An image for the junior high school students' geology

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A questionnaire was given to 164 third year junior high school students in order to find out their impressions of each of the four fields of science (physics, chemistry, biology, geology). The results for the field of geology included such comments as, "It is a little difficult." "I'm neither good nor bad at it." "It is familiar. " "It is easy to understand." Moreover, geology was listed as their second or third preference in the field of science to study in high school. (In the case of physics, the comments were, "It is a little difficult." "I'm not good at it." "It is pertinent to my daily life." "It is easy to understand." Many students listed it as their fourth choice.") One problem is that it cannot be verified by the eye right away. Another problem is that it is based on memorization. Another is that the field is extremely wide. There is also the problem of perspective, as well as the problem of the large number of technical expressions that one must learn.

On the other hand, there were opinions such as, "I'm interested in the universe." "The weather is very close to my everyday life." "The ground, the weather and the earth are always around one." "If it is learned by heart, it is easy." I found that it was in the field of geology that there was a division between those who like it, and those who don't. This is not a problem of only the teacher's ability, but also a problem of the essential character of the present system of geology education.

How can only seeing the stripes of the stratum enable a student who can't grasp spatial-time target scale know the period when the stratum was formed, even if field practice is done, if he or she doesn't think about it? How can he or she understand why the weather varies according to direction? I don't have an easy answer to these questions.

But, from the results of this questionnaire, I realized that many students did not necessarily hate geology. In fact, if they have the opportunity, they would actually like to study geology. But, there is the danger that this could result in the students grasping nothing more than a set of terms through memorization without developing a real understanding of the spatial-time target scale.

Well, in order to understand things, for example, the phenomenon of nature, the goal is to deepen the students' ability to observe, carry out experiments, and to check scientifically. This can be accomplished by developing the ability of the students to raise concerns for nature based on a sense of purpose. There should be no separation of the four fields of science. They are inseparable.

So, I want to propose that we use the system of Earth Systems Education. This system, based on the ideas of V. J. Mayer, is an education system based on looking at the overall world environment. This system is not science taught by a system of education like at present, but rather synthetic science education based on learning by setting seven goals for understanding which relate to the system of the earth as a planet. [the fundamental general idea of science]. However, there is a difficulty in integrating this system with the present curriculum. However, the way of evaluating the students' level of comprehension based on this system is thought to be connected with raising the students' ability to see the whole earth synthetically and to see science as coexisting with nature.