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Educational programs executed in the Unzen Volcanic Area Geopark- examples of "Problem-solving type geotour"

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The result of the Programme for International Student Assessment (PISA) 2006, coordinated by the OECD, has been showed the decline of academic standard of Japanese children. In the evaluation as to reading, mathematics and sciences, reading showed remarkable decline of the score. For science category, it was emerged that Japanese children tend to be inferior the ability which recognize questions scientifically and which explain natural phenomena scientifically. The result of the PISA 2009 also showed same tendency. In order to correspond to these results, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) construct the new Courses of Study, which has been enforced to elementary and junior high school. The main purpose of the new Course of Study is to foster "zest for living"(IKIRUCHIKARA) in children; briefly to human nature, healthy body, and the ability to find out new problem and solve them oneself. I define this ability as problem-solving skills in this abstract.

On the other hand, it is needed for geopark to conserve and utilize geological and geographical heritages including human history and culture to scientific study, education, and tourism for local promotion. The purpose of the education promotion in geopark, therefore, must be corresponded to those of the Course of Study defined by MEXT. In this presentation, I introduce two educational programs of "problem-solving type" for elementary and junior high school student executed in the Unzen Volcanic Area Geopark .

Problem-solving type geotour I "Hot springs geotour"

The 6 grade of elementary school learn the character of liquid. In this unit, it is a purpose to classify the liquid into three groups using litmus paper; acidity, neutrality and alkalinity. The liquid used in this unit usually uses the hydrochloric acid, the soda water, the brine solution, vinegar, and the aqueous sodium hydroxide. In the geotour, experiment of classification of liquid uses real hot springs gushed out from ground. Since the Obama, Unzen, and Shimabara hot springs have different characters as to liquid quality; alkalinity, strong acidity and weak acidity, respectively, students can be learned the differences of the liquid by experiments for these hot springs.

Problem-solving type geotour II "Treasure Stone geotour"

The 1st grade of junior high school learn volcanic activity, igneous rock, and stratum and its special distribution. The purpose of the geotour is to understand the rock diversity by observation of rocks yielded from Shimabara Peninsula. In the Shimabara Peninsula, all of the main volcanic rocks (basalt, andesite, dacite and rhyolite) can be observed. In addition, conglomerates of sedimentary and metamorphic rocks derived from Kyushu Mountains are deposited at the coast of south area of the Peninsula. Therefore, various kind of rocks and their differences can be learned by a day.

Notes and problems of "Problem-solving type geotour"

The notes of "Problem-solving type" geotours are summarized as follows;

- 1) Intimate communication and giving information necessary to solve problem to children.
- 2) To secure safety and press remark and awareness of children, it is need to arrange an assistant per five children.
- 3) In order to develop the contents learned in geotour at school and /or home, it is prepared an original leaflet and a home teaching material.

And the problems of "Problem-solving type" geotours are also summarized as follows;

1) Since the "Problem-solving type geotour" need the original leaflets, experimental materials and home teaching materials, it costs compared with a usual tour, and needs preparation time.

2) To prevent the difference being caused in the content of the assistant's guidance, it is necessary the prior meeting among assistants.

Keywords: Unzen Volcanic Area Geopark, PISA, New Corses of Study, zest for living, problem-solving skills, problem-solving type geotour