

9th Science Conference in Hyogo

Learning Science through English



Date : July 16th, 2023 9:40~16:00

Venue : Kobe University Centennial Hall

Hosts : Hyogo “Sci-Tech” Jigyo Suishin Linkai

Partners : Kobe University, Kobe University Science Shop

Cover Illustration

Shun Itoh (Hyogo Prefectural Kobe High School)

Science Conference in Hyogo(guidelines for applicants)

Learning Science through English

1 Goals

- 1) to increase the opportunity to implement scientific theories from a global context by broadening students' global perspective and promoting international exchange in the science and technology field
- 2) to improve students' English ability especially in the science and technology field via the use of presentations and Qs and As in English
- 3) to foster hopes and aspirations toward a career in the fields of science and technology field for young people who will be the driving force of Japan in the future

2 Hosts

Hyogo "Sci-Tech(Science & Technology)" Business Promotion Committee

Hyogo Prefectural Board of Education

15 Super Science High Schools in Hyogo Prefecture

(Akashi Kita High School, Amagasaki Oda High School, Ono High School, Kakogawa Higashi High School, Kobe University Secondary School, Sanda Shounkan High School, Takarazuka Kita High School, Tatsuno High School, Toyooka High School, Himeji Higashi High School, Himeji Nishi High School, Mukogawa Women's University Junior & Senior High School, Rokko Island High School, Nagata High School, Kobe High School)

3 Partners

• Kobe University

• Kobe University Science Shop

4 Date

16th, July, 2023 (Sun) 9 : 40 ~ 16 : 00

5 Venue

• Kobe University Centennial Hall (1-1 Rokkodaicho, Nada Ward, Kobe 657-8501)

6 Schedule

9 : 20 -

Reception

9 : 40 - 9 : 50

Opening Ceremony

9 : 50 - 10 : 50

Special Lecture by 藍原 祥子 (AiHARA, Yoshiko Ph.D)

Assistant Professor

Division of Applied Chemistry in Bioscience

Department of Agrobioscience

Graduate school of Agricultural Science Kobe University

Title: Can we explain 'tasty'?

11 : 00 - 11 : 50

Lunch Break (Presenters set up their posters/computers and get ready for presentations. Presenters and audience move to the venue for presentations.)

12 : 00 - 14 : 35

Presentations with posters and slides

<20 minute cycle (15 minute presentation and 5 minute break)×8 times+extended break>

<Announcements will be made over the broadcasting system. Please follow the instructions.>

※ Presentations:15 minutes + Intervals: 5 minutes

Presentation	Time	Odd-numbered Posters	Even-numbered Posters
Round 1	12 : 00-12 : 15	●	
Round 2	12 : 20-12 : 35	●	
Round 3	12 : 40-12 : 55		●
Round 4	13 : 00-13 : 15		●
Round 5	13 : 20-13 : 35	●	
Round 6	13 : 40-13 : 55	●	
Round 7	14 : 00-14 : 15		●
Round 8	14 : 20-14 : 35		●

14 : 00 - 16 : 00 Science Café

14 : 45 - 14 : 55 Feedback and Closing address (over the broadcasting system)

7 Eligibility for Participation

- (1) Only students at a high school, technical college (year 1-3), and/or six-year secondary school(year 4-6) can participate as presenters.
- (2) The 9th Science Conference is open to 16 SSH high schools only.
- (3) It is free of charge to enter the conference as a presenter or an audience member. However, no travel expenses for students or teachers will be covered. Teachers' travel expenses will need to be covered by their respective schools. No travel expenses for students or teachers (except ALTs) will be covered. Teachers' travel expenses will need to be covered by their respective schools.

8 Application

Please fill out the application form and complete both of the two procedures below **by 23rd, June 2023**. Please write your presentation title and summary (about 200 words) in English.

- (1) Print out the application form and send it to the following address.

Hajime Nakao Hyogo Prefectural Kobe High School 1-5-1 Shironoshitadori, Nada Ward, Kobe 657-0804
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- (2) Email the application form as an attached file to the following address.

E-mail : kobe-hs-core@hyogo-c.ed.jp (Hyogo Prefectural Kobe High School, Mr. Nakao)

E-mail title : 「SC 申込」

File name : 「SC 団体名」 (ex.) 「SC 神戸高」

9 Presentations

- (1) The presenters must present using a poster or slides. The presentation, poster/slides, and questions and answers must be in English. Explanatory notes and additional materials in Japanese can be used if necessary. Teachers may not help during the presentations.
- (2) The presentations need to be about science and/or technology.
- (3) Presentation time is 15 minutes. This includes time for Q and A. There will be a 5 minute break between presentations. During this time please fill in the advice sheet and move to the next presenter. Every presenting group should present 3 times, but this may change according to the number of participating groups.
- (4) Each presentation group can use a poster panel which can hold one poster of up to A-0 size. Kobe High School will provide desks and extension cords for all groups. If you need them, please tell us your requirements in advance on the application form.
- (5) Slides will be projected on a panel of the same size as a poster panel (A0 size). If you require a PC or projector for your presentation, you will need to bring your own.
- (6) Microphones may not be used.

10 Other information

- (1) There is no parking space at the venue. Please use public transportation. However, you can find paid parking lots within walking distance of the venue.
- (2) In the building, wear a mask and keep a sufficient distance of around 2m (at least 1m) between people.
- (3) Please prepare your own lunch and eat in designated areas to avoid crowds. In the buildings, please do not eat or drink outside the fixed areas. (Eating and drinking are prohibited in the Rokko Hall of the Kobe University Centennial Museum.)
- (4) Please disinfect or wash your hands when entering and leaving the building.
- (5) Please make sure you do not leave any garbage in the venue. Please take your garbage home with you.
- (6) The event will be canceled if a weather warning (heavy rain, flood, or storm) is issued for Kobe City at 7:00 a.m. on July 16.

11 Contacts

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瀧川記念館 (食堂のみ利用)

百年記念館 (六甲ホール)

Although the government no longer requests public to take unified basic infection control measures, people are still advised to take basic infection control measures, taking into consideration the necessity of such measures, economic and social feasibility, as well as sustainability.

< Basic Infection Control Measures >

Basic Infection Control Measures	Points
Masks	Wearing a mask is left to the judgement of individuals in principle, respecting individual choices. However, it is recommended to wear masks under certain circumstances. (See below)
Hand hygiene (including hand washing) / ventilation	The government does not uniformly request public for hand sanitization and ventilation. However, such efforts are still effective as basic infection control measures based on the characteristics of COVID-19.
Avoiding the “Three Cs” (closed spaces, crowded places and close-contact settings) and keeping sufficient distance from the others	The government does not uniformly request public to avoid the “Three Cs” and keep sufficient distance from the others. However, when the COVID-19 cases are on the rise, such measures are effective for elderly people and people at risk of developing severe COVID-19 symptoms. Thus, they are encouraged to avoid poorly ventilated venues, crowded places and close-range conversation. (When they cannot avoid such settings, wearing a mask is an effective measure.)

Special Lecture

Today's lecturer:

AiHARA, Yoshiko Ph.D (藍原 祥子)

Assistant Professor

Division of Applied Chemistry in Bioscience

Department of Agrobioscience

Graduate school of Agricultural Science

Kobe University

(神戸大学大学院 農学研究科 生命機能科学専攻 応用生命化学講座 食品・栄養化学教室 助教)

Title of lecture:

Can we explain 'tasty'?

(おいしさの科学)

Abstract:

Do you enjoy eating? What kind of food do you like? Eating is essential to be alive. Then, what should we eat? Many studies have shown what and how nutrients are needed for our bodies. We use perceptions such as taste and smell to decide what to eat and what not to eat. In addition, the feeling of 'taste good' is also important for our eating behavior. Can we give a scientific explanation for changes in 'good taste'? In this talk, a researcher who loves to eat will discuss about how we judge that food tastes good and that we want to eat it.

(みなさんは、食べることは好きですか？どんなものが好きでしょうか。食事をすることは、生きることに欠かせません。では、何を食べればよいのでしょうか？これまでの研究で、身体に必要な食べ物がわかってきました。食べ物の判断には、味や匂いといった知覚が利用されています。さらに、「おいしい」という情動も影響します。人によって、また日によって変化する「おいしさ」を科学的に説明することは可能でしょうか。この講演では、「おいしい、食べたい」と判断する仕組みについてわかってきたことを、食べるのが好きな一人の研究者がお話します。)

Key words:

taste, nutrients, appetite

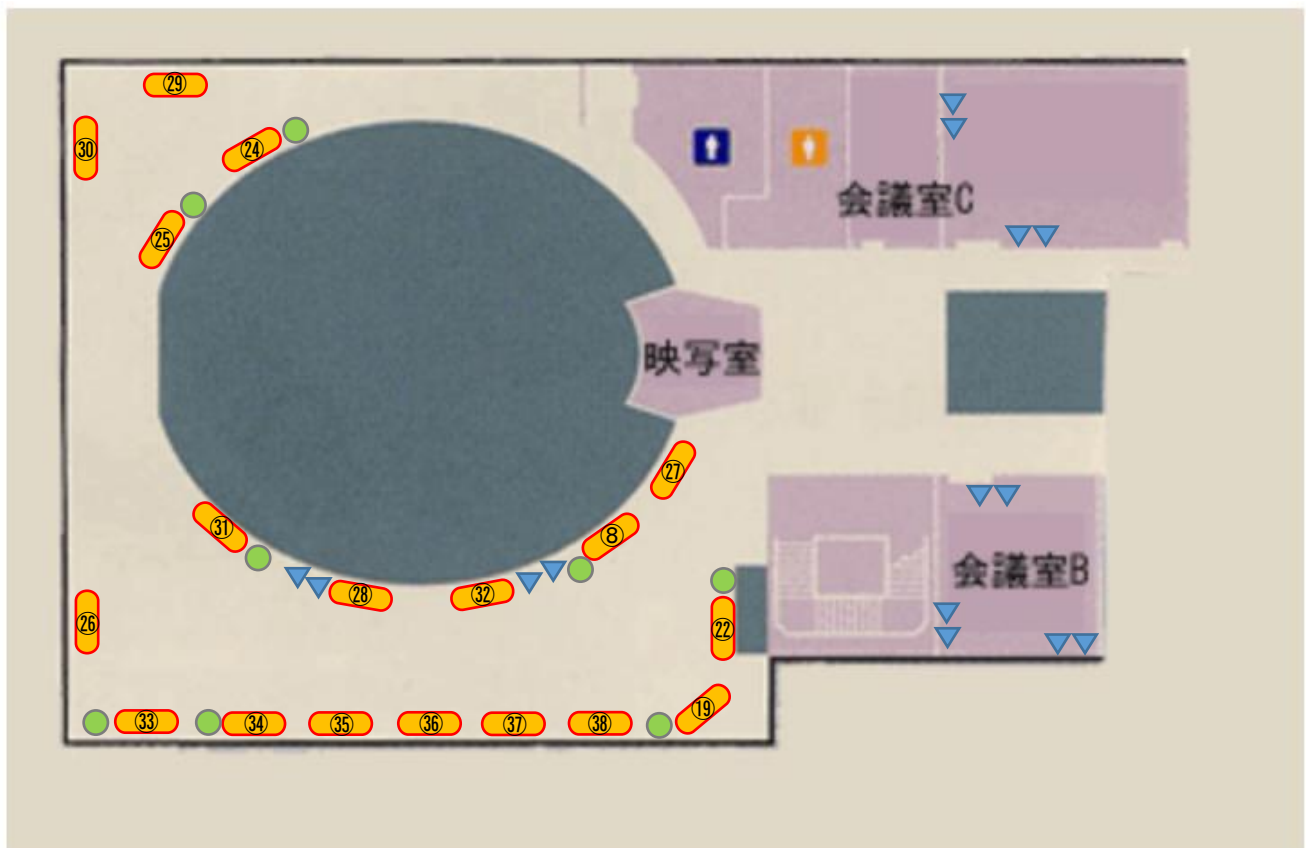
Hall arrangement

パネル… (10) コンセント… (▼) デスク… (●)

2階



3階



The arrangement of the hall may be slightly changed.

Presentations with posters and slides		
No	School	Title
1	Ono High School	Making the best alarm
2	Ono High School	Kuromoji works on Formaldehyde ~ Improving Sick Building syndrome ~
3	Ono High School	The blurred line of calligraphy ~Measuring the blurring of different sumi-inks~
4	Nagata Senior High School	Redesigning Emergency Alert Speakers: The Best Type of Voice and Shape to Make Them More Audible
5	Nagata Senior High School	Secret Power of Paper: Maximizing the Cooling Effect of Vaporization with Paper
6	Nagata Senior High School	How Can We Increase the Number of Eugleana? The Effect of Light on Euglena Proliferation
7	Himejinishi high school	The effects of reservoirs on the temperature and WBGT
8	Tatsuno High School	Project T Elucidating the Mystery of Finger Snapping
9	Tatsuno High School	Application of Hyogo Prefectural Flower Nojigiku in Science Education ~To Foster Interest in Local Nature~
10	Tatsuno High School	Various Trigonometric Formulas Derived from the Infinite Product Representation of $\sin x$
11	Takarazuka-Kita Senior High School	Development of Japanese candles that do not require wick cutting
12	Nishinomiya municipal highschool	Evaluation of shock absorption of dilatant fluids
13	Nishinomiya municipal highschool	Domino Effect Experiment
14	Konan Boys' High School	The research and counterplan about the bird strike on the school glass windows
15	Amagasaki Oda High School	Generating crystal contain a complex ion ~the relationship between a Solvent diffusion method and the size of crystal~
16	Amagasaki Oda High School	Looking for routes of micro plastics ~reality of micro plastics in water~
17	Amagasaki Oda High School	Research and production of rail gun
18	Toyooka High School	Power Generation Using Peltier Elements
19	Toyooka High School	Reproduction Of The Human Arms Its Relationship To Tactile Sensation

20	Toyooka High School	Looking At Oriental Stork From The Point Of View Of Their Pairs
21	Sanda Shouinkan High School	Are biodegradable plastics really less harmful to the environment?
22	Sanda Shouinkan High School	Starting upcycling from making crayons
23	Himejihigashi Senior High School	The Best Bicycle Gear to Ride In
24	Akashi-kita high school	the repelling effect of Oniyama-kun
25	Akashi-kita high school	How to make biking to school on rainy days more comfortable
26	Mukogawa Women's University Junior & Senior High School	We want to find the most effective mask for hay fever!
27	Mukogawa Women's University Junior & Senior High School	People's Relationship with Water
28	Seiryō Highschool	The effect sugar has on the texture of Meringue pastry.
29	Kakogawa-higashi High School	More Life, More Diversity
30	Rokko Island high school	Rust remover chemicals
31	Kobe University Secondary School	The Application of Wood in Spacecraft: from Materials Science Viewpoint
32	Kobe High School	Suppression of mold generation on plants by using ammonia
33	Kobe High School	Effect of initial condition on orbit of boomerang
34	Kobe High School	Changes in nematode predation in response to starvation in the hiratake mushroom
35	GSC/ROOT Program	Toward Subsistence Mushroom Cultivation in the Moon Base
36	GSC/ROOT Program	Automated steel (including Ni, Co, and C) spark test image determination using Convolutional Neural Network (CNN)
37	GSC/ROOT Program	Changes in the Activity and Photosynthesis of Cyanobacteria's Rubisco During Change in Temperature
38	GSC/ROOT Program	Relationships between hypoxia and behavior during embryonic stages in <i>C. elegans</i> .

1	Ono High School
Title	Making the best alarm
Speaker	Naoto Ueyama, Tomoaki Inoue, Ryuichirou Kakimoto, Sena Sato
<p>We sometimes have trouble waking up or falling back to sleep in the morning. Then we took a survey to other 263 students in Ono High School about waking up and alarm in order to find whether these are common problems or not. As a result of this survey, most of them also have these problems. So we were interested in what kind of sound is best for awakening people from sleep. We focused on the three elements of sound: frequency, tempo, and timbre and hypothesized that the closer the frequency gets to 440Hz, the slower the tempo is, and the more familiar the sound is, the less unpleasant we feel and that the higher the frequency is, the faster is, and the more unfamiliar the sound is, the faster we wake up from sleep by our alarm. Two of the three elements of sound are fixed, and only one element is changed to conduct controlled experiments. Then we make the best alarm sound for awakening.</p>	

2	Ono High School
Title	"Kuromoji works on Formaldehyde ~ Improving Sick Building Syndrome ~"
Speaker	Ayaka Ueda, Rin Fukumoto, Yuhsei Honami, Takuya Matsunaga
<p>In recent years, Sick Building Syndrome caused by chemicals from building has become one of the social issues. We focused on the plant called Kuromoji, and we hypothesized that its components such as linalool, geraniol, and 1,8-cineole would react with formaldehyde (HCHO). We conducted our research with the aim of improving Sick Building Syndrome.</p> <p>We created hydrosol with the steam distillation and found the absorption spectral of the pure components with UV-visible spectrophotometer to measure how much each hydrosol contains the three components. Then, we examined the reaction between HCHO and hydrosol.</p> <p>All of hydrosol showed a prominent peak around 206 nm. It indicates that they contain large amounts of linalool or 1,8-cineole. In the reaction with HCHO, the HCHO concentration in hydrosol was higher than that in the control ion-exchanged water. It shows that hydrosol (linalool) is highly reactive with HCHO. Therefore, we reacted linalool directly with formaldehyde and checked the positions of the peaks as an additional experiment. Consequently, we found unknown peaks, suggesting that new compounds were formed.</p> <p>In conclusion, Linalool is effective to reduce the concentration of formaldehyde in the air. Therefore, by utilizing the hydrosol from Kuromoji, we can live more comfortably.</p>	

3	Ono High School
Title	"The blurred line of calligraphy ~Measuring the blurring of different sumi-inks~"
Speaker	Yamamoto Yuzuha, Edazawwa Kokomi, Ebisui Karen
<p>【Purpose】 Calligraphers have some unfounded beliefs without any scientific research. So, we thought we need to research sumi-ink from the scientific view. Our purpose is measuring nijimi (ink-blur) and providing help to calligraphers.</p> <p>【Method】 We used Sugiwarapaper, and Narazumi, Suzukazumi, Toboku and Shoenboku inks. We experimented by using the siphon method and diluted the sumi-water by a factor of two. The siphon method refers to Tamechika.</p> <p>【Result, Conclusion】 The similarities: the height of nijimi increased until the water spreading appeared and fluctuated. The differences: the height of nijimi and its hardness; the softer the ink sticks are, and the higher the height of the blurred-looks goes up.</p> <p>The height of nijimi between each sumi-inks is related to the hardness of the ink sticks. However, the hardness of the ink sticks is not related to how nijimi appear and spread. Furthermore, we found from the sumi-water that nijimi can spread and appear easily is the 8-fold dilution and the 32-fold dilution of Narazumi and the 8-fold dilution and the 16-fold dilution of Suzukazumi.</p> <p>【Outlook for the future】 We will clarify the particle structure of each kind of sumi through using an electronic microscope.</p>	

4	Nagata Senior High School
Title	Redesigning Emergency Alert Speakers: The Best Type of Voice and Shape to Make Them More Audible
Speaker	MAEDA Daiki, HIGUCHI Keita, NISHIYAMA Kurumi, KAWANO Sakura
<p>Japan has a lot of natural disasters. When a big one happens, the government warns people to take shelter as soon as possible. In such situations, a common tool used by smaller units of local governments, especially in more rural areas is “emergency alert speakers”. However, the voice through the speaker often disperses and is barely clear enough to get the message through. This affects people’s life or death evacuation actions. In order to solve this problem, we decided to identify the features of the clearest voice and how to control the distance the sound travels from the speaker. The results of our experiments showed that a low tone female voice around 600Hz was perceived best, and the sound reached the furthest when a cone-shaped reflection board is placed downward over an upward-directional speaker with the cone at an angle of 60 degrees from the ground.</p>	

5	Nagata Senior High School
Title	Secret Power of Paper: Maximizing the Cooling Effect of Vaporization with Paper
Speaker	ISONO Manaka, IMAE Tasuku, SAISHO Kyoko, NODA Masaki, MATSUMORI Haruka
<p>In the recent extreme hot weather, the use of air conditioner is inevitable for us to protect ourselves from heatstroke. However, at the same time, we are required to reduce our energy consumption to protect the earth. A less carbon-dependent measure to lower the temperature is more desirable and we tried to achieve it by using paper and the mechanism of vaporization. We made trial paper structures to maximize the cooling effect of vaporization. In the experiment, five layers of folded paper in a plastic box were soaked with water, and air was made to go through them. The temperature of the air at the outlet was measured. The same procedure was repeated in different conditions: different amount of water, humidity, and surface area of paper. As a result, we found that humidity influenced the cooling effect. This is probably because the speed of vaporization depends on the humidity. Since our experiments were conducted within a limited range of the humidity - 30% to 70%, more data is needed to be collected to reach a concrete conclusion.</p>	

6	Nagata Senior High School
Title	How Can We Increase the Number of Eugleana? The Effect of Light on Eugleana Proliferation
Speaker	MASUYA Mei, HIROSE Nana, OKAMOTO Jiro, YILMAZ Eren
<p>In recent years, euglena have been attracting attention as a material for biofuels. Compared to corn-derived and sugarcane-derived biofuels, euglena have the potential to extract energy more efficiently, and could provide a clue to solving the problem of energy resource depletion. This could lead to a significant reduction in dependence on fossil fuels and could also help prevent global warming. There is some research which focuses on the proliferation of Eugleana, but none focuses on "light," especially ultraviolet and infra-red rays. We cultivated Eugleana in 23°C for a week after exposing it to ultraviolet rays or infra-red rays for 0, 2, or 6 hours. After that, we checked the amount of euglena and compared it to that before cultivation. The results showed that exposing euglena to ultraviolet or infra-red rays was good for cultivation.</p>	

7	Himejinishi high school
Title	The effects of reservoirs on the temperature and WBGT
Speaker	Kobayashi Naoka, Motoie Mao
<p>We were interested in a research which upperclassman presented. Therefore, we decided to continue research on them. We are going to research the thermal insulation effect by season, their size, and place from temperature and “WBGT” points of view.</p>	

8	Tatsuno High School
Title	Project T Elucidating the Mystery of Finger Snapping
Speaker	OHNO Ryohei, NAWATA Sogo, HANATANI Atsunobu, FUJIKI Keita, YANAI Ryosei
<p>We focused on and examined the bending and stretching of the middle finger, the T-space, and sound features in the finger snapping.</p> <p>We divided finger snapping action experimentation into 4 parts: bending and stretching the middle finger when snapping, the relationship between main sound and fricative sound, confirmation of finger acceleration values in previous research, how the sound is affected by the T-space.</p>	

9	Tatsuno High School
Title	Application of Hyogo Prefectural Flower Nojigiku in Science Education ~To Foster Interest in Local Nature~
Speaker	TABE Nagito, OKA Kyotaro, KARIGANE Rinto, MORIKAWA Sawa, YAMAMOTO Kaho
<p>The purpose of this research is to foster an interest in local nature through learning about the prefectural flower, Nojigiku. The awareness of it was only 7% in the result of our survey. In order to raise awareness of Nojigiku, we thought it would be important to use it as a science teaching material.</p>	

10	Tatsuno High School
Title	Various Trigonometric Formulas Derived from the Infinite Product Representation of $\sin x$
Speaker	DOI Haruki, NAKANO Akari, NAKAMURA Tsukasa, FUNAMOTO Kaito, MIKI Takuto
<p>Euler, an 18th-century Swiss mathematician, helped develop many functional equations by using infinite series and infinite products, including the solution of the Basel problem, $1 + 1/2^2 + 1/3^2 + 1/4^2 + \dots = \pi^2/6$, which was an early achievement, and the results of which were later used in mathematics. That also had a great impact.</p>	

11	Takarazuka-Kita Senior High School
Title	Development of Japanese candles that do not require wick cutting
Speaker	YAMAMOTO Taiju, FUJITA Saki
<p>A Japanese candle company asked us to find how to remove the wick cutting part of their candles, because they had been worried about the decline in both popularity and demand of Japanese candles that require to cut the wick.</p> <p>Japanese candles are made from rush and traditional Japanese paper. When it burns, we need to cut the wick to prevent accidents. To avoid having to do that, we suggest that the wick in those Japanese candles should be more burnable.</p> <p>After researching the properties of the wick, we tried applying oxidizers to it to accelerate the reaction, but it didn't change anything. Our next attempt was to replace the wick with a product made by nitration.</p>	

12	Nishinomiya municipal highschool
Title	Evaluation of shock absorption of dilatant fluids
Speaker	Eita Okazaki, Yusuke Shigematsu, Yusuke Nagura, Kazuki Noda, Daiki Murata
<p>Dilatant fluids are fluids that behave like liquids when no force is applied, but behave like solids when a sudden force is applied. Dilatant fluids have the property of cushioning shock. We focused on the shock absorbing property of dilatant fluids and thought about whether they could be used as cushioning materials. Therefore, we decided to determine the advantages by comparing them with other cushioning materials.</p> <p>We created the dilatant fluids using water and potato starch. In the preliminary experiment, the distinctive characteristics of the dilatant fluid were evident when we stirred 70g of potato starch to 50g of water. Therefore, we used this ratio of potato starch solution in our experiment. We compared the shock on the container and the shock on the dropped object for the four cushioning materials: dilatant fluids, melamine sponge, gel sheet, and bubble cushioning material when an object was dropped into a cushioning material in a container.</p> <p>Based on the experimental results, dilatant fluids and melamine sponges have been confirmed to cushion both the shock on the container and the shock on the dropped object. We expect that dilatant fluids, unlike solid melamine sponge, can be utilized as cushioning materials in any shape due to their fluidity.</p>	

13	Nishinomiya municipal highschool
Title	Domino Effect Experiment
Speaker	Maemoto Sota, Mukai Nodoka
<p>Previously at a school festival, we had an opportunity to use dominoes to create a device that resembled a Pythagorean switch. However, the dominoes didn't fall neatly, so we ended up not using them. This led us to question how to make the dominoes fall neatly, which led us to conduct this study.</p> <p>In this study, we investigated what method of toppling of the dominoes would result in the most consistent and linear toppling of the dominoes. In dominoes before reaching the final velocity, the floor material and magnitude and type of force applied to the first domino have a significant effect on the behavior of the dominoes. We considered such domino behavior and its causes, and verified the domino toppling method and floor material that seemed optimal for neatly toppling dominoes.</p> <p>Finally, we found that the dominoes toppled neatly when the top center of the domino was pressed with weak force on a plywood board. In addition, when the dominoes were toppled with finger, they reached the final velocity slowly, unlike when marbles were used. From these results, we concluded that toppling the dominoes with a finger using a force that is not too strong is the best way to topple the dominoes neatly.</p>	

14	Konan Boys' High School
Title	The research and counterplan about the bird strike on the school glass windows
Speaker	Taro MICHINOMAE, Satsuki NII, Yuhi KAITO, Kohei YAMAMOTO, Atsushi MIZOGUCHI, Sosuke KAGEYAMA
<p>This research is about the bird strike to the window glass at our school. We have recorded and summarized the number of accidents for 30 months with the weather conditions.</p> <p>The birds often died at our courtyard. We wondered about it and decided to research why it caused. Through our research, we could identify the reason and take countermeasures to protect birds from hitting the window glass.</p> <p>How we conducted this research is quite simple. We just find the lying birds and record its name, date, the place, the weather, and the wind speed. With the data we collected, we made a graph. We had a consideration that the birds could not recognize the windows especially the one that can see the other side. The birds can't identify if it's a window or not. And try to flight through it and cause a bird strike.</p> <p>After that, we made a sticker and stuck it on the window glass to prevent the hitting birds. As a result, we succeeded to decrease the number of bird strike dramatically.</p>	

15	Amagasaki Oda High School
Title	Generating crystal contain a complex ion ~the relationship between a Solvent diffusion method and the size of crystal~
Speaker	Yuki URABE, Kazuki TADA, Takahiro NAMURA
<p>We researched to make crystals of salt contain complex ion which is said “complex salt”. Experiment method is “solvent diffusion technique”.</p> <p>Motivation for research is to have known that crystal can be generated from complex ion. And we thought that wanted to generate crystal of complex ion.</p> <p>In first experiment, we made crystals contain tetraammincopper(II)ion by good solvent as water and poor solvent as ethanol. At that experiment, we could make crystals of sulfate and nitrate. But chloride salt didn't precipitate the crystal. so we needed to change good solvent to mixed solution of ethanol and water.</p> <p>While we were doing it. We were interested in relationship between using poor solvent and generated crystal of complex ion.</p> <p>Then we researched about poor solvent and size of crystals. According to those results, We have seen some conclusion. First, If you use poor solvent is higher density than good solvent you get unstable crystals. Second, poor solvent is high polarity make bigger crystal than low polarity. But if polarity is too high: crystals become small by “Conosolvency”. Also If plarity is too low and time to mix all solvents too long, crystals become big.</p>	

16	Amagasaki Oda High School
Title	Looking for routes of micro plastics ~reality of micro plastics in water~
Speaker	Ryuto UENO, Hina HASHIMOTO, Kaito HIGASHITANI, Hikaru FUKUDA, Hiroki MIZOGUCHI
<p>We focus on micro plastics (MPs). From preceding studies, we thought that MPs are also generated in places other than the sea and the beach, and flow into the sea through the river. However, there was no search for MPs in the water. So, we researched the reality of MP in the water.</p> <p>We collected samples using plankton nets at four points such as Koshien Beach and Mukogawa river. We collected MPs with specific gravity separation using sodium iodide solution from samples.</p> <p>As a result, we could verify that MPs exist in the water. Also, we could verify that MPs exist in the upper stream. The MPs confirmed upper stream did not come from the sea, so it was found that these MPs were made in places other than the sea and the beach. Like the beach, the collected MPs had a lot of green. We thought that this might be influenced by green plastic products such as artificial grass used outdoors.</p>	

17	Amagasaki Oda High School
Title	Research and production of rail gun
Speaker	Tomoaki CHIRAN, Yoshihiro FUKUDOME
<p>The purpose of this research was to understand how a rail gun mechanism works. Thus, it was to actually produce a rail gun. The reason researchers conducted this research was that researchers were interested in knowing that the Ministry of Defense is developing a railgun, according to the online news. The experimental method was to place each metal pipe on a rail made of two different metals and flow an electric current to see if it moves.</p> <p>Aluminum rail was used in the experiment. Researchers tried to conduct electricity, but it could not conduct. The second experiment changed the rail material, increased voltage, and added a neodymium magnet. The results yielded that the gun only moved when the magnet was installed. It moved 25cm and the contact points sparked up. The inability for the first experiment to conduct electricity is thought to be because the aluminum was oxidized. The second experiment's results are enough to incidence magnetic field by rail and think bigger than naturally electrical resistance by spark up. Researchers became familiar with the importance of decreasing electrical resistance when making an electrical circuit. In conclusion, through the construction of the rain gun, the researchers were able to determine how to increase electrical energy, decrease electrical resistance, and generate a magnetic field.</p>	

18	Toyooka High School
Title	Power Generation Using Peltier Elements
Speaker	Reina Ikegami, Ryota Kitaoka, Nayu Kobayashi, Ryoma Matsui
<p>We decided to come up with an environmentally friendly way to generate electricity that can be used in daily life, does not produce greenhouse gases, and can be done by high school students.</p> <p>We aimed to develop a mechanism and device to generate the voltage needed to charge a smartphone using a Peltier element, which can generate electricity from temperature differences, and conducted various experiments based on the two features of the Peltier element.</p>	

19	Toyooka High School
Title	Reproduction Of The Human Arms Its Relationship To Tactile Sensation
Speaker	Honoka Tsuzaki
<p>Research was conducted into the use of slime to make pillows to solve the problems of parents raising children, such as 'I can't sleep because of crying at night' or 'I wish I could just hold her in my arms so she would sleep.'I worked out which slime is closest to the hardness of a human arm, depending on the amount of borax solution added, the amount of washing glue and the temperature at the time of creation.I was not able to go as far as creating pillows, but I also had people touch the slime I had made, to see the difference between numerical values and human sensations.</p>	

20	Toyooka High School
Title	Looking At Oriental Stork From The Point Of View Of Their Pairs
Speaker	Yusei Iida, Haruto Deguchi, Sakura Tabata, Yuzuki Tokuno, Kodai Nakao
<p>Toyooka became the starting point for the return of storks to the wild. Nowadays, storks have left Toyooka and flown all over the country. We are now conducting a survey to learn more about the local field while investigating the mysterious habits of the storks. We investigated how many non-paired storks were observed within two kilometers of the paired storks' breeding sites. We then considered whether the number of storks found differed between the breeding and non-breeding seasons, focusing on the age and sex of these individuals.</p>	

21	Sanda Shoukan High School
Title	Are biodegradable plastics really less harmful to the environment?
Speaker	TAMAKI Kaede, NISHIO Yuumi, YASHIMA Wakana, KONASHI Tomoya
<p>Currently, various efforts are being made to address environment issues, including the SDGs, and biodegradable plastics are becoming more popular in order to reduce the environmental impact of plastics. I wondered if things with environmentally friendly names such as biodegradable plastics really reduced the burden on the environment. We conducted an experiment based on the hypothesis that biodegradable plastics decompose slowly and have the same impact on the environment as ordinary plastics. We placed biodegradable plastic straws in various environments and investigated their degradation rates. Experiments have shown that biodegradable plastics decompose differently than ordinary plastics, so from a long-term perspective, it is significant to popularize biodegradable plastics, but in the short term, the impact on the environment is the same as that of ordinary plastics. I understand. Based on this result, we believe that it is important to be conscious of the proper disposal of garbage, such as sorting and recycling, and to make efforts to minimize the amount of garbage that reaches the sea.</p>	

22	Sanda Shoukan High School
Title	Starting upcycling from making crayons
Speaker	IKEBE Rena, UENOYAMA Itoha, KUSUNOSE Rei, MIYAMOTO Aki
<p>We make crayons from vegetable peels, fallen leaves, and petals of exotic plants. And I'm thinking of letting many people know about upcycling using the crayons I made.</p>	

23	Himejihigashi Senior High School
Title	The Best Bicycle Gear to Ride In
Speaker	Kazuki IWASAKI, Nao ISAKA, Touki INOUE, Shun TOKUNAGA, Makito FUJIHARA
<p>Bicycles are very common in Japan, and many students cycle to and from school. Some bicycles have many gears, while others are fixed gear. We decided to investigate the effects of gears on transferring energy between the rider and the bicycle. From this, we wanted to find which gears are most efficient for us to use in our daily lives. We hypothesized that for higher gears, the speed, friction and the amount of energy required to turn the pedals increase, and that the distance travelled will remain constant assuming the same amount of energy is consumed. To investigate the magnitude of friction in each gear, we fixed the front wheel, suspended weight from the pedals, and measured the weight required to cause the pedal to fully descend. To measure speed, we circled the front wheel around a fixed distance and measured pedal motion. The resulting speeds were roughly proportional, but friction showed a gentler slope from gear 3. When the amount of energy required to pedal the bicycle was determined, gear 5 was the most efficient because the ratio of speed to energy was greatest.</p>	

24	Akashi-kita high school
Title	the repelling effect of Oniyama-kun
Speaker	Yuma Ono, Takuya Kishimoto, Miyu Tanaka, Hinata Hashimoto, Mizuki Watanabe
<p>The purpose of our research is to investigate the repelling effect of Oniyama-kun, an insect repellent product, and which elements of Oniyama-kun's body are effective. In order to prove the effect of Oniyama-kun scientifically, we used flies, which are natural enemies of Oniyama-kun, as test subjects, and conducted experiments by changing Oniyama-kun's appearance and color conditions.</p> <p>In the experiment, an attractant made from vinegar, sugar, and Japanese sake is placed on both sides of a device that connects two boxes.</p> <p>And Oniyama-kun is set up in one of the boxes. the flies are released into the device, we count which box the most flies go to, and make a decision based on the results.</p> <p>A repellent effect was observed for Oniyama, which had not been modified in any way, and Oniyama whose upper half was yellow and whose lower half was black. However, no repellent effect was observed in Oniyama who had his wings removed and Oniyama with a red body.</p> <p>From this, it was found that Oniyama showed a repelling effect with its wings and body having a color combination of black and yellow.</p>	

25	Akashi-kita high school
Title	How to make biking to school on rainy days more comfortable
Speaker	Hiro Konishi, Yudai Noguchi, Teruhito Koeda
<p>Since many of our students commute to school by bicycle, we wanted to improve the environment for bicycle commuting on rainy days. We were particularly interested in the problem of discomfort caused by splashing water. So we decided to look for conditions that would allow us to place our feet at the lowest position on the pedals without splashing. First, we rode our bicycles over a puddle and took pictures of it to determine the height of the water splash. At the same time, we measured the speed of the bicycle with a speedometer. Based on this data, we examined the relationship between the height of the splash and the speed of the bicycle on a graph. The result showed that the correlation between height and speed was 0.53, indicating a rather strong correlation. therefore, the speed at which water does not cover the legs at the lowest point was calculated to be 15.6 km/h.</p> <p>In the second experiment, as in the first experiment, the position of the cargo was changed in three ways: front basket, back cargo, and back. The least amount of splashing was observed when the luggage was placed in the back cargo bed, with the splash size being approximately 10 cm.</p> <p>The graph is not accurate because the amount of water in the puddle changed. In the future, we will need to revise the experiment to make the graph more accurate by making parameters such as puddle depth more constant.</p>	

26	Mukogawa Women's University Junior & Senior High School
Title	We want to find the most effective mask for hay fever!
Speaker	Aki Tajika, Ayane Tashimo, Sona Murata, Karin Watanabe
<p>In recent years, more and more people are wearing masks to prevent hay fever. The number of mask manufacturers has also increased, and it is becoming increasingly difficult to know which mask to buy. Therefore, we would like to find the most effective mask for hay fever.</p> <p>Last year, nine classmates with symptoms of fall hay fever were asked to wear three types of masks for six days. The experimenters were asked to record the number of times they blew their noses and sneezed. The masks used in the experiment were a non-woven mask, a polyester mask, and a polypropylene mask. While the experiment was in progress, the size of the fibers of these three types of masks was measured under a microscope. After that, the masks in which the experimenters felt the least hay fever symptoms were compared to the masks with the smallest fiber size, which were examined under a microscope. The results showed that fiber size and symptoms were related, and overall, masks with the smallest fiber size, such as polypropylene masks, were the best to use for hay fever masks.</p> <p>Based on these results, this year, we made our own experimental apparatus using flour that we assumed to be pollen. We conducted the experiment in a fume hood and compared three types of masks to see how much flour adhered to the masks.</p>	

27	Mukogawa Women's University Junior & Senior High School
Title	People's Relationship with Water
Speaker	Kanoko Ichinari, Hana Itoh, Chieko Ooi, Airi Miyazaki
<p>There are two types of water: hard water and soft water.</p> <p>When water is in contact with rocks for a longer period of time, it becomes hard water containing more magnesium and calcium. However when the contact time is shorter, it becomes soft water containing relatively less of these elements.</p> <p>Hard water causes inconveniences in many areas of life. For example, it can cause diarrhea. The minerals in hard water can irritate the intestines.</p> <p>But we also thought that the diarrhea could be caused by other factors, such as enzyme activity.</p> <p>Therefore, last year we investigated the effect of water hardness on the activity of amylase. Amylase is an enzyme in the mouth that helps to breakdown starch in our food.</p> <p>The results showed that aqueous solutions containing magnesium and calcium decreased the activity of amylase. This is due to the high mineral content.</p> <p>On the other hand, hard water also affects the effectiveness of soap. This is because the high mineral content causes soap scum to form.</p> <p>Commercial soaps contain edetic acid, which has a chelating effect. However, this chelating agent is bad for the body and can be an allergen for some people. Therefore, we are looking for a chelating agent of natural origin and considering using it to make an effective soap with good lather.</p>	

28	Seiryō Highschool
Title	The effect sugar has on the texture of Meringue pastry.
Speaker	Hisatani Tukasa, Okamoto Ayame, Nishihata Sayaka, Yamaki Maho, Nishio Kourin
<p>We studied the effect that amount of sugar has on the texture of meringue pastries. We examined the meringue texture in meringue cookies, which had 0 to 75g of sugar and approximately 35g of egg white gradually add to the mixture. We observed and compared three points: surface viewing (bumpy, smooth or cracked), stages of hardness, and the amount of air bubbles occupying the cross section of the meringue cookies. As a result, we found 30-70g of sugar, and one egg white, is required to make meringue, and 50-52.5g of sugar is optimal to make the classic meringue texture.</p>	

29	Kakogawa-higashi High School
Title	More Life, More Diversity
Speaker	Koida Mio, Hioki Hinata, Hamada Ayuki
<p>We were interested in the effect of nutrient salts from the river, which increases the diversity of plankton, so we investigated the influence of the environment around the coast on plankton species. In this study, plankton were collected on the Suma coast, where there are rivers flowing from the mountains and there seems to be a lot of nutrient salts, and on the Eigashima coast, where there are rivers flowing from residential areas and there seems to be relatively less nutrient salts. We classified the seen plankton according to eutrophication index, which is the standard of nutrient concentration in the sea water, and the types of plankton were compared.</p> <p>The results showed that the Suma coast was richer in species and had a larger population. This is thought to be related to the nutrient salts flowing from the mountains. Also, the kind of plankton was different seasonally.</p> <p>In the future, we would like to increase the number of surveys and study in detail the characteristics common to all plankton collected.</p>	

30	Rokko Island high school
Title	Rust remover chemicals
Speaker	Ayaka Maeda, Remon Takahashi, Yume Okada
<p>Metal plays an important role in our life. But it rusts and corrodes over time. Rust is a corrosion product formed when metal surfaces undergo a redox reaction with oxygen and moisture in the environment. The reason why we researched this experiment is to use metal products for longer by removing rust. We decided to use three substances based on the previous study that remove rust by familiar things. They are ascorbic acid, citric acid, and acetic acid. We used steel and copper plates because they are commonly used in our daily lives and most people know them. Also, we removed rust that generated on copper plate and iron plate by them and researched constituent that effective as rust remover. We expressed the quantity of rust removed as a percentage and compared the results, including standard errors. According to the result, we founded that it is effective for cooper plate to use citric acid and to use ascetic acid for iron plate is effective.</p>	

31	Kobe University Secondary School
Title	"The Application of Wood in Spacecraft : from Materials Science Viewpoint"
Speaker	Yui Tachikawa
<p>Today, space development in Japan has various problems such as lower civil demand than overseas, and sketchy plans for development. It was reported that spacecraft need materials to be light, resistant to harsh environments, and easy to process. In this investigation, the author proposed the use of wood to preserve Japanese-made techniques and examined the potential of use in spacecraft from a materials science viewpoint. First, the author assessed the physical properties of cedar and cypress by using Young's modulus and the accuracy of the experiment was discussed. Second, the author performed endurance tests under temperature variation and ultraviolet rays. According to the two sided test, the results showed that there is no difference between the initial state of wood and final state of wood. It is concluded that there is a possibility of using wood in spacecraft under these conditions. However, it requires improving the environment and discussing to what extent the result can be trusted. So, these findings suggest that we have avenues for the practical use of wood in Japanese spacecraft.</p>	

32	Kobe High School
Title	Suppression of mold generation on plants by using ammonia
Speaker	Osawa Ayumu, Asahi Rihito, Furuta Ryouto
<p>We found out that ammonia can be used to sterilize bacteria on bean sprouts in previous research. Therefore, we examined whether the occurrence of mold in plants other than bean sprouts could be suppressed, and whether the germination rate will decrease or not.</p>	

33	Kobe High School
Title	Effect of initial condition on orbit of boomerang
Speaker	Hiroki Ito, Takumi Okuda, Banri Wada
<p>When we saw a boomerang we threw came back while drawing a circular orbit. We were curious about what kind of orbit the boomerang would show if we threw it under various conditions, so we decided to investigate the relation between the orbit of the boomerang and the launch conditions. The boomerang we would use in this experiment is fixed into one. Also, in order to make it easier to reproduce the conditions for throwing boomerangs, we made a device to launch boomerangs. In addition, we improved the mechanism of the device so that the initial conditions of the boomerang's launch angle, speed and angular speed can be changed. First, we investigated what kind of orbit the boomerang would show when we would change the angular speed and speed. After the first experiment, we guessed launch angle is the most important factor that changes the orbit of the boomerang, so we did the second experiment by changing only launch angle.</p>	

34	Kobe High School
Title	Changes in nematode predation in response to starvation in the hiratake mushroom
Speaker	Daichi Kawahara, Yuki Kinoshita, Rinsei Sato, Kenjiro Nogami, Ryota Yagi
<p>Nematode predator fungi, which capture and feed on nematodes, are known. To investigate under what conditions the nematode-capturing ability of nematode-feeding fungi is activated, experiments were conducted using the nematode predator (<i>Preurotus ostreatus</i>) and the nematode (<i>Caenorhabditis elegans</i>). The mycelia of the mycorrhizal fungi secrete trans-2-decenoic acid, a nematode-toxic toxin, which kills nematodes and provides them with nutrients. The experiment focused on the nutritional status of the mycelium of the mycorrhizal fungus can grow, and found that the mycorrhizal fungus tends to secrete a greater amount of toxin and increase its ability to capture nematodes under nutrient-deficient condition. And we found that oyster mushrooms fed on <i>elegans</i>, <i>elegans</i> died, and oyster mushrooms used its nutrients to grow their hyphae. When asked whether it is appropriate to use nematode predatory fungus to control nematodes during agriculture, we can say "it is appropriate" because some nematode predatory were found during eutrophication. We are looking forward to future research on nematode predatory fungus.</p>	

35	GSC/ROOT Program
Title	Toward Subsistence Mushroom Cultivation in the Moon Base
Speaker	Kona KONDO
<p>In this study, I'm going to grow oyster mushroom to achieve subsistence mushroom cultivation in human activity centers on the Moon. I will use 3 types of materials as the culture medium. I use "regolith simulant" because it contains elements which play important roles in growth, such as Calcium and Magnesium. However, it doesn't contain Carbon and Nitrogen. Therefore, I also use (1) compost made from pig manure and (2) sawdust. The reason for adding them is that I am considering the possibility to use human manure compost in the future and also that the mushroom is wood rotting fungi. Mushroom cultivated on the Moon will provide vitamin D that cannot be supplemented by currently envisioned crops, such as rice, soybean, and potato. Vitamin D is necessary for calcium absorption in human body, so it is essential for long stays in space. Mushroom can also break down lignin, so growing mushroom is an efficient way to recycle limited resources on the moon. Another advantage is that a lot of mushroom can be grown in a short period of time, over a small area, and with low power consumption. Based on this study, I am to continue my research at university and graduate school to realize mushroom cultivation on the Moon.</p>	

36	GSC/ROOT Program
Title	Automated steel (including Ni,Co,andC)spark test image determination using Convolutional Neural Network (CNN)
Speaker	Shoichiro NAGAYAMA
<p>With the development of factory automation in recent years, automation is also required for material inspection. Therefore, in this study, we tried to automate spark testing by using CNN (convolutional neural network) and analyzed the images of spark testing of steel materials containing Ni and Co, those containing C, which were not classified in the previous work, and those containing Ni and Co. We investigated whether steel materials containing Ni and Co can be classified by spark testing and the effects of a pretreatment on accuracy. As a result, we found that the steel materials containing Ni and Co can be classified by spark testing. For those containing Ni and Co, the accuracy was 100% with saturation and gamma adjustment as pretreatments, and for the same materials, the accuracy was 92% and 85%, respectively, without any pretreatment. However, the accuracy of steel containing C was 53% with a pretreatment and 87% without any pretreatment. We conjecture that this is due to the amounts of sparks in the image.</p>	

37	GSC/ROOT Program
Title	Changes in the Activity and Photosynthesis of Cyanobacteria's Rubisco During Change in Temperature
Speaker	Akiho FUJIWARA
<p>The objectives of my research are to improve our understanding of cyanobacteria's photosynthesis speed. Although it was already clear from previous studies that the decrease in plant's photosynthesis speed during temperature increase is affected by the *Rubisco activase, it was not yet clear before this research whether that also applies to cyanobacteria. Having done this, it has been found out that the cause of cyanobacteria's photosynthesis speed decrease during temperature increase may not be because of the denature of its Rubisco activase. If so, this research will fabricate the evidence that plants and cyanobacteria both have different causes for the decrease in photosynthetic efficiency. Once further research is done to clarify whether this theory is truly valid, it is thought to be able to create change in the way we attempt to solve the CO2 emission, by making new genetically modified cyanobacteria that is efficient in oxygen production even at high temperatures. Once this is done, this could be made into eco-friendly blocks for building constructions.</p> <p>* Rubisco Abbreviation for 'Ribulose-1,5-bisphosphate carboxylase/oxygenase'. Catalyses the first step of carbon fixation.</p>	

38	GSC/ROOT Program
Title	Relationships between hypoxia and behavior during embryonic stages in C. elegans.
Speaker	Ibuki FURUTA
<p>Developmental disorders are known to be caused by biases in brain neurotransmitters and environmental factors. However, this has not been elucidated. This study aims to clarify the effects of hypoxia on brain neurons during embryogenesis using C. elegans. This will provide new insights into the mechanisms of developmental disorders. We hypothesize that hypoxia during embryogenesis causes changes in brain neurons due to loss of HIF-1. In addition, studies of the effects on behavior after hatching will provide new insights into the cognitive, memory, and behavioral changes associated with developmental disorders.</p>	

9th Science Conference in Hyogo プレゼンテーションタイトル一覧

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1	兵庫県立小野高等学校	最強のアラーム音を作ろう
2	兵庫県立小野高等学校	クロモジのホルムアルデヒドに対する有効性 ～シックハウス症候群の改善を目指して～
3	兵庫県立小野高等学校	墨の本質を探る ～奈良墨、鈴鹿墨、唐墨、松煙墨を用いたにじみの測定～
4	兵庫県立長田高等学校	防災放送を最適化するための条件について
5	兵庫県立長田高等学校	気化熱による冷却効果とその条件の最適化
6	兵庫県立長田高等学校	紫外線の照射によるミドリムシの増殖について
7	兵庫県立姫路西高等学校	ため池が気温と WBGT に及ぼす影響
8	兵庫県立龍野高等学校	プロジェクト T ～指パッチンの謎に迫る～
9	兵庫県立龍野高等学校	兵庫県花ノジグクの理科教育への活用 ～兵庫県の花を知り、郷土の自然への関心を育むために～
10	兵庫県立龍野高等学校	$\sin x$ の無限積表示から得られる三角函数の種々の公式について
11	兵庫県立宝塚北高等学校	芯切り不要な和蠟燭の開発
12	西宮市立西宮高等学校	ダイラタント流体の衝撃吸収の評価
13	西宮市立西宮高等学校	ドミノ倒しの実験
14	甲南高等学校	校舎窓ガラスへのバードストライクに関する調査と対策
15	兵庫県立尼崎小田高等学校	錯イオンからなる結晶の生成
16	兵庫県立尼崎小田高等学校	マイクロプラスチックの経路を探る ～水中のマイクロプラスチックの実態～
17	兵庫県立尼崎小田高等学校	レールガン(電磁砲)の研究
18	兵庫県立豊岡高等学校	ペルチェ素子を利用した発電
19	兵庫県立豊岡高等学校	ヒトの腕の再現と触感の関係

20	兵庫県立豊岡高等学校	つがいからみるとよコウノトリ
21	兵庫県立三田祥雲館高等学校	生分解性プラスチックの分解 ～生分解性プラスチックは本当に環境への負担が少ないのか～
22	兵庫県立三田祥雲館高等学校	クレヨン作りから広めるアップサイクル ～「もったいないもの」や「迷惑なもの」の利用価値を考える～
23	兵庫県立姫路東高等学校	自転車のギアの最適解
24	兵庫県立明石北高等学校	おにやんま君の忌避効果について
25	兵庫県立明石北高等学校	雨の日の自転車通学を快適にする方法
26	武庫川女子大学附属高等学校	花粉症に最も効果的なマスクを見つけたい！
27	武庫川女子大学附属高等学校	人と水との関わり
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30	神戸市立六甲アイランド高等学校	さびにおける効果的な酸の最適解
31	神戸大学附属中等教育学校	木材の宇宙機への応用 ～材料学的観点に基づいて～
32	兵庫県立神戸高等学校	アンモニア蒸気による植物のカビ発生抑制
33	兵庫県立神戸高等学校	ブーメランの初期条件における軌道への影響
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35	グローバルサイエンスキャンパス ROOT プログラム	月面基地における自給的なきのこの栽培に向けて
36	グローバルサイエンスキャンパス ROOT プログラム	CNN による Ni、Co および C を含む鋼材の火花試験を用いた判別 における前処理の有効性
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兵庫「咲いテク (Science & Technology)」事業推進委員会

※兵庫県内 SSH 指定 16 校（兵庫県立神戸高等学校、兵庫県立尼崎小田高等学校、兵庫県立加古川東高等学校、兵庫県立豊岡高等学校、兵庫県立三田祥雲館高等学校、兵庫県立龍野高等学校、兵庫県立宝塚北高等学校、兵庫県立小野高等学校、兵庫県立明石北高等学校、兵庫県立姫路西高等学校、兵庫県立姫路東高等学校、兵庫県立長田高等学校、国立大学法人神戸大学附属中等教育学校、神戸市立六甲アイランド高等学校、西宮市立西宮高等学校、学校法人武庫川学院武庫川女子大学附属中学校・高等学校）と兵庫県教育委員会が合同で組織

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