation between educational institutions relating to the issues of Olympiad training experience distribution;
- socio-economic: insufficient number of educational institutions, specializing in work

Table 7. Vologda Oblast educational institutions that trained winners and prize-holders of the final stage of the All-Russian Olympiad in 2008 – 2012

Educational Institution	2008	2009	2010	2011	2012	2008 – 2012
Vologda Oblast Budget Educational Institution 'Vologda Multi-discipline Lyceum'	15	13	11	15	15	68
Municipal Educational Institution 'Girls' Humanities Gymnasium', Cherepovets	2	3	2	5	1	13
Municipal Educational Institution 'Secondary Comprehensive School No. 33', Cherepovets			1	1	2	4
Municipal Educational Institution 'Secondary Comprehensive School No. 9 With Intensified Studies of Specified Subjects', Cherepovets	1				1	2
Municipal Educational Institution 'Secondary Comprehensive School No. 31', Cherepovets				1	1	2
Municipal Educational Institution 'Comprehensive AMTEK Lyceum' (Secondary Comprehensive School No. 37), Cherepovets	2	3	1	2		8
Municipal Educational Institution 'Secondary Comprehensive School No. 4', Cherepovets	1					1
Municipal Educational Institution 'Secondary Comprehensive School No. 11', Cherepovets				1		1
Municipal Educational Institution 'Secondary Comprehensive School No. 21 With Intensified Studies of Specified Subjects', Cherepovets	1	1				2
Municipal Educational Institution 'Secondary Comprehensive School No. 26 With Intensified Studies of Specified Subjects', Cherepovets		1				1
Municipal Educational Institution 'Secondary Comprehensive School No. 34', Cherepovets		1				1
Municipal Educational Institution 'Secondary Comprehensive School No. 21 With Intensified Studies of Specified Subjects', Cherepovets			1			1
Municipal Educational Institution 'Secondary Comprehensive School No. 32', Cherepovets			1			1
Municipal Educational Institution 'Secondary Comprehensive School No. 12', Cherepovets			1			1
Municipal Educational Institution 'Gymnasium No. 2', Vologda			1			1
Municipal Educational Institution 'Secondary Comprehensive School No. 18', Vologda					1	1
Municipal Educational Institution 'Secondary Comprehensive School No. 8 With Intensified Studies of Specified Subjects', Vologda	1				1	2
Municipal Educational Institution 'Secondary Comprehensive School No. 26', Vologda	1					1
Municipal Educational Institution 'Secondary Comprehensive School No. 1 With Intensified English Studies', Vologda	1	1	1	1	1	5
Municipal Educational Institution 'Secondary Comprehensive School No. 5', Vologda			1	1	1	3
Municipal Educational Institution 'Secondary Comprehensive School No. 13', Vologda		1				1
Municipal Educational Institution 'Secondary Comprehensive School No. 2', Veliky Ustyug				1		1
Municipal Educational Institution 'Malechinskaya Secondary Comprehensive School', Cherepovetsky Municipal District		1	1	1		3
Municipal Educational Institution 'Secondary Comprehensive School No. 1', Gryazovets		1				1
Total	25	25	22	29	24	125

Table 8. Oblast's educational institutions, that trained winners and prize-holders of the final stage of the All-Russian Schoolchildren Olympiad in 2010 – 2012 (results by subjects)

Subject	Educational institution
Chemistry	Vologda Oblast Budget Educational Institution 'Vologda Multi-discipline Lyceum' Municipal Educational Institution 'Secondary Comprehensive School No. 8 With Intensified Studies of Specified Subjects', Vologda
Law	Vologda Oblast Budget Educational Institution 'Vologda Multi-discipline Lyceum' Municipal Educational Institution 'Girls' Humanities Gymnasium', Cherepovets Municipal Educational Institution 'Secondary Comprehensive School No. 2', Veliky Ustyug Municipal Educational Institution 'Secondary Comprehensive School No. 18', Vologda Municipal Educational Institution 'Secondary Comprehensive School No. 26', Vologda
History	Vologda Oblast Budget Educational Institution 'Vologda Multi-discipline Lyceum' Municipal Educational Institution 'Secondary Comprehensive School No. 33', Cherepovets Municipal Educational Institution 'Secondary Comprehensive School No. 1 With Intensified English Studies', Vologda Municipal Educational Institution 'Secondary Comprehensive School No. 11', Cherepovets
Physics	Vologda Oblast Budget Educational Institution 'Vologda Multi-discipline Lyceum' Municipal Educational Institution 'Comprehensive AMTEK Lyceum'
Literature	Vologda Oblast Budget Educational Institution 'Vologda Multi-discipline Lyceum' Municipal Educational Institution 'Girls' Humanities Gymnasium', Cherepovets Municipal Educational Institution 'Secondary Comprehensive School No. 31', Cherepovets Municipal Educational Institution 'Secondary Comprehensive School No. 12', Cherepovets
Geography	Municipal Educational Institution 'Malechinskaya Secondary Comprehensive School', Cherepovetsky Municipal District Municipal Educational Institution 'Secondary Comprehensive School No. 13', Vologda Municipal Educational Institution 'Secondary Comprehensive School No. 21 With Intensified Studies of Specified Subjects', Cherepovets Municipal Educational Institution 'Secondary Comprehensive School No. 37', Cherepovets
Computer Science	Municipal Educational Institution 'Comprehensive AMTEK Lyceum', Cherepovets Vologda Oblast Budget Educational Institution 'Vologda Multi-discipline Lyceum'
Biology	Municipal Educational Institution 'Secondary Comprehensive School No. 9 With Intensified Studies of Specified Subjects', Cherepovets Municipal Educational Institution 'Secondary Comprehensive School No. 37', Cherepovets
Russian	Municipal Educational Institution 'Girls' Humanities Gymnasium', Cherepovets Municipal Educational Institution 'Comprehensive AMTEK Lyceum', Cherepovets
Social Studies	Vologda Oblast Budget Educational Institution 'Vologda Multi-discipline Lyceum' Municipal Educational Institution 'Secondary Comprehensive School No. 5', Vologda Municipal Educational Institution 'Secondary Comprehensive School No. 1', Gryazovets Municipal Educational Institution 'Gymnasium No. 2', Vologda
Mathematics	Vologda Oblast Budget Educational Institution 'Vologda Multi-discipline Lyceum' Municipal Educational Institution 'Secondary Comprehensive School No. 8 With Intensified Studies of Specified Subjects', Vologda
Ecology	Vologda Oblast Budget Educational Institution 'Vologda Multi-discipline Lyceum' Municipal Educational Institution 'Secondary Comprehensive School No. 32', Cherepovets
German	Municipal Educational Institution 'Girls' Humanities Gymnasium', Cherepovets Municipal Educational Institution 'Secondary Comprehensive School No. 26 With Intensified Studies of Specified Subjects', Cherepovets
English	Municipal Educational Institution 'Secondary Comprehensive School No. 1 With Intensified English Studies', Vologda



with intellectually gifted children; lack of measures on financial support to educational institutions and incentives to the teachers, who have trained the Olympiad winners.

In September of 2012 the working group, established under the Vologda Oblast Department of Education upon instruction from the Governor, worked out a system model for identifying and developing gifted children<sup>1</sup>. The Olympiad movement is considered in the model draft as the system basis to identify and seek gifted children.

Based on the developed model and the author's personal experience in schoolchildren training for the Olympiad, the following measures might be suggested in order to enhance

the region's performance results in the final stage of the All-Russian Olympiad:

- training sessions for Olympiad contestants;
- expanded list of subjects at the regional level of the All-Russian Olympiad;
- professional development of teachers and methodologists, specializing in work with gifted children, as well as theoretical and practical conferences on the issues of identifying and supporting gifted children in order to expand experience in the sphere and to promote advanced technologies;
- the establishment of the oblast centre, including a boarding school for gifted schoolchildren from the oblast's districts.

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<sup>1</sup> The author of the article is a member of the group.