



Taipei First Girls High School



Ochanomizu University Senior High School

Independent Research Report x Online Exchange

[Abstract]

1. **Misaki Hoshiga, Ochanomizu University Senior High School**

The Reason Why Back Number's Lyrics Attract People

"Back number" is a popular Japanese rock band, whose songs are used as the theme songs in many TV dramas in Japan as well as overseas and who has broken the record in the hit charts several times. The reason why so many people listen to their music is that their lyrics are emotional and move people's hearts. In this study, the reasons why back number's lyrics attract people and how different their lyrics are from those of other artists are examined.

2. **Akari Utsumi, Ochanomizu University Senior High School**

How to Prevent Oxidation of Fish Oil

Because fish oil is highly susceptible to oxidation, it is necessary to find ways to reduce its oxidation to develop effective use of discarded tuna skin. In the experiment, the degree of oxidation of the oil, i.e. how much peroxide is being produced was measured. To create a new preserved food using dried tuna skin, I must find a way to suppress oxidation. To do that, nutrients with antioxidant properties including vitamin E, vitamin C, and polyphenols will be used. I would like to investigate how much the oxidation of the oil can be suppressed by kneading ingredients rich in these nutrients into the tuna skin before drying it.

3. **Momoka Sono, Ochanomizu University Senior High School**

How to Improve Non-Cognitive Skills

Non-cognitive skills cover a range of abilities such as cooperativeness, perseverance, and communication skills. Previous research shows that non-cognitive skills affect our academic achievement or future income level. The study aims to find ways to improve non-cognitive skills, which eventually would contribute to reducing economic inequality. I would like to examine the most ideal school education to improve non-cognitive skills, comparing the school education in Japan with those in other countries.

4. **Joanna (于侑庭), Taipei First Girls High School**

Shakespeare's Sisters in the East: the Female Poet, Yu Xuanji, in the Late Tang Dynasty

The Tang Dynasty is a prosperous era, nurturing numerous brilliant poets. However, we have difficulty naming any female poets because of the oppression of patriarchal society. Just like the allusion of Shakespeare's sister in the west, as talented as they might be, the female poets and their great works have long been silenced in history. Yu Xuanji, a splendid female poet in the Tang Dynasty, who tirelessly

pursues her ideal despite being trapped by the social custom. By reviewing her works, this plan aims to voice this female talent oppressed in history and create a wider vision for the girls like you and me.

5. Peggy (樂可佩), Taipei First Girls High School

Molecular Gastronomy—Spherification

Spherification technique is one of the principles of molecular gastronomy, it can be used in many aspects of life. Using sodium alginate solution and calcium ion solution to make gelatinous substances. Differences in concentration and production orders are used as independent variables. The appearances of gelatinous substances were photographed and compared between different groups of experimental results. For the firmness of gelatinous substances' membranes, measuring the height at which it will break, then convert the height to velocity using the free fall formula. At last, discuss the results and details of the experimental procedures.

6. Claire (劉曉芹), Elissa (蘇勻郁), Taipei First Girls High School

Develop a game about feminist issue in Afghanistan by Unity engine: storytelling, u¥Understanding, and Reflection

Inspired by current affairs discussions in school civics class, we plan to make a game that incorporates feminist issues in Afghanistan. We hope everyone can easily understand women's rights issues. We searched for nearly 100 years of the evolutionary history of Afghan women's rights, transforming it into stories and gameplay, and finally proposed a game plan. In addition, we also extended the use of Unity we learned during the period to make a driving simulator for the First Robotic Competition for high school students so that we can practice and familiarize ourselves with the competition venue before the competition. Through Independent Research Report, we learn to write C# programming, information retrieval, and opinion formation, as well as problem-solving skills and explore contemporary trends that combine reality and virtuality.