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Form B-2
(FY2022)
Must be typed

Date（日付）
20/12/2022 （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）: Gergő Nemes （ID No. P21020）

- Name and title of the lecture assistant（講義補助者の職・氏名） 首藤 啓，教授

- Participating school（学校名）: 山梨県立甲府南高等学校

- Date （実施日時）: 16/12/2022 （Date/Month/Year:日/月/年）

- Lecture title（講義題目）:
The formula that drew me into mathematics

- 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）60 mins（分）, Q&A time（質疑応答時間）30 mins（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））
used projector

- Lecture summary（講義概要）: Please summarize your lecture within 200-500 words.

My lecture started with a self-introduction through some basic personal information. I continued by showing the location of my country (Hungary) on the world map. Then gave some basic information about Budapest, the capital of Hungary, and Hungarian culture using several pictures. I also showed the students a picture of my own high school where I became interested in mathematics. The lecture continued by describing a classical mathematical problem of summing the positive integers up to 100, and then to any given integer. This was followed by setting up an analogous problem: what is the product of the positive integers up to a given number? Thus, I defined the notation of the factorial and provided an application. Then the goal of the talk was to find a simple approximate description of the factorial. We first considered a simple upper bound which we found too weak. Then we gradually discovered the idea of representing the factorial of n in the form $(n/c)^n$ with some constant c. I showed the students the recursion formula for the factorial and this led us to the discovery of Euler's number e, which is the best value to use for c. Then I showed a better estimate to the student and reminded them about the circumference of a circle. The number π appearing in this geometric problem was used to present the final result:

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Stirling's formula for the factorial. This was the formula that drew me into mathematics. Finally, I talked about some of my own contributions to mathematics. Throughout the lecture, the students learned about four outstanding mathematicians: Gauss, Euler, de Moivre and Stirling.

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

- Impressions and comments from the lecture assistant（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。）:

高校生の時代に第一線の研究者と対面で接し交流を行う機会はたいへん貴重で，高校生たちの大きな励みと刺激になると思います．場合によっては将来の進路選択に大きな影響を与える可能性もあると思います．その意味で本事業の意義は大きく，今後も継続して欲しいと思います．昨今，オンラインでの講義はいろいろなものがあるので，是非，高校に出向いて対面で高校生たちと直接交流をもつことを奨励して欲しいと思います．