

(For JSPS Fellow)

Form B-5

Date (日付)

_____ (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): Gavin Craig (ID No. P16037)

- Participating school (学校名): Hyogo Prefectural Kobe High School

- Date (実施日時): 17/10/2017 (Date/Month/Year: 日/月/年)

- Lecture title (講演題目): Applications of Coordination Chemistry (in English)

(in Japanese)

- Lecture summary (講演概要): Please summary your lecture 200-500 words.

The lecture was on the applications of coordination chemistry. In the first part of the talk, I gave a brief description of Scotland, and spoke about some famous Scottish scientists and their discoveries. I then described what first interested me in science, why this led me to study chemistry, and gave some details of my career as a researcher so far. I explained where I work in Japan, and why I came to Japan to perform scientific research.

I gave an introduction to the fundamentals of coordination chemistry, which is my field of research. The importance of coordination chemistry in biological processes was illustrated as an example, by describing how we breathe. I followed this by describing some of my previous research in coordination chemistry, where I used high pressure to change the structure and properties of small molecules.

The next section was used to describe our research into porous materials. First, I described what porous materials are, and gave some examples, describing the size of the pores. I brought a model of a porous material, which was passed around the class. I then showed that these materials could be useful to store carbon dioxide, and in this way tackle the problem of global warming. I described how we can design porous materials, and how we can design the pore size that they display, and also covered the first discovery of porosity in these materials.

After the introduction to the concept of porous materials and description of their properties, the students then performed an experiment in pairs to make the coordination polymer HKUST-1. When they had done this, I then described the polymer that they had made, and showed that it is commercially available on the internet.

Finally, I described some of our latest research in Kyoto, where we make small porous molecules. To illustrate these small molecules, I brought a 3D-printed molecule, which was passed around the class. We finished the lecture with questions from the students, and I asked the class some questions.

- Language used (使用言語): English. ___

- Lecture format (講演形式):

◆Lecture time (講演時間) 60 min (inc. experiment) (分), Q&A time (質疑応答時間) 20 min (分)

◆Lecture style (ex.: used projector, conducted experiments)

(講演方法 (例: プロジェクター使用による講演、実験・実習の有無など))

For the lecture, a projector was used for the presentation. Models of the compounds were passed around the class. An experiment was performed to make a porous material. ___

◆Interpretation (ex.: assistance by accompanied person, provided Japanese explanation by yourself) (通訳 (例: 同行者によるサポート、講師本人による日本語説明))

I sent the presentation to the hosts 2 weeks before my visit, so that they could prepare the students for the more difficult concepts. _____

◆Name and title of accompanied person (同行者 職・氏名)

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

- Impressions and opinions from accompanied person (同行者の方から、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。):