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**W** The concept of "sensor" in the system of physical experiment at school is considered in the article. The possibility of using sensors in physics lessons is substantiated: transformation of an input signal into an output is accompanied by transformation of one type of energy into another (according to the law of conservation of energy), and the functioning of the sensors are based on physical phenomena (physical effects or principles), which are described by the relevant physical laws. The article deals with the methodical aspects of using the Google Science Journal mobile application in physics lessons. This application allows you to use the sensors of your mobile device for a physical experiment. As an example we consider the frontal laboratory work "Determination of the period of oscillation of the mathematical pendulum". The method of its carrying out is offered in two approaches: the first one involves the traditional technique of conducting the experiment, and the second approach is using the mobile application Google Science Journal. The article shows that the use of smartphone sensors in physics lessons has perspectives in the context of STEM education. Thus, the use of the considered application is of current importance and requires further scientific and methodological research on its use in the high school physical experimentation system. The Science Journal mobile application can be used to connect external sensors, which will have a positive impact on the introduction of STEM education, and to use Arduino in the demonstration of physical experiments by a physics teacher. Connecting sensors using an Arduino microcontroller is particularly promising in creative lab work on physics.

**Keywords:** mobile learning; mobile devices; sensors; measurement of physical quantities; Google Science Journal; physical experiment; STEM education

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