

# What do you know about radioactivity and matter- how to build a good test?

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## *Abstract*

Large educational research project is being carried out in Poland, the Czech Republic and the United States. In this project the attitudes and misconceptions of several hundred high school students from the above-mentioned countries will be assessed on the concepts of radioactivity, matter and energy, and chronotype or sleep quality. The research will be conducted twice on a group of the same students - the first round online and the second on site. attitudes and misconceptions will be assessed using a 70 item questionnaire including the following types of questions: open-ended, MCQ, True-False and using the Likert scale. The preparation of the tool included many stages, including the Delphi technique:

- analysis of the subject literature,
- creating a detailed test plan,
- items construction,
- analysis and review of the tool by field specialists and educators,
- screen test on a group of several dozen students and
- micro-examination using the thinking-aloud technique.

After each stage, the tool was thoroughly analyzed and improved.

Participants of the workshop - specialists in the field of didactics and science - will have the opportunity - as specialists - to familiarize themselves with the content of the tool, the method of constructing the tool plan and the key codes, and discuss the nuances of individual items.

An additional advantage of participating in the workshop will be the opportunity to discuss their attitudes and check misconceptions about the subject of radioactivity

## *Keywords*

radioactivity, test, test item, knowledge