（**For JSPS Fellow**）

Form B-5

Date （日付）08/02/2016
（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）：（ID No. P 15775) Mason Pember

- Participating school （学校名）: Fukui Prefectural Fujishima Senior High School

- Date（実施日時）：（Date/Month/Year:日/月/年） 28/01/2015

- Lecture title （講演題目）:（in English) Minimal surfaces

（in Japanese）

- Lecture summary （講演概要）: In my lecture I started by talking about my home country - the UK. In particular I explained how the UK is divided into four countries and how the flag of the UK is formed by the flags of these four countries. Following that, I used photographs to describe my hometown (Hereford) and where I went to university (Bath). Whilst describing these places, I explained how I got involved in mathematics. I then gave an introduction to my research field - differential geometry. As an example I talked about geodesics - the shortest distance between two points on a surface. I demonstrated this idea by asking the students to draw the flight path that they thought I travelled along to get from the UK to Japan. I then explained why such a flight path was used by explaining the geodesics on a sphere. I then defined the mean curvature of a surface and minimal surfaces using a blackboard diagram. After that I gave a demonstration of how to create minimal surfaces using wire frames and soap bubble solution. The students were then each given a piece of wire to bend into a frame and create their own minimal surfaces. I then showed on the projector some interesting examples of minimal surfaces and how the theory of minimal surfaces has been applied in real life. After this I briefly talked about the Gaussian curvature of a surface and Gauss's Theorema Egregium (Gauss's amazing theorem). I then demonstrated how we can apply this theorem

to world maps, pizza eating and relativity. We then had a brief question and answer section after the lecture.

- Language used （使用言語）: English

- Lecture format （講演形式）:
  ◆Lecture time （講演時間） 70 （分）, Q&A time （質疑応答時間） 10 （分）
  ◆Lecture style（ex.: used projector, conducted experiments）

I used a projector but also used the blackboard to draw diagrams. I did an experiment showing how to create minimal surfaces using a wire frame and soap bubble solution. The students were each given a piece of wire to create their own surfaces.

◆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））

◆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。）:

Must be typed