

HOW YOUNG MINDS ARE ADVANCING SCIENCE?

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Abstract

Young scientists play an important role in the development of modern science. Their desire for new knowledge, creativity and willingness to experiment allow them to find non-standard solutions and develop innovative technologies. This article examines the key areas in which young people have a significant impact on scientific progress, as well as the factors contributing to their success. Particular attention is paid to the challenges faced by young researchers and possible ways to overcome them.

Keywords: Youth, science, science, research, innovation, technology, progress, young scientists, scientific development, future of science.

Science has always moved forward thanks to people who are not afraid to ask questions and seek answers. In different eras, young minds have made significant contributions to scientific development: Isaac Newton developed the theory of gravity at the age of 23, Albert Einstein created the theory of relativity at 26, and Marie Curie, who became the first female Nobel Prize winner, began her research on radioactivity at a young age.

Today, in the 21st century, the role of young people in science is even more prominent. Modern technology allows young researchers to access knowledge faster, share experiences with scientists around the world, and innovate. In this article, we will look at which areas of science are most popular among young people, what helps young scientists succeed, and what challenges they face. Young scientists are actively involved in research that can change the future of humanity. Some of the key areas include:

1. Information Technology and Artificial Intelligence

Today's young people have grown up in the digital age, so it is not surprising that the IT field attracts a large number of young researchers. They develop:

- Machine learning algorithms that can analyze huge amounts of data;
- Artificial intelligence, helping to automate processes in medicine, business and education;
- Cybersecurity that protects digital data from threats.

An example of the success of young scientists in this field is the development of neural networks that can diagnose diseases from medical images with an accuracy that exceeds that of experienced doctors.

2. Biotechnology and medicine

Young researchers are working to develop new methods of treating and diagnosing diseases. Their developments include:

- Genetic engineering, which makes it possible to treat inherited diseases at the DNA level;
- 3D printing of organs, which could solve the shortage of donor organs;
- Creating new vaccines to help fight dangerous viruses.

During the COVID-19 pandemic, young scientists made a huge contribution to the development of vaccines and diagnostic methods, which was an important step in the development of modern medicine.

3. Environment and alternative energy

Today's young people actively advocate environmental protection and sustainable development. In this direction, young scientists are engaged in:

- Developing new sources of renewable energy (solar, wind, thermonuclear);
- Creating environmentally friendly materials that decompose without harming nature;
- Purification of water and air with the help of innovative technologies.

One example is students' invention of water purification filters based on natural components such as coconut husks.

4. Space Technology

Thanks to new technologies, even students can participate in space research. For example, young engineers are developing:

- Nanosatellites that are cheaper and more efficient than traditional satellites;
- Robots to explore the surface of Mars;
- Technologies to build bases on the Moon and Mars.

Young scientists from different countries are actively participating in the projects of NASA, SpaceX and other space agencies, which brings mankind closer to the exploration of deep space.

Factors contributing to the success of young scientists

Despite their age, many young researchers achieve significant success. This is possible due to the following factors:

- I. Access to information. Modern technology makes it possible to gain knowledge from online courses, research articles, and open databases.
- II. Grants and funding. Government programs and private foundations support promising youth projects.

- III. International cooperation. Thanks to the Internet and conferences, young scientists can work in teams with researchers from different countries.
- IV. Innovation environment. University laboratories and startup incubators create conditions for experimentation and research.

Challenges faced by young scientists:

Despite the prospects, young people in science have their own challenges:

- Lack of experience. It's harder for young researchers to compete with established scientists.
- Financial constraints. Not all projects get support, especially if they require expensive equipment.
- Difficulties with publication. Prestigious scientific journals often require extensive experience and research.
- Bureaucracy. Young scientists face difficulties in applying for grants and obtaining research approvals. Support from the government, universities, and private companies is needed to solve these problems.

Young minds are key players in scientific progress. They innovate, develop new technologies and solve global problems. With the support of society, access to modern tools and international cooperation, young people can significantly accelerate the development of science. Creating an enabling environment for young scientists is a positive contribution to the future of all humankind.

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