Education and Practice of the Physics Research to High school Students

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This research is related with instruction of research of the physics carried out to the Japanese high school students, and change of their scientific research capability. I have taught radiation research to the high school students for seven years by March, 2013 as a physics teacher at the Shizuoka Kita High School, Shizuoka, Japan.

After the Fukushima nuclear power plant disaster, the contents about radiation are incorporated in the government guideline for teaching of science of junior and senior high school, and the importance of radiation education is increasing in Japan.

In this presentation, I introduce the outline of students’ radiation study and my teaching method. Their study is about decontamination of soil that contained radioactive substances. They cultivated the plants with the soil of Fukushima and caught signs that radioactive cesium was absorbed by the plants, with the nuclear emulsion film. They detected the beta ray tracks which come out of the radioactive cesium absorbed in the pants with the emulsion plate. With the quantity of the radioactive cesium contained in soil, it became clear that the action of cesium within plants change.

We made the evaluation standard which evaluates High school students’ scientific research capability through instruction of these researches. This evaluation index estimates students’ enthusiasm, the details of research (research plan, the method of collecting proof, analysis, and consideration), and presentation skill. Students’ researches presented at the International Youth Science & Engineering forum were evaluated using this evaluation method, and the evaluation standard was brushed up.