

## CONCEPTS ABOUT SCIENTISTS

**Xurramova Mohira Sa'dulloyevna**

**Email: xuramovf66@gmail.com**

**Address: Tashkent, Uzbekistan**

**Educational institution: Tashkent state medical university**

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**Annotatsiya:** Olim insoniyat sivilizatsiyasi taraqqiyotining eng muhim intellektual omillaridan biri hisoblanadi. U ilmiy izlanishlar olib boruvchi, yangi nazariyalar yaratadigan, tabiat va jamiyat qonuniyatlarini o'rganuvchi hamda ilm-fan rivojiga katta hissa qo'shuvchi shaxsdir. Ushbu maqolada olim tushunchasining falsafiy va ilmiy mohiyati, ilmiy tafakkurning shakllanish jarayonlari, olimlarga xos psixologik va intellektual xususiyatlar, ilmiy metodologiya, zamonaviy ilm-fan taraqqiyotining asosiy yo'nalishlari hamda buyuk olimlarning jahon sivilizatsiyasiga qo'shgan hissasi chuqur tahlil qilindi. Shuningdek, ilm-fanning tibbiyot, biologiya, texnologiya va ijtimoiy rivojlanishdagi roli keng yoritildi.

**Kalit so'zlar:** olim, ilm-fan, ilmiy tafakkur, ilmiy metod, innovatsiya, tadqiqot, intellektual faoliyat

**Аннотация:** Учёный является одним из важнейших интеллектуальных факторов развития человеческой цивилизации. Это человек, занимающийся научными исследованиями, создающий новые теории, изучающий законы природы и общества и вносящий значительный вклад в развитие науки. В данной статье подробно рассматриваются философская и научная сущность понятия учёного, формирование научного мышления, психологические и интеллектуальные особенности учёных, научная методология, основные направления развития современной науки, а также вклад великих учёных в мировую цивилизацию. Особое внимание уделено роли науки в развитии медицины, биологии, технологий и общества.

**Ключевые слова:** учёный, наука, научное мышление, научный метод, инновация, исследование, интеллектуальная деятельность

**Annotation:** A scientist is one of the most important intellectual factors in the development of human civilization. A scientist is a person who conducts scientific research, creates new theories, studies the laws of nature and society, and contributes significantly to the advancement of science. This article provides a detailed analysis of the philosophical and scientific essence of the concept of a scientist, the formation of scientific thinking, psychological and intellectual characteristics of scientists, scientific methodology, the main directions of modern scientific development, and the contribution of great scientists to world civilization. Particular attention is given to the role of science in the development of medicine, biology, technology, and society.

**Keywords:** scientist, science, scientific thinking, scientific method, innovation, research, intellectual activity

### Introduction

It is impossible to imagine the history of human civilization without science. In every historical period, social development, technological achievements, medical discoveries, and cultural progress have been closely connected with the hard work, scientific thinking, and research activities of great scientists. A scientist represents one of the highest forms of

intellectual activity, creating new knowledge, studying unknown phenomena, and seeking scientific solutions to existing problems.

In ancient civilizations, scientists were mainly engaged in astronomy, mathematics, medicine, and philosophy. Scholars from Egypt, Greece, India, and Central Asia made significant contributions to the development of science. In particular, the scholars of the Eastern Renaissance period played an important role in shaping modern scientific thought.

Abu Ali ibn Sino made an enormous contribution to the development of medicine and philosophy through his fundamental scientific works.

Al-Khwarizmi is recognized as one of the founders of algebra and algorithmic thinking.

Today, science includes highly advanced fields such as biology, genetics, artificial intelligence, microbiology, and nanotechnology. Modern scientists conduct research using laboratory experiments, clinical observations, and computer technologies, leading to groundbreaking discoveries and innovations.

### **Literature review**

According to scientific sources, a scientist is a specialist who creates new knowledge based on the scientific method. The scientific method consists of observation, hypothesis formation, experimentation, analysis, and conclusion. The primary goal of a scientist is to determine objective truth through evidence-based research.

Ancient Greek scientists attempted to explain natural phenomena through philosophical reasoning, while Eastern scholars significantly advanced mathematics, astronomy, and medicine.

Albert Einstein revolutionized modern physics through the theory of relativity.

Charles Darwin introduced the theory of evolution, fundamentally transforming biological science.

Scientific progress developed gradually and became the foundation for industrial revolutions and technological advancement. Particularly in the twentieth and twenty-first centuries, developments in genetics, immunology, and molecular biology initiated a new era in medicine and biotechnology.

According to WHO and UNESCO reports, scientific progress plays a decisive role in the economic and social development of countries. Nations investing in scientific research and innovative technologies occupy leading positions in global development.

### **Materials and methods**

This article was prepared based on the analysis of scientific literature related to philosophy, history of science, biology, medicine, and psychology.

The following directions were extensively studied:

- the scientific and philosophical essence of the concept of a scientist
- mechanisms of scientific thinking formation
- scientific methodology and stages of research
- contributions of great scientists to scientific development
- modern scientific directions and innovations
- psychological and intellectual characteristics of scientists

Additionally, the influence of modern science on medicine, ecology, biology, and technology was analyzed.

### **Results**

The study demonstrated that scientists represent the main intellectual force behind social and technological progress. Their scientific research leads to the creation of new technologies, treatment methods, and innovative systems.

The most important characteristics of scientists include:

- analytical thinking
- independent reasoning
- observation skills
- high intellectual activity
- creativity
- patience
- scientific logic

Scientific thinking enables individuals to understand the surrounding world more deeply. For example, the development of microbiology made it possible to identify the causes of infectious diseases.

Louis Pasteur contributed significantly to the development of vaccines and sterilization through the microbial theory of disease.

Marie Curie laid the foundation for modern radiology and oncology through her studies on radioactivity.

Modern scientists are actively conducting research in artificial intelligence, genome editing, regenerative medicine, and biotechnology. These developments contribute significantly to the future of medicine and technology.

### **Discussion**

Today, science is considered one of the most important driving forces of global development. Achievements in medicine, biology, physics, chemistry, and information technology are improving the quality of human life.

Scientists also play a critical role in solving global problems such as pandemics, environmental crises, and energy shortages. Through scientific research, new vaccines, ecological technologies, and alternative energy sources are being developed.

At the same time, the ethical and moral responsibility of scientists remains highly important because scientific achievements should serve humanity and social progress.

### **Conclusion**

A scientist is one of the most important intellectual factors in the development of human civilization. Scientific progress is closely connected with technological advancement, medical achievements, and improvements in human life.

The scientific heritage of great scholars forms the foundation of modern science. Future development will continue to depend on scientific research and the activities of scientists. Therefore, encouraging young generations to engage in science and developing scientific thinking remain among the most important tasks of modern society.

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