

# A comparison of geoscience teaching in the Japanese and Egyptian education systems with special emphasis on secondary schools

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## 1. Introduction

The need to improve the geoscience curriculum in Japan has become increasingly apparent in recent years. Ideally, this improvement should address the geoscience curriculum at all levels between elementary school and undergraduate university, and reach even those students who are not majoring in geoscience. Therefore, it seems prudent to review the conditions of geoscience education in other countries before undertaking any curriculum improvements in Japan. In this study, we compare the geoscience education conditions in Japan with those of Egypt with the aim of elucidating the different approaches taken in both countries.

## 2. The school system in Egypt

The school system in Egypt is similar to that in Japan. Children enter the education system at the age of six, and complete six grades of elementary school education and three grades of lower secondary school. In cities, more than 90 percents of students graduating from lower secondary school enroll at an upper secondary school, which also comprises three grades.

Elementary schools offer the subject 'Science', but this does not include earth and planetary sciences. Lower secondary schools also offer 'Science' and earth and planetary sciences units have been included since the 2001 academic year. Upper secondary schools offer physics, chemistry and biology in addition to environmental science and geology as science subjects.

## 3. Course registration: Egypt vs. Japan

In the second and third grades of upper secondary schools in Egypt, students must select one of two streams of study, namely science or arts. In the 2004&#8211;2005 academic year, about 50 percents of second grade students elected to study science, and about 20 percents of third grade students. Students who choose to study in the arts stream must include one scientific subject, and vice versa. Schools offer five science subjects (mathematics, physics, chemistry, biology, and environmental science and geology) and three optional subjects (social sciences, environmental science and geology, and statistics). Currently, almost all arts students choose to study environmental science and geology as their optional subject, while science students rarely choose environmental science and geology.

In Egypt, each upper secondary school offers the environmental science and geology because almost all arts stream students choose to study it. The subject must be offered at each upper secondary school, even if only one student wishes to study it. In Japanese upper secondary schools, however, if there are no geoscience teachers and/or only a few students want to learn geosciences (Chigaku), schools do not offer this subject. In this particular point, the Egyptian school system is more accommodating of students' choices and it would be greatly beneficial to Japanese students if the domestic system followed Egypt's example in this regard.

## 4. Conclusion

A thorough study of the Egyptian geoscience educational system has been performed to assist in improving the geoscience curriculum in Japan. The study revealed that about 80 percents and 20 percents of upper high school students graduate in arts and sciences, respectively. Most arts stream students choose to study environmental science and geology, while science stream students rarely opt for this subject. Interestingly, each upper secondary school in Egypt offers the environmental science and geology every year, even if there is only one student in the class. The situation is different in Japan and should be modified accordingly, not only in the case of geoscience but also with the curriculum in general.

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