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An attempt to construct a recipe of geoscience experiments for teachers at primary and lower secondary schools

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Recently, primary and lower secondary school teachers do not have enough time to prepare classes in 'RIKA', which is roughly a subject of natural science, especially in experiment classes. This is because they are swamped with incidental tasks besides classes. Moreover, many primary school teachers have are weak in RIKA's teaching because of the academic background of most of them is not natural science. Therefore, many of them have a tendency to teach RIKA without experiments. Their arguments why we cannot teach experiments are not only lack of preparation time for experiments in RIKA, but also minimal information for experiments on RIKA's textbooks and teaching guidance books for teachers.
Therefore, we have attempted to construct a recipe of geoscience experiments for teachers at primary and lower secondary schools. The policies of making it are as below.
1) Any teachers are able to prepare geoscience experiments class without taking much time using the recipe.
2) Required experimental instruments by the recipe are only common scientific instruments such as a gas burner and cooking tools like a plastic bottle is used, except special cases where, for instance, a vacuum vessel and cooking tools like a plastic bottle.
3) The proposal for experiment's substances can be made all experiments by not only teachers but also primary and lower secondary school students.
At first, we selected regular experiments for school teaching based on present 6 and 5 types of RIKA's textbooks for primary and lower secondary schools, respectively. Some experiments require using special scientific instruments which are not always ready at schools. These experiments will be replaced by other ones which require using only common scientific instruments and cooking tools.
Secondly, we have dug up obscure teaching class guidelines for each experiment. This is because the information is not spread out all over schools across, prefectural education centers, and so forth though many teachers made a lot of the experiments themselves.
Finally, we would like to put the recipe in the JpGU web site and publish a book with some publishers for primary and lower secondary school teachers. In this presentation, we will focus on the current status of this study and try to report clarified problems to be solved in future.

Keywords: geosciences, experiment, recipe, primary school, lower secondary school, teacher