

АСТРОНОМИЯ ОТ ДРЕВНОСТИ ДО НАШИХ ДНЕЙ

Astronomy from antiquity to the present day

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Purpose:

To learn about the astronomy in the past and see how it is developing and in what way it is popularized on the local level now.

Tasks:

- To learn more about important discoveries and people, who developed and promoted astronomy;
- Understand, whether Novosibirsk has any museums or exhibitions, where people, who are interested in astronomy can see whatever they want;

Reasons:

I am very interested in studying astronomy and want to learn more about the history of the origin of such a promising science.

Hypothesis:

I have a hypothesis that in every big city there are places, where people can learn something new about history of the development of astronomy.

Methods:

1. Search;
2. Analytical;

Introduction

Astronomy is one of the oldest important sciences. As medicine and geometry. It studies space, planets and objects, that moving through the universe, that happen with stars and galaxies. Astronomy is related to physics, math and chemistry.

Astronomy in ancient times was rather astrology. Ancient scholars on the position of the stars and planets in the sky could have predicted various events, to warn of impending disasters. Thanks to observations of the sky, the first lunar and solar calendars appeared. Thanks to astronomy, since ancient times, every society has developed legends, myths and traditions associated with the sky, planets and stars, which are part of its cultural heritage.

All living organisms need to navigate in space. One of the main landmarks for them were space objects. For example, birds are well oriented by the sun, primitive hunters and fishermen knew the cycles of life and migration routes of animals, farmers were also dependent on seasonal changes; their work - sowing and harvesting-is impossible without a calendar.

The main text

I want to tell you about a long period of the development of astronomy all over the world. This period continues in our days! The history of astronomy isn't as short as people may think. In fact, it's as long as the history of the human's race. Scientists have been doing remarkable things for thousands of years.

I want to tell you about the states of antiquity, the discoveries of which made the greatest contribution to the development of astronomy.

Babylon

In the second Millennium BC, the Babylonians identified the moon in the sky, followed by Sirius, Orion, and the Pleiades. At the same time in Babylon there was an official position of the court astronomer who observed and recorded the most important changes in the sky. Ordered all the astronomical records of the Babylonians invented the lunar calendar. The Babylonians also knew the solar year. Beginning in 763 BC, the Babylonians compiled an almost complete list of eclipses.

Egypt

The ancient Egyptians created a calendar, the origin of which is associated with the star Sirius, whose appearance in the sky coincided with the summer solstice and preceded the flood of the Nile. This was noticed by the ancient Egyptians due to long-term observations of celestial bodies. The year in Egypt lasted 365 days. The year was divided into 3 seasons and included 12 months of 30 days. 5 days were added at the end of the last month of the year.

Ancient Greece

The ancient Greeks' idea of the Universe was greatly influenced by earlier cultures: Egyptian, Babylonian and ancient Indian. Many Greek philosophers and astronomers were engaged in astronomical observations. The ancient Greeks were familiar with many constellations. They created almost for every one of them their own legend.

China

Since 3rd century BC, Chinese enjoyed solar and water clock. All astronomical observations were conducted from special sites-observatories. Chinese astronomers divided the sky into 28 sections-constellations in which the Sun, Moon and planets moved. Then they isolated the Milky Way, calling it a phenomenon of unknown nature. The earliest star catalogue, including over 800 stars was compiled in 355 BC. A little later, the famous Chinese astronomer divided the sky into 124 constellations and recorded about 2.5 thousand visible stars. Over the time, China has become a closed country, so the development of Sciences, including astronomy, stopped.

India

The first objects of research were the Sun and the Moon. Like other ancient people involved the priests for astronomical, who were made in the later calendar. In the name of the days of the seven-day week, the names of 7 heavenly bodies were used: the first day is the Moon, and then Mars, Mercury, Jupiter, Venus, Saturn and the Sun.

In the 15th century, the era of great geographical discoveries began, thanks to which mankind has accumulated enough knowledge to begin to apply them. Therefore, in the period from the 15th to the 18th century, scientists began to use the information obtained by ancient scientists and the knowledge acquired during various experiments. At that time in history there was a large number of discoveries and inventions. They made a huge contribution to the development of many Sciences, including astronomy.

I want to tell you about some famous people, who have made great contributions to astronomy. I think that, they did the most important discoveries in astronomy.

Nicolaus Copernicus (1473-1543) - Polish astronomer, mathematician, mechanic, economist. He is known as the author of the heliocentric system of the world, which marked the beginning of the first scientific Revolution. He adhered to the

theory, that the Earth and other planets revolve around their axis and revolve around the Sun.

Galileo Galilei (1564-1642) - Italian physicist, engineer, astronomer, philosopher, mathematician, who has made a significant impact on the science of his time. In 1609 Galileo built his first telescope. He also introduced the term "telescope" into science. He proved that the Moon like Earth has a complex topography covered by mountains and moles, also proved that the light of the moon is the result of sunlight reflected of the Earth.

Mikhail Lomonosov (1711-1765) - Russian scientist-naturalist, chemist and physicist of world importance. In astronomy he was famous for the discovery of the atmosphere near the planet Venus. He designed and built several fundamentally new optical devices and also, he created the Russian school of scientific and applied optics.

Not all astronomers who have made a significant contribution to the development of this science were engaged in astronomy professionally, some of them were amateurs, and astronomy was their hobby. For example:

William Greshel (1738-1822) - English astronomer of German origin. Became famous for the discovery of the planet Uranus and its moons - Titlplay and Oberon. He is also the discoverer of two Saturn's moons and infrared radiation.

Practical part

Now people can find everything they want on the Internet, but sometimes you want to see something alive. I had a question: has the city of Novosibirsk any museums or temporary exhibitions on astronomical subjects, where the person will be able to see everything that he interested in.

Novosibirsk has a large modern planetarium. It opened in February 2012. This planetarium has an observatory with two innovative telescopes. There's a 15-meter Foucault pendulum and a small exhibition where there are many interactive

exhibits, such as a mock-up of a black hole. This planetarium offers different excursions for amateur astronomers. Children and teenagers have many different interesting tutorials about stars and planets. This is a full-dome planetarium, where thanks to modern technology, the audience sitting in the hall show interesting films about space on a large dome. I love this planetarium. I had visited it many times with my classmates.

Also, in Novosibirsk there is another planetarium, it was founded in 1952. Now it is located at the address: 9 Parhomenko street. After the emergence of a new large planetarium, it is called a small planetarium. I visited this planetarium for the first time, when I was 5 years old. Also, I visited it on the 1st of November of this year. It's cozy, I like it. There you can see a large model of the Moon, some telescopes, and watch fascinating movies about the stars.

As I said before, not all of astronomers were professional scientists. For some of them, watching the starry sky was just a hobby. Now, also, there are many amateur astronomers, who are developing this science. Some of them make great discoveries, while they observe celestial bodies and phenomena. In our city there is the Novosibirsk astronomical society. This is a large group of people, who have common goals and interests. They are interested in learning space and observation of space objects.

All these organizations make a great contribution to the development and popularization of such an ancient and at the same time promising science as astronomy. They hold different events, in which everybody is given the opportunity to observe some astronomical phenomena or objects.

I am surprised that in Novosibirsk there are a lot of different and interesting astronomical organizations, museums and planetariums. It's very good because the information that a person can get in the museum, is important not only for those who plan to connect their lives with astronomy, but also contribute to the overall level of culture of the inhabitants of our city.

Conclusion

Astronomy is a very old science. Scientists have made and continue to make incredible discoveries in astronomy. But now, in the 21st century, this science has reached a new level. Space has become a huge laboratory for scientists from all over the world. Now physicists and astronomers have a unique opportunity to conduct such experiments, which were not thought of before. After all, such experiments are impossible within the atmosphere of the planet Earth.

I am sure that in the near future there will be many discoveries in different fields of astronomy because astronomy does not stand still! The modern generation of scientists on the way to new great discoveries.

Also, I confirmed my hypothesis. There are quite a lot of places to study astronomy in Novosibirsk. The very important point is that children of our city are interested in learning this science. It's cool that school teachers support children studying of astronomy. They negotiate with museums and planetariums to conduct organized excursions. It is very good, because astronomy is a promising and developing science.

Resources:

1. Большой Новосибирский планетарий [Электронный ресурс]. – Режим доступа: https://nebo-nsk.ru/astronomy_i_ih_otkrytiya (дата обращения 20.09.2020).
2. КосмоГид – космическая энциклопедия [Электронный ресурс]. – Режим доступа: <https://kosmosgid.ru/astronomiya/kakoj-byla-astronomiya-v-drevnosti> (дата обращения 22.09.2020)
3. Энциклопедия школьника [Электронный ресурс]. – Режим доступа: <http://enciklopediya1.ru/%D0%B0%D1%81%D1%82%D1%80%D0%BE%D0%B%D0%BE%D0%BC%D0%B8%D1%8F-%D0%B2->

[%D0%B4%D1%80%D0%B5%D0%B2%D0%BD%D0%BE%D1%81%D1%82%D0%B8/](#) (дата обращения 19.09.2020)

4. Астеропа. Занимательная астрономия. [Электронный ресурс]. – Режим доступа: <https://asteropa.ru/rodonachalniki-astronomii/> (дата обращения 24.09.2020).