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TEACHING THE SUBJECT "GALAXY STRUCTURE, COMPOSITION AND ROTATION" USING THE "SWOT-ANALYSIS" METHOD

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Abstract
The article describes the advantages of the "SWOT-analysis" method in teaching the topic "Galaxy structure, composition and rotation".

Key words: Galaxy, Milky Way, nebulae, new and supernova stars, Cepheids, subsolar, black hole.

A galaxy (Greek: Галактикос - milky, milky) is a huge gravitational system of more than 200 billion stars, including the Sun, bound together by a common force of gravity. In addition to stars, the galaxy also contains interstellar medium - gas, dust and various small cosmic particles. It is almost identical in appearance to the famous Andromeda nebula, but significantly different in size. The diameter is about 30 thousand parsecs (pk); 1 pk=206264.8 astronomical units (a.b.)=3.2615 light years (y.y.)=30.8561015 m; the total mass is about 2-1041 kg (equal to 10 solar masses). The density in the vicinity of the Sun is ~4-10"21 kg/m^3.

The Uzbek name of the galaxy is the Milky Way, because since ancient times it has been observed that the stars are densely arranged in relation to a certain plane (the equator of the Galaxy), and our ancestors compared it to a path formed by straw spilled from a cart, and the Greeks compared it to milk spilled on the ground. The Greek philosopher Democritus assumed that the Milky Way consisted of countless stars. G. Galileo was the first to prove that it was so in 1610. The English astronomer W. Herschel began to consistently study the galaxy in the 18th century. Later, many scientists of the world studied it and discovered new aspects of the galaxy. In Uzbekistan, issues related to the galaxy are mainly studied at the Institute of Astronomy of the FA of Uzbekistan and the Department of Astronomy of the National University of Uzbekistan.

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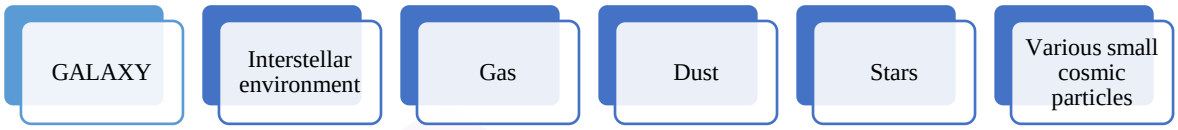

97% of the mass of the galaxy is made up of stars. The center of the Milky Way is at the core of the galaxy, and the galaxy rotates differentially around it. The axis of rotation of the galaxy is perpendicular to the plane of the Milky Way, its north pole is in the direction of the constellation Veronica's Hair, and its south pole is in the constellation Sculptor. The distance from the core of the galaxy to the Sun is 32.6 thousand yo. y.=30.85610"m. The solar system moves around the center of the Milky Way at a speed of 250 km/sec and makes a full revolution once in 230 million years. The solar system is only 66.22-1013 km from the equatorial plane of the Galaxy. This distance is about 150 times smaller than the average thickness of our Galaxy. Viewed from the side in the optical part of the galaxy, it has the shape of an elongated, thin lens. The main mass located along its diameter forms the Milky Way. Research on the structure of the galaxy is carried out in all bands of the electromagnetic radiation spectrum. Sources of infrared rays, X-rays and even gamma rays have been found in our galaxy. According to the composition, mass and other parameters of the galaxy, it consists of various separate components - core, disk, bulge, halo and corona. In terms of geometry and kinematics, the disc and the halo are very different from each other. The age of the disc is at least 2 times smaller than the age of the halo. From the point of view of the physical characteristics of the stars and from the point of view of their composition, the Galaxy is mainly divided into two constituent groups. Type I star clusters include the youngest, hottest stars, supergiants, long-period Cepheids, novae and supernovae, gas-dust particles, and scattered clusters of stars. The objects in this set are only in the Milky Way, its plane of symmetry, and its immediate vicinity. settles down and is not observed at all in other parts of the Galaxy, in particular in the core or halo parts. They are also called planar component objects. Cluster I stars are arranged in spiral networks in the plane of the Milky Way. It is for this reason that our Galaxy belongs to the class of spiral galaxies. Type II star clusters include short-period Cepheids, stars such as

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subcarpathians, red giants, and globular stars includes gangs. They are mainly located in the spheroidal part of the Galaxy. The value of the velocity dispersion of the stars of this cluster relative to the Galactic symmetry plane is much larger than that of the stars of the I type cluster. This is due to the origin and evolution of our Galaxy. Where there are objects of type II, no objects from the set of type I are observed, and vice versa, objects of type II are not visible in the part of the plane. This evidence shows that our Galaxy formed as a result of the gravitational compression of a spherical gas giant cloud, and its current structure was formed first by the stars of the sphere. The galactic center is located in the Sagittarius constellation. It is surrounded by a thick layer of more dust. The luminosity of the galactic center is 1042 erg/s. The core consists mainly of red giants and dwarf stars of lower spectral classes. The core of our galaxy and the Milky Way appear at first glance to be peaceful and quiet. In fact, various physical processes are observed in them, including explosions of stars, continuous separation of gas flows or complex collisions, collapsing of stars, formation of pulsars and black holes.

Calculations show that there are about 200 billion stars in our galaxy. Stars make up the bulk of our galaxy. In addition to stars, their various systems (nebulas, star clusters), interstellar gas and dust medium, cosmic rays, gases of hydrogen atoms, etc. can be found in it. Observations show that all stars, including the Sun, follow their planets around the core of our galaxy. The plane of the Milky Way forms an angle of 62° with the celestial equator. In this case, the speed of stars decreases according to their distance from the nucleus of our galaxy. The rotation speed of the Sun and the stars located near it is 240 km per second, and the rotation period is approximately 200 million years.

We use the "SWOT - analysis" method to reinforce the lesson.

"SWOT - analysis method.

The "SWOT - analysis" method is a method that analyzes all theoretical knowledge and practical experiences of students, solves problems by comparison, consolidates knowledge, repeats, evaluates, independent thinking, critical thinking, non-standard formation. In this method, students can do it as a team or individually.

Conclusion: Based on the above information, it can be said that the basis of the technology of education is to fully manage the learners, to increase its efficiency and to guarantee that the learners achieve the planned educational results under the given conditions and within the allotted time. is the organization.

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