No one disagree that science is about understanding the nature, tools and mechanism of the world. Modern scientists describe the nature as a continuum of physical world to the biological world. The need for interdisciplinary approaches in all branches of science has become increasingly obvious as the discipline becomes more quantitative and conceptual in approach.

We support the opinion that students should learn physics and biology not as separate disciplines but as complementary components of science as a whole.

The purposeful and meaningful integrated lessons establish strong links between disciplines; bring novelty to the traditional system of education, which help students understand the importance of learning. Integrated lessons make the learning process more interesting, and their conduct is necessary for a holistic perception of the world and understanding of the phenomena of the surrounding reality.

Integrated lessons can be provided in two ways:
- By combining similar subjects of several disciplines (mathematics-physics, physics-biology);
- Through the formation of integrated courses or separate special courses by combining the curricula of such courses (subjects).

Physics lessons integrated with biology are interesting. For example, many plants and animals have a strange property - to predict weather changes, to predict various natural phenomena: earthquakes, thunderstorms, volcanic eruptions. It is obvious that living barometers, compasses, seismographs are an interesting material for an integrated approach to teaching natural sciences.

Some examples of integration:
- 7th grade. Physics. "Diffusion in gases, liquids and solids." The phenomenon in which substances spontaneously mix with each other is called diffusion. Diffusion occurs faster in gases than in liquids. The phenomenon of diffusion occurs in solids, but very slowly.
- 9th grade. Biology. "Breath". The basis of gas exchange through the respiratory membranes is the process of diffusion. Only those organisms whose body thickness
is not more than 1 mm can do without additional transport systems (intestinal, protozoa, flatworms). In other cases, oxygen is transported either by the tracheal system or by special vehicles, after penetration through the outer exchange membranes.

7th grade. Physics. "The speed of movement of molecules and body temperature." The greater the speed of movement of body molecules, the higher its temperature.

8th grade. Biology. "Amphibians", "Reptiles", "Mammals". Cold-blooded are organisms whose activity depends on the temperature of the environment. After the lower limit, they fall into hibernation, which is accompanied by a strong slowdown in metabolism. Warm-blooded animals have a more intensive metabolism and energy, which gives them independence from temperature conditions.

The basis of the effectiveness of such lessons is a clear definition of the purpose and their appropriate planning to ensure the strategy comprehensive development of students.

A successful combination of integration and harmonization of knowledge will allow implementing interdisciplinary links, which, in turn, will help students form a unified picture of the world, scientific worldview, equipping them with a system of polytechnic knowledge in related subjects, providing a full and socially necessary level of education.

References: