

The thesis opens up the current topics and recent results of both experimental and theoretical physics in a connection to other disciplines belonging to so called natural science (biology, chemistry) and also information and communication technologies. It uses an attractive and understandable form of learning objects – students' projects, worksheets, or lists for teachers. The thesis involves the theoretical part with explanation of two education methods – inquiry-based learning (IBL) and problem-based learning (PBL) and also practical part with 5 topics – 3D vision, LCD monitors, luminiscence, microwave and pi-water. All of them are composed of information for teachers and of the worksheets for students. It is addressed to high school students.