

## **PROVISION**

**on the International Competition of Scientific and Technical Works  
of Senior Schools *Scientists of the Future* as part of  
the All-Russian Science Festival 2021**

**Moscow  
2021**

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## 1. General regulations

1.1. This provision contains a description of the organizational and methodological support of the XII International Competition of Scientific and Technical Works for High School Students “Scientists of the Future” (hereinafter referred to as the Competition). The provision indicates the place, date and procedure for submission of entries, the criteria and procedure for evaluating the results of work, as well as the procedure and timing of the announcement of the results of the competition.

1.2. The competition within the XVI All-Russian Festival of Science in 2021 is held under the auspices of the Ministry of Science and Higher Education of the Russian Federation with the support of the Ministry of Education of the Russian Federation, Lomonosov Moscow State University, the Russian Academy of Sciences, the Government of Moscow (Hereinafter - the Organizers).

1.3. The purpose of the competition is to support gifted children, the development of students' interest in the study of science, the creation of conditions for the intellectual development of students. The competition promotes the dissemination and popularization of scientific knowledge, and enhances the pedagogical skills of teachers in Russia and foreign countries.

1.4. Within the contest "Scientists of the future" projects are selected in the following categories:

- physics;
- astronomy;
- mathematics;
- chemistry;
- biology and Life Sciences;
- programming;
- geology and Earth Sciences;
- engineering;
- wearable electronics, electronic gadgets, Internet of things, 3D modeling.

The contest organizers reserve the right to add other nominations.

1.5. Additionally, the Competition selects works that help overcome technological barriers within the framework of the National Technology Initiative road maps.

## **2. Requirements for participants of the Competition**

2.1. The competition is available for entry for high school students (grades 9-11) who are citizens of the Russian Federation and other countries. Entry to the Contest is free.

2.2. Students of middle classes (6-8) and junior (3-5) can take part in the section “Promising future scientists” of the Competition only by decision of the Competition Operator. The section “Promising Future Scientists” ends up with a full-time stage of the Competition.

2.3. The projects are submitted to the Competition under the guidance of professional scientists, teachers and / or parents (hereinafter referred to as Supervisors).

2.4. Individual or team (completed by two schoolchildren) projects are allowed to participate in the Competition.

2.5. Projects submitted to the competition must be carried out by students independently under the supervision of the supervisor.

2.6. The language of the Competition is Russian, for foreign participants it is Russian or English. All participants of the Competition should be able to make an abstract presentation of their project in English for foreign jury members.

## **3. Terms of participation**

3.1. Registration and submission of applications for the Competition is made through the official website of the Competition <https://ub.festivalnauki.ru/> (hereinafter referred to as the Website). Projects submitted in any other way are not allowed to participate in the Competition.

3.2. Applications for participation in the Competition are accepted both from Supervisors (in this case, the Supervisor himself registers his participants), and from the participants themselves (who in this case indicate their Supervisor).

3.3. Projects must represent research completed during the previous school year.

3.4. Projects that are purely carrying the demonstrative, informational objectives or presenting the result of abstract literature research are not allowed to participate in the Contest.

3.5. Work on the project should be carried out with the necessary requirements for occupational safety and should not cause a danger to life and health of minor researchers and the environment.

3.6. Scientific fraud (plagiarism, fake, use or presentation of other people's research, etc.) or misbehavior with respect to other participants is unacceptable at any stage of the research or Competition process

3.7. By registering the application, the participants of the Competition and their

Supervisors agree to provide the Organizers of the Competition with the permission to process their personal data, publish abstracts and information about the authors and their Supervisor in print and electronic form.

#### **4. The order of consideration of applications**

##### 4.1. Formal selection:

Applicants are selected in terms of compliance of the application within the terms of the Competition, compliance of the application within the proposed form, completeness of information, following the application deadlines.

##### 4.2. Semifinal selection (correspondence stage):

Admission of projects is carried out on the basis of submitted applications and abstracts of scientific papers (Appendices 1 and 2) and videos of up to 1 minute in which the participant briefly describes the essence of his work and, if possible, demonstrates the current installation (if such is the subject of the Competition).

Only those projects whose presentations will be presented in the form of a stand are allowed to participate in the full-time stage of the Competition (Appendix No. 4).

##### **Project requirements:**

- a) the evaluation of the project must be addressed personally to the participant of the Competition. The participant should be able to explain what was his contribution to the work.
- b) setting the task and a brief introduction to the task of the project, the state of affairs in this area (including literature review).
- c) the purpose of the study.
- d) research method and its difference from other possible options. Comparison with known methods, knowledge of their advantages and disadvantages.
- e) when using measuring equipment, the project takes into account the ability to explain the principle of operation of devices, their accuracy.
- f) understanding of which fundamental laws the research method is based on, what are the limitations of the models under consideration.
- g) the research results and conclusions should be presented in the form of a list.
- h) the work should present a plan for further research for six months.

According to the results of expert evaluation, rating points are set on the Website, and the list of applications recommended for participation in the final event is determined. The decision on the contest finalists is made by a specially created jury composed of Russian and foreign scientists in their respective fields of science (hereinafter referred to as the

Jury). Contestants and Supervisors of selected works are notified to the email address specified in the application.

#### 4.3. Final selection (full-time):

The final part of the Competition will be held in a format of presenting the stand of participants at the site of the XVI All-Russian Science Festival in Moscow. It is possible to conduct a full-time stage at other sites. The information will be announced on the Website.

The participant or his supervisor independently selects any of the announced sites on which they represent the work. The participants of the Competition and their Supervisors have equal rights and duties regardless of the site on which they present their work. Winners of the Competition are determined regardless of the site.

The Participant can take part in the full time stage with an accompanying adult who is authorized to accompany the participant from / to the place of residence to the Competition site and is responsible for his life and health throughout the duration of the final part of the Competition.

Each participant of the Competition is provided with a separate stand for presenting his project to the jury and other participants. Requirements for the preparation of the stand are set out in Appendix No. 4.

An independent jury of young scientists, sponsors and stakeholders also works at the site. The decision on the winners of the Competition is made by the Jury as a part of the final selection stage.

#### **Criteria for evaluating projects at the final stage of the Competition:**

1. The ability of the participant to explain their own contribution to the study.
2. Understanding by the participant the methods and approaches used, the ability to compare the methods and approaches of the participant with the existing ones.
3. Understanding by the participant the principles of work and characteristics of the equipment used in the process of work.
4. The ability to draw conclusions on the work done.
5. Presentation skills: the ability to clearly present the material, to support the discussion. The opportunity to present the key points of the work in English is welcomed.

The announcement of the finalists of the Competition and their solemn rewarding is held at the venue of the XVI All-Russian Festival of Science on the next day of the final stage.

Participants who took part in the final selection stage may arrive at the site with an attendant. The accompanying person is an adult who is authorized to accompany the participants from / to the place of residence, to the Competition site and responsible for their life and health during the Competition. Attendants are registered on the Site separately after the announcement of the results of the correspondence stage.

Attendants and Scientific Supervisors may not be at the stands during the work of

jury.

In order to present the project on a full-time basis, the participant of the Competition and his Scientific Supervisor (or accompanying person) are provided with a free accommodation and two meals a day at the Competition site.

The organizers are not responsible for the life and health of the participants of the Competition on the days of the event.

#### 4.5. Super Final:

Full-time tour winners (ranked 1-4 in each category according to the version of the scientific jury) finalize the project and participate in the super final of the competition, which takes place with a physical presence of a participant or on distance. Date of a super final is announced additionally.

Finalization of the project is carried out in cooperation with the Competition Operator.

The winners of the super final become a part of the Russian team at the World Science and Technology Show (International Science and Engineering Fair) in the USA (subject to the competition of affiliation and registration of all necessary documents by the participant).

The winners of the Competition have the priority right to enter the Russian national team at the Beijing Science Competition (Beijing Youth Science Creation Competition) and at the International Conference of Young Scientists.

## 5. Key dates

### 5.1. The competition takes place in several stages by dates:

- September 15, 2021 - completion of registration and submission of works to the correspondence stage;
- September 25, 2021 - announcement of the results of the correspondence stage and the list of participants of the full-time stage of work;
- 08 – 10 October 2021-full-time tour, announcement of the winners of the full-time stage;
- December 2021 – the announcement of the participants of the Super final.

The program of the correspondence stage of the Competition is posted on the Website.

## 6. Supporting the winners

6.1. The winners of the full-time stage of the Competition are awarded with diplomas, valuable prizes and gifts from sponsors.

6.2. By decision of the Jury, the certificate of the Competition participant and gratitude to the teacher of the Organizers of the competition will be provided. The number of certificates is determined by the Competition Jury.

6.3. The solemn awarding of the winners of the final stage of the Competition will be held at the venue of the XVI All-Russian Science Festival in Moscow.

## **7. Competition operator**

7.1. The operator of the Competition is the ANO “Center for the development of technologies of the future”.

7.2. Address of the operator: 119991, Moscow, GSP-1, Leninskie gory, 1, Lomonosov Moscow State University, Lomonosov building, Laboratory G-703.

7.3. Main figures:

Leonid Gusev - Director of the Competition

Artyom Astapov - Deputy Director of the Competition.

7.4. Should you have any questions or require additional information please do not hesitate to email to [uchenye@festivalnauki.ru](mailto:uchenye@festivalnauki.ru).



**Application (registration form) for participation in the XII International Competition of Scientific and Technical Works for High School Students *Scientists of the Future***

1. Supervisor's details

- name;
- academic degree;
- contact number;
- e-mail;
- country of residence;
- city of residence;
- index;
- home address in detail;
- name of educational institution (place of work);
- full postal address of the school;
- school's contact number

2. Information about the participant (filled in for each student - the author of the registered project):

- name;
- date of birth
- grade in school;
- contact number;
- e-mail;
- country of residence;
- city of residence;
- index;
- home address in detail;
- name of educational institution;
- full postal address of the school;
- school's contact number
- parent's contact number and email.

3. Information about the research project:

- title of the project;
- science field;
- the need to place on the stand any installation;
- a brief description of the installation, or photo;
- type of project (individual or team);
- the name of the place where the work was done specifically (at home, at school, institute, TsMIT, summer camp, etc.).

- date of filling the form

**Abstracts to the application for participation in the XII International  
Competition for Scientific and Technical Works of High School Students  
Scientists of the Future**

*Please kindly pay attention that the abstract should not exceed two A4 typewritten pages in PDF format (no more than 6 thousand characters, Times New Roman font 12, maximum file size 15MB). Optionally, in the form of additional materials to the theses drawings, tables and other graphic images can be attached. The total amount of additional materials - no more than 3 pages (total - 5 pages maximum). Abstracts should be uploaded to the contest website <http://ub.festivalnauki.ru/> during or after registration. Abstracts submitted in a different way will not be accepted.*

1. Abstracts of each work should contain the following information:

- name of the nomination;
- name of school from where the work is represented;
- index, phone number, e-mail of an institute;
- name of abstracts;
- surname, author's name
- grade;
- author's index, phone number, e-mail;
- name, position and place of work of a Supervisor;
- thesis text (no more than 6 thousand characters, Times New Roman font 12);
- list of references is located in the text of the thesis under the heading "Literature".

2. The text of the theses is a brief description of a work done containing the following information:

- a brief statement of a problem (the purpose and essence of the proposed project);
- the relevance of the project and the possibility of its practical application (what determines the choice of the task, what is its scientific and practical significance);
- a description of the methods for solving problems during project execution (what research methods, experimental equipment and data processing tools were used in the work);
- analysis of the results obtained (what are the main results obtained in the course of the work, their value for scientific and practical use, and the novelty, why the results are better than the existing ones).

3. An example of abstracts (line by line):

Nomination: mathematics.

Secondary school № 516, St. Petersburg.

193315, St. Petersburg, ul. Narodnaya, d. 63.

tel .: (812) 443-85-70; E-mail: director@sd516.nit.spb.ru.

The distance from a point to a cone in Euclidean space.

Kuznetsov Ivan.

Grade: 11.

193315, St. Petersburg, ul. Kuibyshev, 10, apt. 157.

tel .: (812) 449-81-30; e-mail: ivan@mail.ru.

Supervisor: Ivanova Lidia Petrovna, Ph.D., associate professor of the Faculty of Mathematics and Mechanics of St. Petersburg State University.

Abstract text (no more than two pages of text).

### **Video**

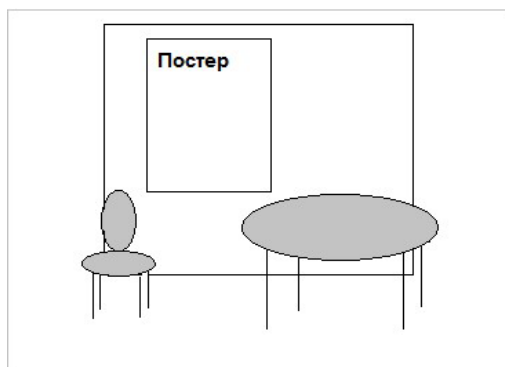
Each project must contain a downloaded video in mp4 format (codec h.264), containing a short (no more than one minute) report by the participant (s) of the project on the work done. Before loading, the clip must be compressed to a size of no more than 150MB.

### Stand requirements

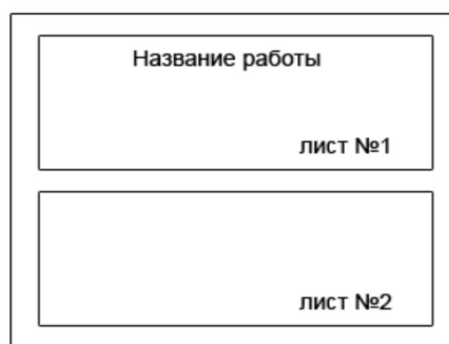
Participants in the full-time projects must arrive at the Competition site to post their work. The time and place for collecting posted materials will be separately indicated in the program.

Each project is provided with a separate stand consisting of a design for placing a poster, a table and chairs (according to the number of authors of the work). The work is presented **on a vertical A0 poster or on two sheets of standard paper of size A1**, horizontally placed one above the other.

The layout of the stand and the layout of the paper sheets on poster:



Stand layout  
(“poster” stated on a picture)



Layout of drawing paper on poster  
(“name of the work” “list #1”, “list #2”)

The following printed materials should be presented at the stand:

1. Abstracts of the report.
2. The project progress plan (research).
3. Laboratory log (if available).
4. Additional printed materials illustrating the content of the work.

It is prohibited to place on the stands:

- living organisms: plants, animals and derived materials;
- samples of stones, soil;
- all types of chemicals, especially flammable and potentially dangerous to human health;
- any dangerous devices (including sharp ones: needles, knives, etc.);
- photos of laboratory procedures for the dissection of animals.

It is forbidden to demonstrate any experiments with the use of chemicals, as well as open fire.

Placement on the stand of any installation is pre-agreed with the operator of the Competition.

If it is necessary to use computers for the presentation of the report, the list of required software and hardware must be agreed with the operator of the Competition.

During the final stage, project authors should be located near their stands for the interview with the jury members.