

<SSH米国海外研修報告> 2学年のSSHプログラムの一つとなります

12月10日(日)~12月15日(金)(4泊6日)米国カリフォルニア州サンフランシスコ市郊外、及びヨセミテ国立公園で生徒9名、教員2名で本年度のSSH米国研修を実施しました。

参加者：普通科 坂戸里恵加 竹内詩織 高野歩有 納富笑美 柄澤優之 高嶋菜々

理数科 井浦瑞葵 太田真衣佳 下崎高 引率職員：横澤克彦 長山耕己 (敬称略)

Yosemite

We went to Yosemite National Park on the first and second days of training in the United States.

There, we saw Half Dome in Yosemite Valley.

We were surprised by the size of the rocks which were everywhere, and El Capitan which is the biggest monolith in the world.

The geology of Yosemite National Park is granite. The granite was formed underground by moving plates in the age of the dinosaurs. The granite was approaching the surface gradually by erosion in the river. Later, the mountains

lifted higher and Yosemite's granite appeared. As the mountains rose, powerful rivers cut Yosemite's valleys, carving them into V-shaped canyons. During the ice age, the valleys were carved out by glaciers. Then the glaciers made today's Yosemite Valley.



↑ **El Capitan**



We sample water at Yosemite National Park and analyze it every year. Yosemite National Park has an abundance of water from the thaw. So, there are many landmarks in the basin system such as the Tuolumne River, Merced River, Yosemite Fall, Ribbon Fall, Bridalveil Fall and Mirror Lake in Yosemite National Park. There are also about 3200 lakes, and when the length of all rivers are put together, it is 2700km. Yosemite Falls is the highest waterfall in North America at 739 meters. As mentioned above, Yosemite National Park is mostly composed of granite, and metallic ion. We hypothesized metallic ions within the granite dissolves into

the water and that the concentration of those ions may increase due to the length of the river. The places where we sampled water this time were (1) Fern Spring (2) Sentinel Flannel Bridge (3) Valley View (4) Bridalveil Fall (5) Sentinel Flannel Bridge lower-class (6) Mirror Lake lower-class (7) Mirror Lake (8) El Portal and (9) El Portal lower-class. From now, we are scheduled to analyze water in detail at Shinshu University.

There are some myths made by indigenous people in Yosemite National Park. "There was a married couple long ago in this valley. They often had quarrels. So a spirit who saw them got angry, and he changed them into rocks separated from each other. The wife became half-dome, the husband became north-dome." We could see the stain of the half-dome which looked like a face of crying woman. The design of nature impressed me. I felt magnificence to it. And Yosemite national park calls people, "not to chuck away or not to feed animals with people's foods". One reason is because animals will lose their ability to find foods by themselves, and the other reason is that foods for human is harmful for animals. We thought we must be careful with wild animal's health.

NASA Ames Research Center



We visited NASA Ames Research Center. There were many exhibitions of NASA's research. We could see a rock which was brought from the moon. I could not tell the difference from the normal rock. So, I want to know what is different. I was interested in the exhibition which shows the attraction between planets. We can learn about the movement of planets. The movement is strange and fantastic. If you see it, you will be fascinated by it. We can

buy space foods at the store there, as well. When you eat it, you can feel the same as the astronauts. We were very interested in the space science and research of NASA.

Intel Museum



We went to a famous semiconductor company "Intel Museum" in Santa Clara, Silicon Valley.

Intel is a place where they mainly manufacture CPUs (central information processing equipment in computers).

Mr. Gordon Moore created "Moore's Law", and developed a CPU with it as a goal.

I was most surprised at Intel's early CPU "Intel 400", because the size was too large to handle small information. However, the current CORE processor is much faster and lighter. The reason for this is that the circuit became thin and a new idea of a three dimensional structure was born. Their fineness was purely surprising.



Besides, we have experienced the binary practice done with transistors, the speed of electric signals, and wearing "rabbit suit" used in the factory.

After seeing these, we were able to learn the magnitude of Intel's development capability. I hope to see the evolution of Intel from now on.

De Anza High School



We went to De Anza High School to promote friendship. First we were guided to the library. What we got interested in was an anime magazine called "OTAKU". Also in the USA, anime is so popular. There was a school newspaper, too. I thought that creative activities flourished at this school.

Next we visited a chemistry class. After we watched an exothermic reaction experiment, they showed us a demonstration of setting fire to bubble of gas. We can't easily do that type of experiment, so I felt a difference. After that we were taken to many class in a short time. Some of them were professional classes.

In the USA, high school students can take advanced classes. It made me think about the USA's different education curriculum.

Next, we had a meet and greet. We presented an introduction to Yashiro High School and Japanese culture. The presentation really came alive, especially when we told cloth dying. In the presentation of dying, we questioned the quiz "What was it dyed with?". As there were many surprising choices, the student of De Anza High School were very surprised, but they seemed to have fun.

Then we had lunch together. We talked about the differences of our school life and our hobbies with them. We didn't have enough time, but we got a great experience.

California University

We visited the California University, which is called “Tokyo University in the American West Coast “. It is one of the most high-level universities in USA.

We listened to a lecture on building dams by Mr.Vincent, there. He taught us a lot about dams with many pictures, without using difficult words. His presentation made me a deep impression on me. I asked him a question, “How long does it take to build a dam?” He smiled and answered, “It is a good question! Well, we usually take 5,or 6 years.“ I was impressed by his polite attitude. He was caring other person who listened to his presentation. I thought he was very respectable.

Academy of science

Academy of science is a big museum that have many sections such as an aquarium and a planetarium. We had interesting experiences there. For example, in the tropical garden, we could see the living things from rain forests. There were many plants and trees like real rain forest. Many butterflies and birds were loosed there, and they flew just nearby us. In the basement floor, there was the aquarium. About 4000 kinds of creatures were there. The



biggest water tank was worth watching. In the planetarium, the seats were lined steeply like in a theater. Images displayed on the big screen were very beautiful. It made us feel like we were flying in space.

～お知らせ～

来年度も SSH 米国研修(SSH 科目 1 単位)を実施する予定です。なお、3月1日(木)の SSH フォーラムでは、**米国研修報告の口頭発表**並び

に**首都大東京井上晴夫先生**による「**人工光合成**」の講演がもたれます。双方ともお楽しみに！

米国研修後の生徒の皆さんの感想より

- ・ ヨセミテ国立公園でのフィールドワークでのアンドレアさん（ナチュラリスト）の話は、分かりやすい英語を使って聞き取りやすく環境を守ることの重要さが分かった。
- ・ デアンザではとにかく「臆することなく自然に話す！」につとめ、その通り英語でスラスラ話せたので、英語に対して自信を持つことができました。
- ・ リスニング力が向上したと思う。現地高校生の今が見られてよい経験になった。
- ・ 準備など大変だったが、高校交流や大学での講義など生の英語に触れることができてよかった。さまざまな科学関連施設を見学することで、科学への興味関心が高まった。NASA は小規模であったが月の石かもしれない石を見ることができたのでよかった。