

## Educational activities at Shirataki Geopark: Practice of Shirataki Obsidian Class Learning Obsidian and Volcano

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The main theme of the Shirataki Geopark, northern Hokkaido, is a harmony of earth science and history of people, and we can deeply imagine unique volcanic activity that formed obsidian and prehistoric people that survived the last glacial maximum at the deep forest in the Shirataki Geopark area. The Shirataki Geopark is characterized by the nation's largest obsidian origin, some complete exposures of the compact obsidian layers. The Shirataki obsidian was formed by quenching of aphyric rhyolite magmas at least 10 lava units at about 2.2 Ma.

Shirataki Geopark has been practicing various activities to elementary schools and visitors Geopark for understanding of the unique volcanic activity that formed this obsidian. Volcanic Petrology Laboratory, Hokkaido University of Education at Asahikawa, has developed a learning program of Shirataki obsidian. In this program we have performed vesiculation experiments of obsidian using a portable charcoal stove in addition to general talk of volcano, sample observation of volcanic products, analog experiment of volcanic eruption using a water tank. This foaming experiment is suitable to understand that the role in H<sub>2</sub>O in magma is large during eruption. In this experiment, we can imagine how the magma from glowing charcoal stove at high temperature inside. When heated at a high temperature, H<sub>2</sub>O remaining in the glass structure continues to foam, dense obsidian bulge as bread. This changes to the substance that is completely different in appearance, must feel the *mystery of science* to school students.

Shirataki elementary school has been consistently integrated learning through *stone education* utilizing the geological heritage of the region. The children are confident in this thing for obsidian. Shirataki Geopark has helped human resource development in the region, to take advantage of the education of children.

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