

UNITED NATIONS

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- EDUCATIONAL, SCIENTIFIC AND
 - CULTURAL ORGANIZATION



- JUNIOR ACADEMY
- **OF SCIENCES OF UKRAINE**
- **UNDER THE AUSPICES OF UNESCO**



is an educational system that manages and coordinates scientific and research activity of school students, ensures conditions for their intellectual, creative development and career self-determination, and contributes to the scientific potential of the country

SUPERVISORS OF THE SCIENTIFIC DEPARTMENTS OF THE JAS OF UKRAINE

Supervisors of the scientific departments of the JAS of Ukraine

Stanislav O. **Dovgyi** – the President of JASU

Vitalii I. Starostenko (Department of Earth Sciences)

Viktor T. Hrinchenko (Department of Engineering)

Anatolii M. Samoylenko (Department of Mathematics)

Valerii M. Heiets (Departments of Economics)

Viktor H. Bariakhtar (Department of Physics and Astronomy)

Valerii A. Smolii (Department of History)

Serhii A. Halchenko (Department of Philology and Art Criticism)

Mykola H. Zhulynskyi (Department of Linguistics)

Volodymyr N. Redko (Department of Computer Sciences)







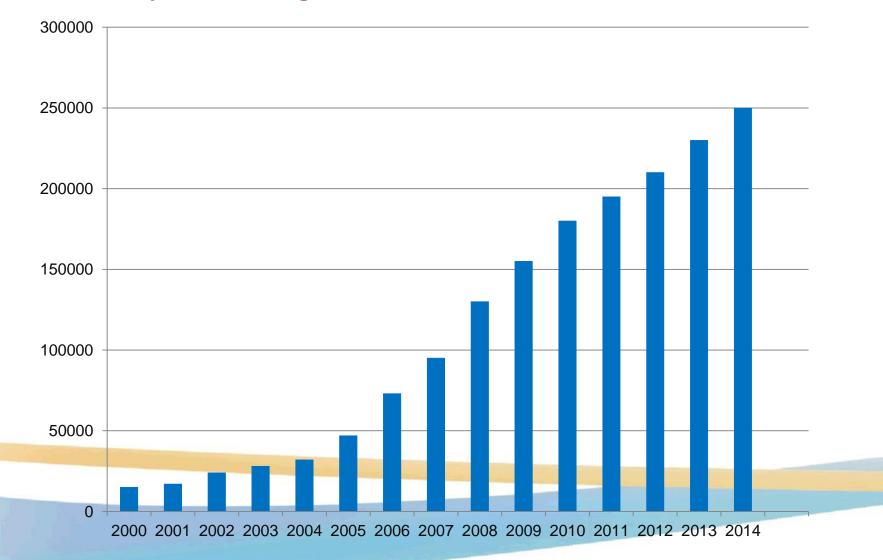




REGULATORY FRAMEWORK

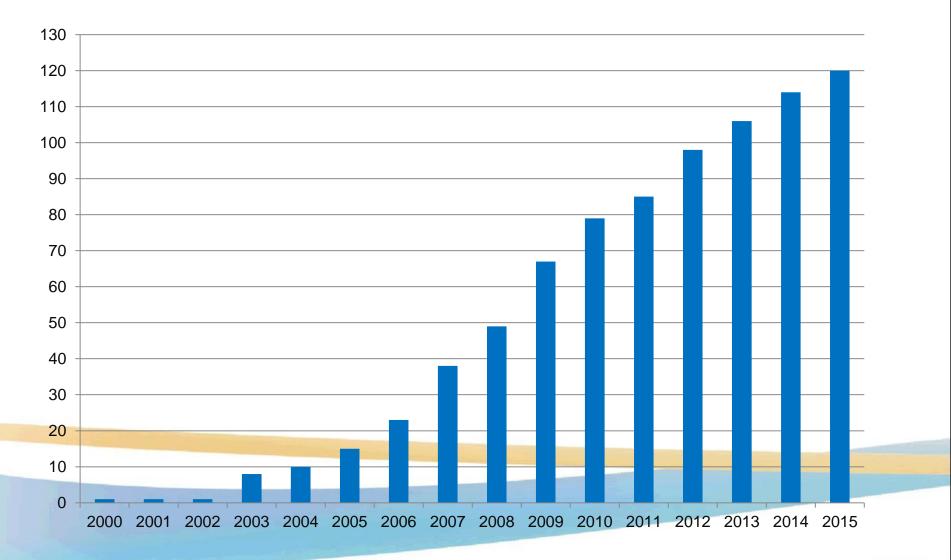
Year	Event	Document	
2003	Establishment of the Extracurricular Educational Institution "Junior Academy of Sciences of Ukraine of School Students" (JAS)	Resolution of the CMU of 20.08.2003 No 1301	
2004	The JAS was assigned the coordination functions of the research and experimental direction of extracurricular education	Decree of the MES of 31.12.2004 No 990	
2006	The Presidential Scholarships for the winners of the competition-defense of the JAS were established	Decree of the President 16.05.2006 No 398	
2010	Decision on the dual subordination of the JAS	Resolution of the CMU of 03.02.2010 No 88	
2010	The JAS was awarded the status of a national center	Decree of the President of 30.09.2010 No 927/2010	
2012	The institution got the children's camp "Vympel" of the National Academy of Sciences of Ukraine	Resolution of the CMU of 13.06.2012 No 367-p	
2013	Establishment of the International Center for Children's Scientific Creativity at the camp "Vympel"	Decree of the President of 01.06.2013 No 312/2013	
2014	The state support of the JAS winners was legislated	Law of Ukraine "On higher education" of 1.07.2014 No 1556-VII	
	The coordination function of the NC "JASU" in research and	Law of Ukraine "On scientific and	
2015	experimental, engineering, inventive and research activities was legislated	technical activity" of 26.11.2015 No 848-VIII	
2018	National Center "Junior Academy of Science of Ukraine" was granted the status of Category 2 Centre under the auspices of the United Nations Educational, Scientific and Cultural Organization	Agreement between the Government of Ukraine and Directorate-General of UNESCO signed on March 1, 2018	

STUDENT BODY OF THE JAS



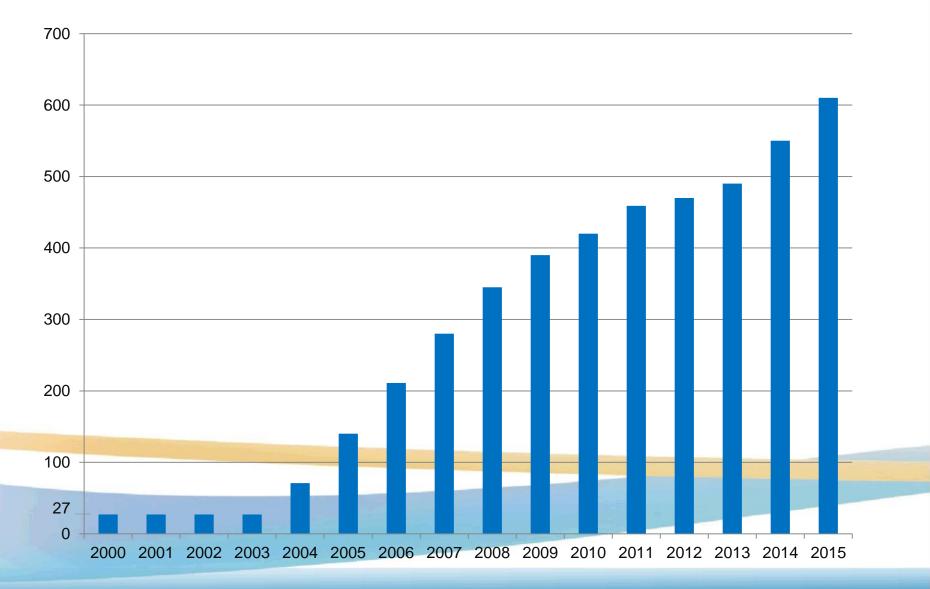
Dynamics of growth of the JAS students number

Nationwide events of the JAS



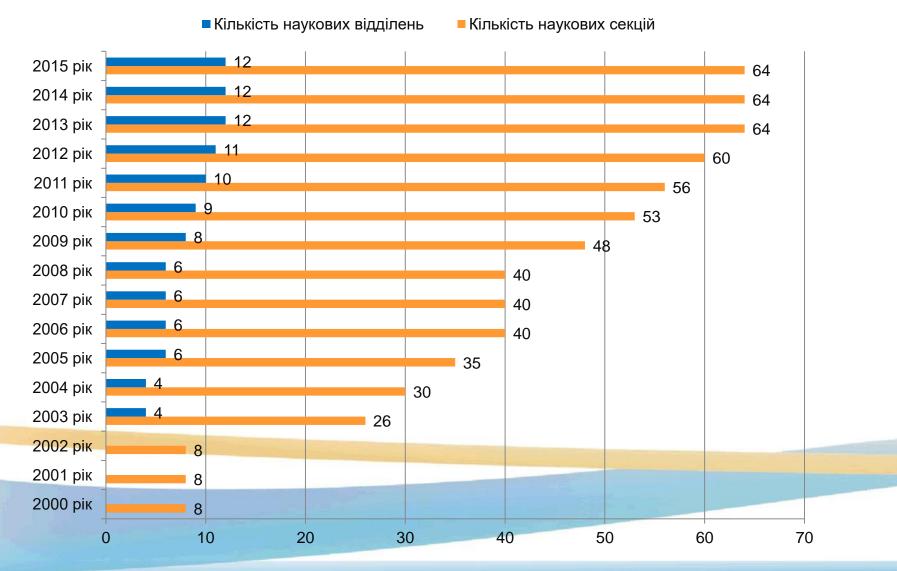
EVENTS WITH CHILDREN

Regional events in the system of the JAS



EVOLUTION OF THE STRUCTURE OF SCIENTIFIC DEPARTMENTS

The number of the scientific departments and sections of the JAS in 2000-2015



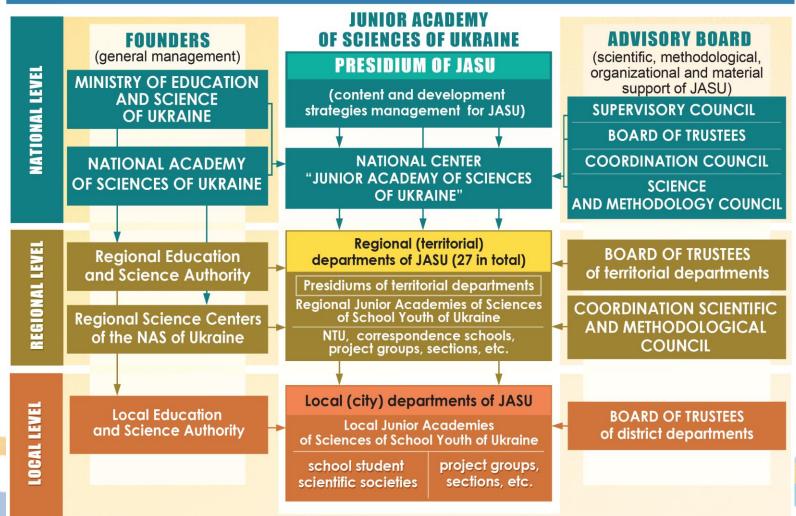
REGIONAL NETWORK OF JASU

Junior Academy of Sciences of Ukraine unites **25 territorial departments** which coordinate the activities of district and city territorial departments and scientific societies of school students on regional level



General coordination, organizational and methodological governance are performed by National Center "Junior Academy of Sciences of Ukraine"

ORGANIZATIONAL STRUCTURE



SCIENTIFIC DEPARTMENTS OF JASU

PHYSICS, MATHEMATICS AND ENGINEERING **Departments** DEPARTMENT **Physics and Astronomy Computer Sciences** Engineering **Mathematics** NATURAL SCIENCES DEPARTMENT **Earth Sciences Chemistry and Biology** SOCIAL SCIENCES AND HUMANITIES **Ecology and Agrarian** DEPARTMENT **Sciences** Philosophy and Social Studies **Philology and Art**

Economy

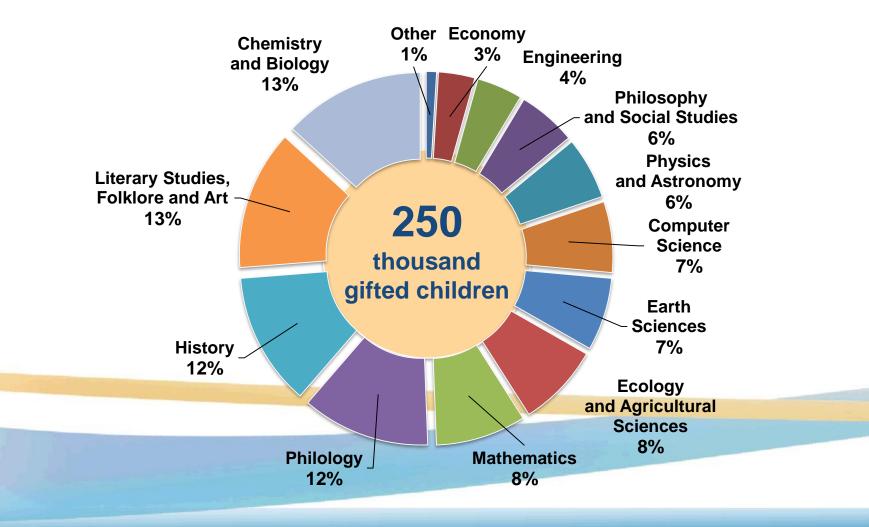
History

The work of the JAS is organized in 64 sections of 12 scientific fields:

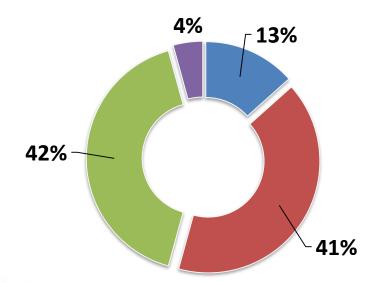
 Theoretical physics Experimental physics Astronomy and astrophysics Aero physics and space physics research Physics and astronomy Scientific de 	 > History of Ukraine > Archeology > Historical regional ethnography > Ethnology > World history History 	 Geography and landscape science Geology, geochemistry and mineralogy Climatology and meteorology Hydrology Earth sciences Junior Acade 	 Philosophy Sociology Law Theology, religion studies and history of religion Pedagogy Journalism Philosophy and social studies my of Science 	 Economic theory and history of economic thought Micro and macro economics Finance, currency andcredit Economic S of Ukraine
 Engineering Technological processes and perspective technologies Electronic and instrumental engineering Materials science Aircraft Industry and rocketry, engineering and robotics Information and telecommunication system and technologies Environmentally friendly technologies and resource reservation Scientific and technical creative work and inventions 	 Computer sciences Computer systems and networks Informational and telecommunicational system's safety Programming technologies Informational systems, database and artificial intelligence systems Internet-technologies and WEB-design Multimedia systems, educational and entertainment software 	Mathematics Mathematics Applied mathematics Mathematical modeling Chemistry and biology General biology Physiology Zoology, botany Medicine Valeology Psychology Chemistry	Literary studies, folklore and art > Ukrainian literature > World literature > Crimean Tatar humanitaristics > Folklore > Art > Literature creativity Ecology and agri- cultural sciences > Forestry > Ecology > Environmental protection and rational use of nature's resources > Agronomy > Veterinary and animal husbandry > Selection and genetics	Linguistics > Ukrainian language > Polish > Russian language > Spanish language > English language > German language > French language

Annually over 250 thousand gifted children

are involved in scientific research activities in scientific sections of Junior Academy of Sciences of Ukraine



More than **7 thousand pedagogical staff** of different educational institutions assist young scientists in their scientific research. They are as follows:



- Extracurricular educational institutions
- Educational institutions
- Higher educational institutions
- Other educational institutions

MEETING WITH THE PRESIDENT OF UKRAINE

On May 18, 2015, the President of Ukraine met with the winners of the III stage of the All-Ukrainian competition-defense







"... the model of the Junior Academy of Sciences is one of the most effective systems of identification, support and development of talented children and young people. The system provides the organization and coordination of scientific and research activity of students and creates the conditions for their intellectual, spiritual, creative development and professional self-determination..."

Petro Poroshenko

ALL-UKRAINIAN COMPETITION-DEFENSE



Priority areas of JASU

- educational projects for children and youth science education;
- educational and scientific events with school youth;
- professional development of pedagogical staff;
- scientific and methodological support;
- propedeutics;
- cooperation with educational and scientific institutions, public organizations etc.;
- popularization of children's scientific achievements and the best experience of scientific and pedagogical staff;
- publishing;
- international cooperation

EVENTS ON PROFESSIONAL DEVELOPMENT

Great attention is paid to the events on professional development of the teaching staff of the JAS, promotion of better pedagogical experience in the educational process of research and experimental institutions.

Work with teachers:

- meeting of heads of territorial departments of the JAS;
- practical seminars of heads and methodology experts of the JAS scientific departments;
- scientific conferences and forums;
- workshops, trainings, lectures;
- webinars;
- international schools;
- contests for teachers



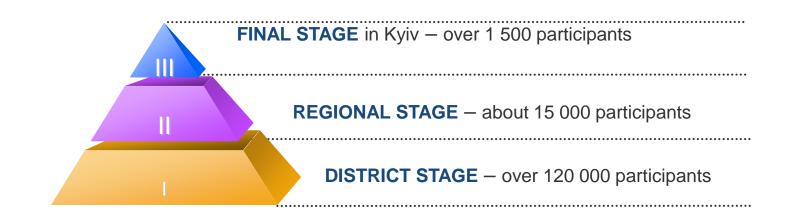


Over 500 publications



PUBLISHING ACTIVITIES

ALL-UKRAINIAN COMPETITION-DEFENSE OF RESEARCH PAPERS OF THE STUDENTS-MEMBERS OF THE JAS OF UKRAINE





ALL-UKRAINIAN COMPETITION OF RESEARCH PAPERS FOR 6th-8th GRADES SCHOOL STUDENTS

OBJECTIVE: revealing and development of creative skills of gifted children, promotion of research and experimental activities among school students .

2012/2013

CATEGORIES:

- Water supply and sanitation in my city
- Ecological state of water bodies in my city
- Fresh water supply of the world population
- Today's environmental disasters related to water

CATEGORIES:

2014/2015

- Ecology
- Regeneration
- Biota
- Economic use

2016/2017

CATEGORIES:

- Alternative energy
- Energy efficiency at home and educational institution. Ecohouse
- Energy and environment
- Promotion of energy efficiency lifestyle







ALL-UKRAINIAN INTERNET COMPETITION IN NATURAL SCIENCES

Objective: revealing, development and support of gifted children; raise the interest of school students to the in-depth study of natural sciences and informatics; involvement students of secondary and high school in research activities in study groups and sections of the scientific departments of the JAS.

Content of tasks – natural sciences (Astronomy, Biology, Geography, Physics, Chemistry).

Participants – school students of 7th -11th grades. Form of students' participation – team.





ALL-UKRAINIAN INTERACTIVE CONTESTS "JAS JUNIOR RESEARCHER" AND "JAS JUNIOR ERUDITE"

The All-Ukrainian interactive competition "JAS Junior" was launched to make available the research activities for students of any age who have no opportunity to study in the study groups of the Junior Academy of Sciences of Ukraine according to the place of their residence, and it is crucially to teach children to carry out researches, properly arrange their results, make presentations of their own accomplishments and participate in discussions etc.

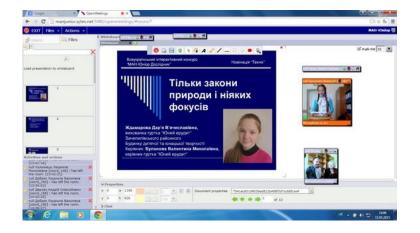
The competition is held in the following categories:

"Technician-Junior" (History of Science and Engineering, Invention);

"Historian-Junior" (History of Ukraine and World History);

"Ecologist-Junior" (Ecology);

"Astronomer-Junior" (Astronomy).



Мета про

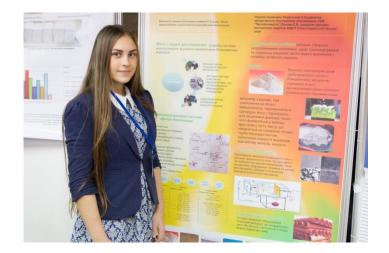
Розробка методу впровадження компостування, як способу переробки органічних відходів шкільних їдалень безпосередньо на території шкіл, та використання отриманого компосту для покращення стану ґрунту та підживлення дерев у містах для поліпшення стану міського повітря.

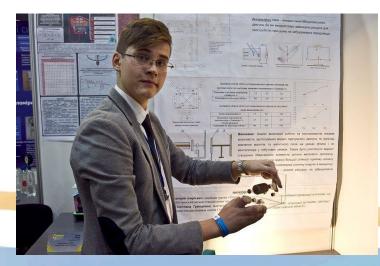


All-Ukrainian Olympiad in Robotics has been taking place for five years where more than 7 000 school students have already participated



ALL-UKRAINIAN SCIENTIFIC AND TECHNOLOGICAL EXHIBITION OF YOUTH INNOVATIONS AND CREATIVE PROJECTS OF THE STUDENTS OF THE JAS "THE FUTURE OF UKRAINE"







JAS EVENTS WITH GIFTED STUDENTS

INTERNATIONAL SCIENTIFIC AND PRACTICAL CONFERENCE OF THE STUDENTS OF THE JUNIOR ACADEMY OF SCIENCES OF UKRAINE "UKRAINE THROUGH THE EYES OF YOUTH"









***** THE INTERNATIONAL CONFERENCE OF YOUNG SCIENTISTS "ICYS"

***** THE EUROPEAN UNION CONTEST FOR YOUNG SCIENTISTS

*** THE WORLD ROBOT OLYMPIAD**



- *** THE INTERNATIONAL CONTEST Intel ISEF**
 - *** THE INTERNATIONAL CONTEST I-SWEEP**
- ***** THE INTERNATIONAL OLYMPIAD IN ASTRONOMY AND ASTROPHYSICS

*** STOCKHOLM WATER PRIZE**



* THE INTERNATIONAL OLYMPIAD OF ECOLOGICAL PROJECTS INESPO WITHIN THE FRAMEWORK OF THE PROGRAMME GLOBE

***** "GENIUS OLYMPIAD 2015"

* GOOGLE SCIENCE FAIR

✤ INTERNATIONAL BRAIN BEE COMPETITION

AND MANY OTHERS

EDUCATIONAL PROJECTS OF THE JAS OF UKRAINE

"ALL-UKRAINIAN SUMMER SCHOOLS OF THE JUNIOR ACADEMY OF SCIENCES OF UKRAINE"

Schools:

- Science and Technology;
- Physics and Mathematics;
- Information and Communication Technologies;
- Robotics;
- Chemistry and Biology;
- Astronomy;
- Journalism;
- Art criticism;
- Folklore Studies;
- History and Geography;
- History and Culture;
- Natural Protection and Plants
 Biotechnology;

- Geology;
- Forestry;
- Linguistics;
- Scientific Popular Cinematography;
- "Young naturalist";
- Theology, Religious Studies and History of religion;
- Literature School for teenagers;
- Physics;
- Engineering;
- Mathematics.

Expeditions:

- ❖Geology;❖Hydrology;
- ✤Ecology;
- ♦ History
- Archeology;
- Culturology.

The project was launched in 2010





ALL-UKRAINIAN SCIENTIFIC SCHOOLS OF THE JAS OF UKRAINE





Years	Full-time and part-time scientific schools of the JAS		
	- Physics and Astronomy;		
	- Engineering Sciences;		
	- Mathematics;		
2017	- Ukrainian language;		
	- English language;		
	- Chemistry and Biology;		
	- Information technology		
	- Linguistics;		
	- Physics and Engineering;		
2015	- Mathematics;		
	- Chemistry;		
	- Information technology and Telecommunication.		
	- Physics and Engineering;		
2013	- Mathematics;		
2013	- Chemistry;		
	- Information technology and Telecommunication.		
	- Physics and Engineering;		
2012	- mathematics;		
2012	- Chemistry;		
	- Information technology and Telecommunication.		
2011	- Physics and Mathematics school;		
2011	- Science and Technology school.		
0040	- Science and Technology school;		
2010	- Physics and Mathematics school.		

Founders of the project:

- •National Technical University of Ukraine "Kyiv Polytechnic Institute";
- •Taras Shevchenko National University of Kyiv;
- •Main Training Center of Postgraduate Education of the JSC "Uktelekom"

INTERNATIONAL SUMMER SCHOOLS OF THE Junior ACADEMY OF SCIENCES OF UKRAINE

"MINT wins" with German-speaking training

Partners:•The Embassy of Germany in Ukraine•The Goethe Institute in Ukraine

Biochemistry school for the JAS students based on the experimental laboratory for youth Xlab

Physics school for the JAS students based on the European Center for Nuclear Research













"SCHOOL OF WINNERS"

The main goal is a career guidance of children who have beaten cancer

Project's tasks:

- to support, help the children with a career guidance,
- to identify the interest in new knowledge and science
- to promote the development of research skills,
- to give children the basics of Natural Sciences and Engineering, particularly Robotics, Programming, Physics and Astronomy
- to give a basic understanding of Arts and Humanities



The project is implemented in cooperation with the Ukrainian Charitable Foundation "Zaporuka"

ENVIRONMENTAL HACKATHON FOR YOUNG INVENTORS









"BRAINY ENGLISH"



"Brainy English"

Project of ESL for special purposes for science students who already speak elementary English.

Children learn to:

- put questions and respond on them using scientific terminology in English;
- express their points of view and provide arguments;
- participate in discussions, present their research papers in English;
- prepare their research papers in English;
- write assignments according to the requirements of international educational institutions.







PHILOSOPHY FOR CHILDREN



Jinwan Park Expert of the methodology "Philosophy for children" (South Korea)

"PHILOSOPHY FOR CHILDREN"

Educational approach **"Philosophy for children"** aims at teaching children to philosophise (to reflect, to hold discussions, to provide arguments, to be open to arguments of an interlocutor) rather than teaching them philosophy itself.

The final goal of the programme is a formation of **critical, creative** and **caring** thinking.

II All-Ukrainian philosophy contest for school students



The P4C Co-operative philosophy for children | philosophy in the curriculum

p4c.com|p4c.coop

JAS EVENTS WITH GIFTED STUDENTS



The best Physics students of the Junior Academy of Sciences participate in the INTERNATIONAL SCHOOL-WORKSHOP "SPECTROSCOPY OF MOLECULES AND CRYSTALS"

organized by the Faculty of Physics of the Taras Shevchenko National University of Kyiv, Institute of Physics of the NAS of Ukraine, Ukrainian Association of Physicists and Junior Academy of Sciences of Ukraine





PROMOTION OF UKRAINIAN CHILDREN'S BOOK



The main goal of the project is to promote

Ukrainian children's book and culture of reading in general.



The parts of the portal having various approaches are designed to a wide range of readers: from families to scientists, teachers, librarians and publishers.

On the web-site, they publish reviews on issues; interviews with Ukrainian and foreign writers, psychologists, teachers, artists, literary critics; news and announcements of events related with books and art; reference information about the key persons in the Ukrainian literary environment.



COOPERATION WITH LEADING EDUCATIONAL INSTITUTES

Within the framework of the agreement on joint activities of the NC "JASU" and National Technical University of Ukraine "KPI", the following activities are held:

III stage of the All-Ukrainian competition-defense of research papers

- of the students-members of the JAS of Ukraine
- All-Ukrainian scientific summer schools of the JAS of Ukraine
- All-Ukrainian summer school of Engineering
- Summer school of Materials Science
- All-Ukrainian school-workshop "Modern materials and technologies"
- within the framework of the international conference "HIGHMATTECH"
- Festival of innovative projects "SIKORSKY CHALLENGE 2015"
- All-Ukrainian scientific and technological exhibition "The Future of Ukraine"
- National stage of the International competition Intel-Techno and others





COOPERATION WITH LEADING EDUCATIONAL INSTITUTES

Within the framework of the agreement on joint activities of the NC "JASU" and Taras Shevchenko National University of Kyiv, the following events are held:

- III stage of the All-Ukrainian competition-defense of research papers of the students-members of the JAS of Ukraine
- All-Ukrainian scientific schools of the JAS of Ukraine
- All-Ukrainian summer school of Physics
- All-Ukrainian summer school of Mathematics
- All-Ukrainian scientific and educational project of the JAS of Ukraine "Mobile workshops of popular science and technology"
- International school-workshop "Spectroscopy of molecules and crystals"
- All-Ukrainian scientific and technological exhibition of innovative projects "The Future of Ukraine" and others





PROTECTION OF INTELLECTUAL PROPERTY RIGHTS



PROTECTION OF INTELLECTUAL PROPERTY RIGHTS

The JAS ensures the protection and fair use of intellectual property of its students. The experts of the NC "JASU" teach children how to protect their intellectual property and then continue to develop their inventions at higher education institutions and immediately implement them.

For this purpose, a series of training seminars for scientific supervisors and regional representatives of the NC "JASU" on the basics of marketing and patenting is held, and advisory services are provided in the process of the registration of intellectual property. As a result, annually, the JAS students receive positive decisions on the registration of intellectual property.

Interdisciplinary laboratory complex JASLab

The unique students' research laboratory which has **2 000 units** of the equipment of Ukrainian and world leading producers "**Phywe**", "**Furier**", "**National Instrument**", "**Celestron**" etc.

It includes:

Physics laboratory – 1 000 units Chemistry laboratory - 300 units Biology laboratory – 300 units Mineralogy laboratory – 100 units Astronomy platform – 200 units Energy laboratories – 100 units Climatology and Geophysics laboratory – 100











Students have the opportunity to:

- order experiments offline (a laboratory assistant carries out an experiment and gives results to a student);
- order online-experiments if the experimental device can connect to the computer (a student can control remotely the process of experiment)



Decree of the MES of 15.10.2015 No 1088

"On approval of the methodological recommendations on the provision of teaching tools and equipment of Physics classrooms"



The teachers' training center was established in the laboratory JASLab to study the possibilities of up-to-date equipment of natural sciences classrooms at secondary schools

For today, **3142 teachers** of natural sciences were trained in the laboratory JASLab

Resolution of the Cabinet of Ministers of Ukraine of June 13, 2012 No 367-p "On the transfer of the integral property complex of the children's health camp "Vympel"

The National Center "Junior Academy of Sciences of Ukraine" accepted the proposal of the NAS of Ukraine and Ministry of Education and Science, Youth and Sports on the transfer of the integral property complex of business unit of the state-owned enterprise "Feofaniia" of the NAS of Ukraine" – the children's health camp "Vympel" in 14 Yan Hamarnyk str., Kyiv

I phase of reconstruction:

hotel for 360 persons;

7 laboratories (Chemistry, Biology, Physics, Science and Technology, Astrophysics, Geophysics, Geology, Computer Sciences); **cinema and lecture hall**,

technological and engineering workshop, classrooms,

canteen,

cottages for lecturers' accommodation, service buildings.

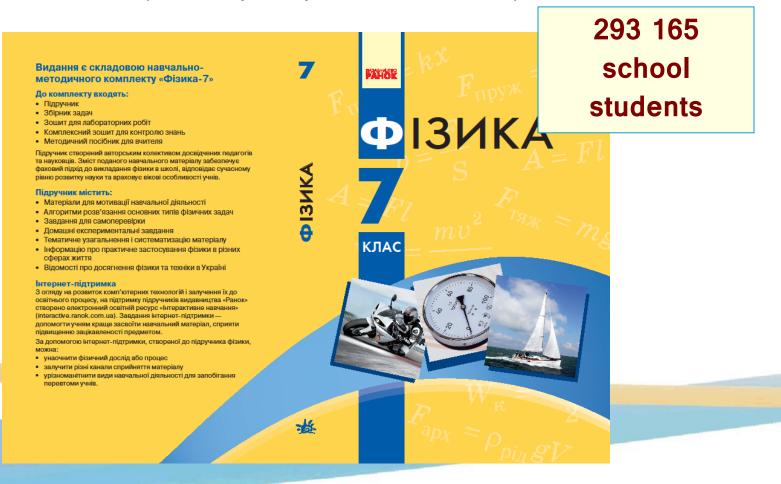


SUMMER SCHOOL IN PUSHCHA-VODYTSIA



STUDY MATERIALS

Following the results of the Contest of school books a Physics textbook for 7th grade which had an experimental approbation at the JAS got 70% of votes of teachers (9 books participated in the contest)



KIDS SCIENCE CLUB OF THE JAS

Research and teaching project "ROZKVIT"

As part of the pedagogical experiment, the program of involvement of pre-school age children in creative activities was implemented during 5 years. About 30 educational institutions of Kyiv city, Kharkiv, Kirovohrad and Kyiv regions have participated in the experiment

The research results became the basis for a new project – **"Kids science club of the JAS"**





The educational space for gifted children of pre-school and early school age. The Kids science club works in the following areas: Mathematics, Robotics, Scientific experiment, Art, Animation, Finances, Programming, Graphic design, 3D-modeling and printing, Startup science, Chinese, Philosophy The international recognition of the achievements of the JAS of Ukraine in the field of work with talented children and youth is based on the decisions on the membership of the National Center "Junior Academy of Sciences of Ukraine" in the following leading international organizations:

World Council for Gifted and Talented Children (WCGTC)

EUROPEAN COUNCIL FOR HIGH ABILITY

International Movement for Leisure Activities in Science & Technology





European Association of Neuro-Oncology (EANO)

European Association for Leisure Time Institutions of Children and Youth (EAICY)



INTERNATIONAL AEROSPACE CENTER OF THE JAS OF UKRAINE

PARTNERS:

- The Aeropace Institute of the National Aviation University;
- The main astronomical observatory of the NASU;
- The state-owned enterprise "Antonov";
- The State Museum of Aviation of Ukraine;
- The Institute of Aerospace Control Systems of the NAU;
- The Institute of Information and Diagnostic Systems of the NAU;
- The Institute of Space Research of the NAS of Ukraine and the State Space Agency of Ukraine;
- The Institute of Gifted Child of the NAPS of Ukraine;
- The Institute of Telecommunications and Global Information Space of the NASU;
- The Kyiv Affiliate of the O. M. Makarov National Center of Aerospace Education for youth;
- T. Shevchenko Kyiv National University (Faculty of Physics);
- The National Technical University of Ukraine "Kyiv Polytechnic Institute" (Faculty of Aircraft and Space Systems);
- The Scientific Center of Aerospace Research of the Earth of the Institute of the NAS of Ukraine

German Aerospace Center DLR



INTERNATIONAL PARTNERS:

- The German Aerospace Center,
- The Technical University of Munich,
- The Argonne National Laboratory,
- The Aerospace Center of Toulouse etc.





Ulrich Hans Walter– a German astronaut, the 5th astronaut of the FRG



INTERNATIONAL COOPERATION











Enrico Fermi

Maria Göppert-Mayer

Alexei Abrikosov

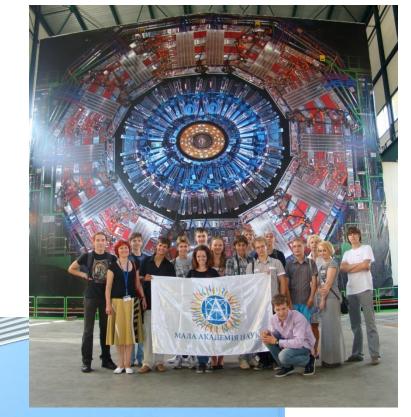
The Argonne National Laboratory is one of the biggest national laboratories which conducts scientific and technical research for the Department of Energy of the United States of America. The laboratory is proud of its 3 Nobel Prize Winners in Physics and 5 prizes for the best "100 R&D" in all the fields.



INTERNATIONAL COOPERATION



According to the Common declaration of the Junior Academy of Sciences of Ukraine and the European Organization for Nuclear Research, each year Ukrainian school students and teachers participate in educational programmes of the CERN.





CERN INFORMATION CENTER IN UKRAINE

Since 2012, the CERN Information Center in Ukraine based on the National Center "Junior Academy of Sciences of Ukraine" has been functioning. The center is aimed at promoting science, information about the CERN activities and up-to-date teaching methods in Ukraine.

CERN Information Center:

- holds scientific seminars, online conferences for school students and scientific supervisors of the JAS (once per 2-3 months);
- organizes conferences for teachers, educational staff, directors and teachers of the JAS (once per year);
- publishes and promotes materials about organized CERN scientific schools for Ukrainian teachers;
- creates and distributes printed and video materials about the activity of CERN, its history and scientific projects.



SCIENCE & ART EDUCATION











Thank you for attention!