

A Physics Students is Getting Ready for Vacations

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In the first spring days students start thinking about vacations, or rather about the seaside. In order to better motivate them we have prepared several experiments, which can be performed either outside or in the classroom, and which can be related to preparations for vacations.

In the experimental work, students of the Preschool Education and of the Primary Teacher Education programs at the Faculty of Education of the University of Primorska, Koper, were included in the framework of the Sciences-Physics course.

At the beginning of the school year tests were administered where students were required to perform experiments and deduce simple relations among quantities. Test results showed that they had difficulties in designing and performing experimental work. In the course of tests evaluation students mentioned little experience and poor skills as the main reasons for their bad performance. They like, however, simple experimental work proposed to them as a part of the Science course and are aware of its usefulness in their later work in the classroom.

In the contribution, we limit ourselves primarily to presenting the content-knowledge contained in the experiments rather than evaluation of the didactic effects, but information on the test at the beginning of the school year and on the results of the evaluation will also be given.

The first set of experiments proposed at the Science-Physics course is related to the protection against UV radiation. Using school instruments we measured radiation in different environments, compared it with data published by the government meteorological service, and tried to rate the quality of protective lotions. Students first had to figure out how to prepare samples of different lotions so that they could later measure the blocking capacity for UV rays and relate the results of the measurements to the manufacturers' label information.

The second set of experiments is related to heat. This theme is also of current interest due to the global warming and the cost of heating. It can be related to the heat insulation of dwelling spaces. We showed how many things can be discovered using a home-made measuring device called the "snake". Using it, we can estimate from the angular velocity of its spinning the difference between the temperatures of a body that radiates heat (like a radiator or a candle) and the ambient air. Simple measuring devices, made by students themselves, have several advantages, like: constructing them students learn how to solve basic technical problems; they are interesting because they show that one does not always need sophisticated commercial instruments to get simple estimates; simple measuring devices more clearly show the physics content of phenomena.

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