

Form B-2
(FY2021)
Must be typed

Date (日付)
19/07/2021 (Date/Month/Year: 日/月/年)

Activity Report -Science Dialogue Program-
(サイエンス・ダイアログ事業 実施報告書)

- Fellow's name (講師氏名): Robert Claude Meffan (ID No. P20799)
- Name and title of the accompanying person (講義補助者の職・氏名)
Mr. Hiroki TAKEMURA
- Participating school (学校名): Higashi Hikone Highschool
- Date (実施日時): 15/07/2021 (Date/Month/Year: 日/月/年)
- Lecture title (講義題目):
How to make micro-machines
- Lecture format (講義形式):
 ◆ Onsite ・ Online (Please choose one.)(対面 ・ オンライン)((どちらか選択ください。))
 ◆ Lecture time (講義時間) 80 min (分), Q&A time (質疑応答時間) 10 min (分)
 ◆ Lecture style(ex.: used projector, conducted experiments)
 (講義方法 (例: プロジェクター使用による講義、実験・実習の有無など))
Projected lecture and student quiz

- Lecture summary (講義概要):

My lecture to the students was divided into two parts. In the first part I talked about my home country, New Zealand. The first section was 20 minutes long. In the second part, I showed them the basics of my field of research, Micro-fabrication. The second section was 60 minutes long. Leaving 10 minutes for questions.

In the first section, my goal was to introduce myself to the students and tell them what motivated me to choose science and research as a career. I also showed them some pictures of New Zealand animals – as these are a fun and interesting aspect of life in New Zealand.

In the second part, I wanted to show students the core process behind micro-fabrication technology, and show them the applications of micro-machines in general. Micro-machines like sensors, and actuators are crucial to modern life – but the way they can be made is difficult to imagine. As such my goal for this part of the lecture was to de-mystify the ways that these

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machines are made, and show the suprising range of things which can be done with them.

I began by introducing some of the basic terms of micro-machines, such as the scale of measurement used (micro-meter). I then showed them electron microscope images of a range of micro-machines ranging from a gyroscope to a nano-injector. I emphasized that micro-machines can be used for both commercial and scientific purposes, and that many everyday objects like mirrors, scales and switches can be miniaturised to be used for many different purposes. The students played a guessing game/quiz where I showed them a pictures of micro-machines and asked them to guess what everyday object they thought it was, and what it was used for.

In the second half of the lecture, I showed them the core technology behind micro-fabrication "Photolithography" in a conceptual way. I wanted to describe the core concepts, rather than specific technical information. I showed them several recent news stories about technological development in Japan, and told them how photo-lithogrpahy was a large part of these new developments.

We finished the lecture with some questions. The students had worked hard to understand such a challenging lecture in english, and several motivated students has very insightful and interesting questions.

◆Other noteworthy information (その他特筆すべき事項):

N/A

- Impressions and commnets from the accompanying person (講義補助者の方から、本事業に対する意見・感想等がありましたら、お願いいたします。):