

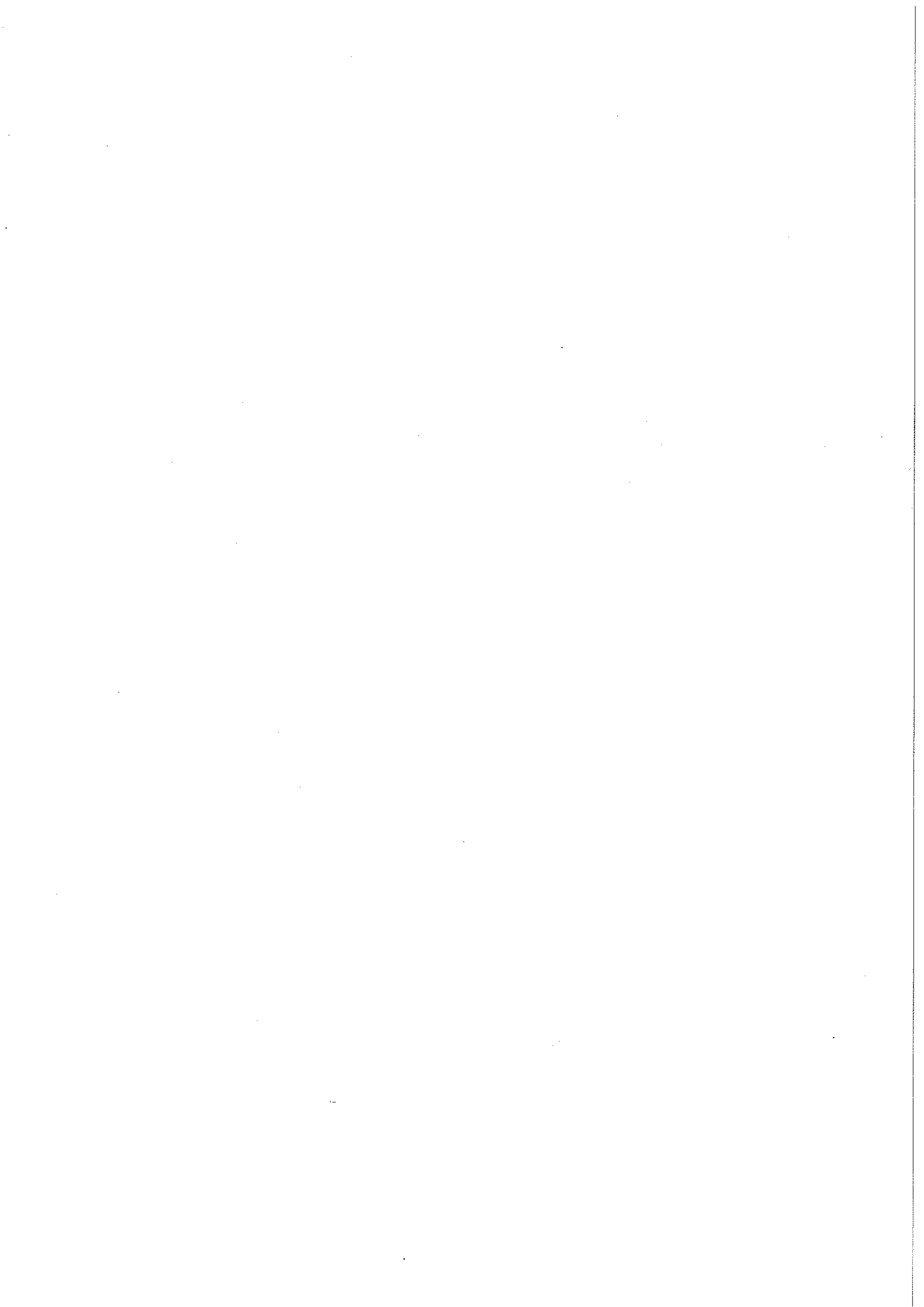
Okayama Prefecture Tsuyama High School

SSH Project

Third Annual U.S.A. Science Camp



Mar 5-13, 2016
San Francisco, Boston, Washington D.C.





3/5 Intel museumにて
レゴクラスアクティビティ臨む生徒達



3/6 San Francisco
California Academy of Sciencesにて、
研究員による英語講義に臨む生徒達



3/6 San Francisco
California Academy of Sciencesにて、
標本室で試料作成に関するディスカッション



3/8 Harvard University
大学キャンパスで、大学生にインタ
ビュー。事前作成したアンケートを実施。



3/8 Massachusetts Institute of
Technology(MIT)
ロボティクスに関する様々な研究と技術応用
について講義。



3/8 Massachusetts Institute of Technology(MIT)
Harry Asada教授の研究室を訪問し、ロボット
アームなどの研究を見学。



3/10 NASA Goddard Space Flight Center
センター所長による講義とディスカッション。



3/10 NASA Goddard Space Flight Center
次期宇宙望遠鏡であるジェイムス・ウェッ
ブ宇宙望遠鏡製造工場見学。



3/11 Smithsonian National Museum of
Natural History
化石や鉱物など膨大な展示について、事前
学習で調査した内容を見学。



事前学習(GSO)
Ursula先生



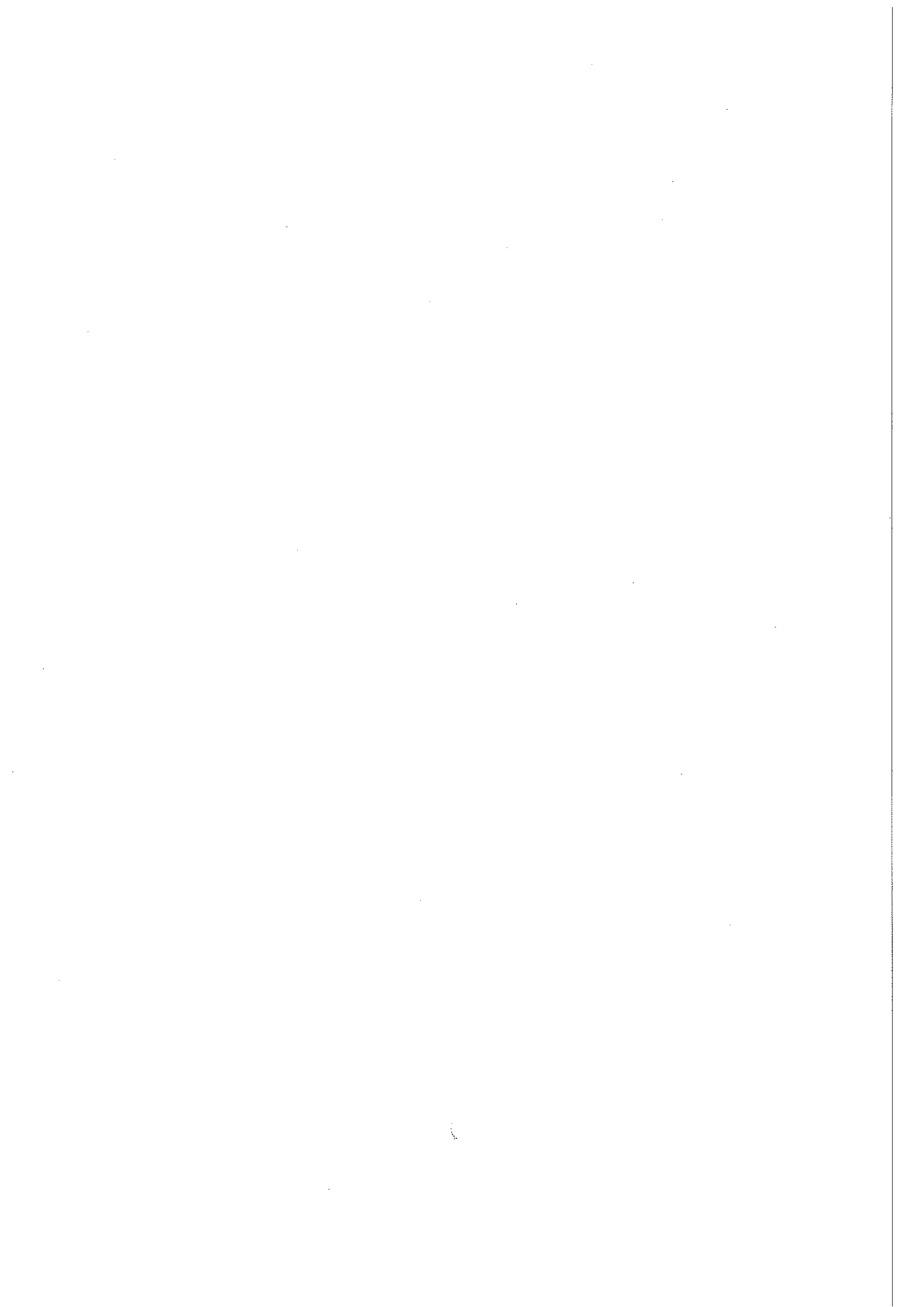
事前学習(GSO)
Martina先生



事前学習(GSO)
Hemsley先生

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I 研修の概要

1. 目的

本校 SSH の研究開発課題である、自然科学研究をリードするグローバル人材の育成に向け、海外に出向き、世界でのトップレベルの大学において研究者・学生との交流を行う。また世界トップレベルの研究機関・研修施設において本物に触れることで、自然科学研究に対する意識を高揚し、国際的な視野を広げさせるとともに科学的コミュニケーションの実践能力を育成する。これらを通して研究者になるための明確な目的意識を育てる。

2. 研修先

アメリカ合衆国

サンフランシスコ …カリフォルニアアカデミーオブサイエンス

ボストン…ハーバード大学, マサチューセッツ工科大学(MIT)

ワシントン D.C. …スミソニアン国立自然史博物館・国立航空宇宙博物館,
NASA ゴダード宇宙飛行センター

3. 参加者

2年生選抜生徒 16名 (男子9名, 女子7名) および 引率教員 2名

生徒	2年生	理数科	竹内亮人	武村知樹	辻元健太郎	都守俊太
			美若正育	山本康平	都井里奈	中島こころ
			古田美穂			

普通科	大森隆暉	小島渉	三牧すみれ	平山真妃
	杉山晃也	石坂真帆	佐山若渚	

引率 村上 貴澄 (海外研修委員長・英語) 津田 拓郎 (SSH 推進室・物理)

4. 事前学習・事後学習

・事前学習：第1回定期考査終了後より、毎週1回実施。

月1回は岡山県の GSO 事業による外国人指導者4名による指導を行う。

・事後学習：レポート作成、プレゼンテーション作成、および全校生徒への発表を行う。

5. 日程

平成28年3月5日(土)～3月13日(日) 7泊9日

月日 (曜)	地名	現地時刻	実施内容
3/5 (土)	学校発	12:30	貸切バスにて関西空港へ (車内にて昼食)
	関西国際空港着	16:00	
	関西国際空港発	18:20	UA034 空路にて出国 (機内食, 機中泊) (日付変更線通過)
	サンフランシスコ着	11:05	サンフランシスコ国際空港着, 入国手続き後専用車にて移動

月日 (曜)	地 名	現地時刻	実施内容
		12:00 14:30 18:00 20:00	サンフランシスコ国際空港発 インテルミュージアム研修 レゴクラスアクティビティに参加 専用車にて移動, ホテル・ウィットコム着 市内にて夕食 ホテルにて研修のまとめ サンフランシスコ市内泊
3/6 (日)	サンフランシスコ	8:30 9:30 17:00	ホテル・ウィットコム出発 California Academy of Sciences 研修 施設見学, 研究員による講義と交流 専用車にて移動 市内にて夕食 ホテル・ウィットコム着 ホテルにて研修のまとめ サンフランシスコ市内泊
3/7 (月)	サンフランシスコ発 ボストン 着	5:45 8:40 17:13 19:00 20:30	ホテル発, 専用車にて空港へ (空港にて朝食) UA768 空路にてボストンへ ボストン空港着 専用車にてホテルへ ホテル・バックミンスター着, 市内にて夕食 ミーティング ボストン市内泊
3/8 (火)	ボストン	8:00 8:30 12:00 13:00 17:30 19:00	朝食後, ホテル発 (徒歩) ハーバード大学にて研修 (授業見学) ハーバード大学発 (徒歩) MITにて研修 (研究室見学) 機械工学部訪問・研究室見学および講義, 交流 ホテル・バックミンスター着 夕食 (市内にて) ミーティング ボストン市内泊
3/9 (水)	ボストン ボストン 発 ワシントン着	7:00 9:30 11:24 13:00 13:20	ホテル発 専用車でボストン空港へ (空港にて朝食) UA525 空路ワシントンへ ワシントン着 専用車にてホテルへ (車内で昼食) ホテル・ホリデイインキャピトル着, スミソニアンへ (徒歩) スミソニアン国立航空宇宙博物館研修

月日 (曜)	地 名	時刻	実施内容
3/9 (水)		17:30 18:00 18:30 20:00	同博物館発,徒歩にてホテルへ ホテル・ホリデイインキャピトル着 夕食(市内にて) 研修のまとめ ワシントン泊
3/10 (木)	ワシントン	9:00 10:00 12:00 13:00 14:00 17:30 18:30 20:00	朝食後,専用車にてホテル発 NASA Goddard Space Center にて研修(通訳有) ・science of sphere において講義 ・施設見学 NASA Goddard Space Center 発 専用車にて ワシントン着,昼食 スミソニアン国立自然史博物館研修 生物,地学,考古学から班ごとにテーマを設定し調査 同博物館発,徒歩にてホテルへ ホテル・ホリデイインキャピトル着 夕食(市内にて) 研修のまとめ ワシントン泊
3/11 (金)	ワシントン発	9:00 13:15	ホテルにて朝食 ホテル発,専用車にてワシントン空港へ UA803 空路にて,成田空港へ(機内夕食,朝食) ※機体トラブルにより離陸時間が1時間30分遅延 (日付変更線通過) 機中泊
3/12 (土)	※成田空港着	※18:00	16:40着予定であったが,遅延のため,入国手続き後, 成田にてホテル泊。 成田泊
3/13 (日)	※羽田空港発 ※伊丹空港着 ※伊丹空港発 ※学校着	10:00 11:10 12:00 14:00	※成田から羽田空港までバスで移動。 貸切バスにて学校へ 解散

II 研修報告（引率者より）

SSH 海外研修委員会委員長 村上貴澄（英語）

1. 出発まで

① 募集と選抜

1 年次 3 月に説明会を実施，希望者は 2 年次 4 月にエントリーシートによる申し込みを受け付けた。生徒の関心は高く，約 80 名の生徒が説明会に参加し，最終的に 35 名の生徒がエントリーした。

選考は，エントリーシートと面接によって行った。面接は，英語科・理科の複数の教員によって実施し，日本語と英語で行い，科学研究に対する意欲とコミュニケーション能力を重視し評価した。これにより理数科 9 名，普通科 7 名，計 16 名の生徒が選ばれた。

② 事前学習

5 月末から 16 名全員による事前学習をスタートした。事前学習は毎週 1 回 90 分を基本とし，引率予定者である英語教員と理科教員に加え，科学部で英語発表指導をいただいている Martina 先生にも指導をいただいた。内容は，研修先であるスミソニアン博物館やハーバード大学，ゴダード宇宙センターに関する事前調査，リスニング練習，英語コミュニケーション，グループワーク，ハーバード大学キャンパスにおけるアンケート調査資料作成，しおり作成などを行った。リスニング教材には，アメリカの社会事情や，科学・気象などを扱ったもののニュース映像や，ゴダード宇宙センターのジェームズ・ウェッブ宇宙望遠鏡などを扱ったものも使用した。ニュース映像なので，使われる語彙レベルや，英語のスピードなどは相当なものだったが，粘り強く取り組んでいる内にだんだん耳が慣れてきて，生徒のリスニング力は大きく向上した。

③ GSO (Global Science Okayama)

岡山県が 2013 年度に始めた科学英語事業「GSO」を活用し，毎月 1 回，4 名の外国人指導者に来校いただいて英語コミュニケーションの指導を行った。16 名を 4 班に分け，各班に 1 名の GSO の先生についていただき，20 分ごとにローテーションすることで，全員が毎回 4 人の講師から 4 テーマのコミュニケーション演習を行う方法で実施した。今年度は，ディベートも行った。

2. 研修

3/5(土)出発，3/13(日)帰国の 6 泊 8 日の予定を立てた。本校ではこの週が高校入試で生徒は家庭学習日となるため研修参加者の授業のロスが最小限で済む点，夏は他の SSH 行事が集中しており実施が困難な点，などを考慮し，例年どおり 3 月実施の日程となった。実際の行程では，飛行機の遅延により，成田市のホテルでさらに一泊している。ここからは実際の行程に基づいて述べる。

① 3/5(土)

【フライト】

昼に貸切バスで本校を出発。夕方，関西国際空港より出国。スムーズに出国手続きを終えることができた。

サンフランシスコ国際空港に着いたが，入国審査もスムーズに追加できた。入国審査は審査官の厳しい態度に不安を感じつつも，すべての生徒が無事に自力で通過することができた。

【インテルミュージアム】

インテルミュージアムでは，マイクロプロセッサの歴史，コンピュータの歴史などに関する展示を，ミュージアムのスタッフの案内で見学させていただいた。草創期のコンピュータがどのように発展していったのかを，実際の製品とともに見せていただくと，半世紀にわたる科学技術の進歩を実感することができた。

そのあと，アクティビティに参加させていただいた。自分でブロックを使ってくみ上げたものを，他の人にも再現できるように説明書を書き上げるという活動であった。図を使ったり，

英語で説明したりと、現地での最初の活動としてはよいウォーミングアップになった。

②3/6(日)

【アカデミー・オブ・サイエンス】

アカデミー・オブ・サイエンスでは、バックヤードツアーをお願いし、施設を案内していただいた。最初は質問をするタイミングをつかみかねていたが、徐々に質問が出始めた。最初に博物館の屋根に案内していただいた。屋根に植物を植えておくことで空調費を節約することができるなど、様々な機能を持っていた。動物の骨・角・内臓や組織などが保管されている標本室を見せていただいたり、剥製を作成する部屋に入らせていただいたりもした。採集から標本作製に至る過程や使用する薬品等についての講義であったが、自分たちが質問をすることで、自分たちの関心の高さを相手に伝えることができる、ということに改めて感じた研修だった。

③ 3/7(月)

【サンフランシスコからボストンへ】

ボストンへ移動するため、サンフランシスコ国際空港へ。予定どおり無事に到着できた。早朝に出発して、夕方に到着する移動だけの一日になった。西海岸と東海岸では時差もあり、少し生徒も疲れが見えてきた。

④ 3/8(火)

【ハーバード大学研修】

ハーバード大学では、アンケート調査を行った。事前に日本で作成した、勉強や人生に対する意識調査を日米で比較するためのデータ集めである。一番の目的は、アンケートを使って自分からアメリカ人などの学生に話しかけ、会話をすることである。アンケートの質問事項については、生徒が自分たちで考えたもので、Martina 先生のお墨付きをいただいていたが、楽しみな気持ちと不安な気持ちがありながらのスタートだった。最終的には全員が話しかけることができた。中には 20 人の人からアンケートを取った生徒もいた。上手く説明できなかつたり、断られたりすることもあったが、諦めずに何度も話しかけることができた。また、大学の講義を見学した。それぞれが事前学習の時に下調べをしており、興味のある分野の講義を聴きに行った。ディスカッション形式で行われる授業を見ることで、世界でトップレベルの学生の姿を見ることができた。

【マサチューセッツ工科大学研修】(以下 MIT)

午後は MIT へ移動し、ロボット工学の研究室を訪問した。日本人教授の浅田春比古氏(Harry Asada)の率いる d'Arbeloff Lab を見学した。案内をしてくださった学生の方は、体の不自由な人が自分で動けるように動作を助けたり、作業をするときに作業者をサポートするロボットなどの研究をされていた。自分の研究についてとても楽しそうに説明して下さり、本当に自分の研究への愛を持っておられると感じた。また、自分たちの研究を人に知ってもらうことに大きな喜びを感じておられるようで、わかりやすく丁寧に説明して下さったのが印象的だった。他の研究室にも案内して下さり、四足で走りながら障害物を避けることができるチーターなどを見学させていただいた。ロボットに興味を持っている生徒もいて、積極的に質問をする姿も見られた。その質問に対して、学生の方がさらに喜んで解説して下さった。

MIT ミュージアムでは、ユーモア溢れる作品を見ることができた。

⑤ 3/9(水)

【ボストンからワシントン D.C. へ】

アメリカの首都ワシントン D.C. へ移動した。アメリカ発祥の地ボストンとはまた違った雰囲気を感じることができた。

【スミソニアン国立航空宇宙博物館】

午後はスミソニアン国立航空宇宙博物館で研修を行った。展示物も多く、より理解と興味をもって見学することができた。最初の有人動力飛行機であるライトフライヤー号、初の大西洋横断飛行に成功したリンドバーグのスピリットオブセントルイス号、アポロ宇宙船の月着陸船や司令船など、歴史に残るものに関する展示が多く見られた。アメリカの飛行機だけでなく、日本の零戦を含むアメリカ以外の国の飛行機や探査機の展示もあった。ライトフライヤーや現代の飛行機の制御システムを模型で動かせる体験型の展示などもあり、展示方式としても大変面白いものであった。

⑥ 3/10(木)

【NASA ゴダード宇宙飛行センター】

次期宇宙望遠鏡である James Webb Space Telescope (以下 JWST) の製造工場をスタッフの方の案内で見学させていただく。まずは宇宙についての基礎知識の講義を受けた。非常に分かりやすく英語で説明をしてくださり、自分たちのリスニング力に自信を深めた。実際に宇宙望遠鏡を作っている施設も見学させていただいた。生徒からは次々と質問が飛びだし、それにひとつひとつ丁寧に答えてくださった。生徒がメモを取りながら熱心に話を聴き、次々と質問をするので、一通り見学が済んだときには終了予定時刻を大幅に過ぎてしまっていた。今まであまり質問することがなかった生徒も自分から質問していたりして、学び成長した生徒の姿を見てとても誇りに感じた。

【スミソニアン国立自然史博物館研修】

午後はスミソニアン国立自然史博物館で研修を行った。隕石、宝石や鉱石、動物、植物などの様々な展示品があった。巨大な博物館であるため、各自が興味のある展示を探して研修をした。大きな象の剥製を見たときには生徒も感動したようだった。事前研修で博物館の展示については予習がよくできていたため、各自が熱心に興味のある分野を見学した。特に生徒は、鉱物や動物の展示をよく見ていたようだ。

⑦ 3/11(金)~3/13(日)

【帰国】

ワシントンダレス国際空港で出国の手続きを済ませ、飛行機へ乗った。しかし、滑走路手前までタキシングした後で、整備のやり直しのためエプロンまで引き返した。離陸が1時間半ほど遅れた。日本の国内線への接続が間に合わず、予定を延長してもう1泊することが確定した。

日本には夜帰国し、航空会社が手配した成田市のホテルで1泊した。まだ岡山まで帰っていなかったが、日本に帰ってきた安心感はとても大きかった。

次の日、バスで羽田空港に移動し、朝の飛行機で岡山へ帰ってきた。予定の変更で生徒も疲れていたが、顔からは充実した研修を行えたことがうかがえた。

3. 研修を終えて

本校で3度目の研修ということで、昨年度の良いところを引き継ぎながら、新しいことにも挑戦し、研修の完成度を高めていくことを目標に取り組んだ。帰りに飛行機のトラブルに巻き込まれてしまったが、今となっては良い思い出である。世界のトップクラスの研究者や学生たちと交流することで、生徒の視野がかなり広がったようだ。また、自分の将来を本気で考える機会となった。一流の環境に身を置くことができるように、将来へ向けて学習への意欲がさらに高まった生徒も多い。英語についてもなんとかなるということを感じることができ、英語ができることでどれだけ世界が広がるかということを一端でも感じることもできた。1週間という短い期間ではあったが、その中で多くのことを学び取り、考え、感じ、そして成長していく姿を見て、彼らの力や可能性の大きさを感じた。

この研修を無事に行うことができたのも、関係機関の方々や研修先、また先生方や保護者の方々のご協力をいただいたからである。心よりの感謝を申し上げたい。

Trip to America

Wataru Ojima

If you are said “Let’s talk in English from now,” I think that most Japanese cannot do it including me. There are two main reasons why I think so.

First, we are not able to speak English. In contemporary English education, the reading, writing and listening abilities are regarded as important part. And that means that they do not give high value to the speaking ability. Basically, you cannot speak languages without trying to use them. For example, a pitcher who knows just the kind of breaking balls can not necessarily throw them without practice. So, we cannot speak English, while we are only able to read, write and listen.

Second, we are not accustomed to speaking English. Even if you can, you will probably be reluctant to make a speech in front of audience. That’s because we feel that we must not make any mistake. In America, I talked with an American in English without hesitation after I experienced some conversation. At that the beginning, I had little confidence, thinking “I could talk in English.” Having done that many times, little by little, it leads to more confidence. So I think the more we speak English, the more confidence we have. Of course, it is true that there is not any other way to communicate with American for me, trying to speak more is very important.

I felt that Japan is too late to become globalized, in other words, America is really globalized. In America, many people from many countries communicated with each other by using a certain language-English. Needless to say, English is not so much an academic discipline than a “tool”. The goal is above speaking-transmitting what we want to say.

I am nervous when I have to talk in English in Japan. That’s because there is no good environment to reach a moderate level, and I do not think it is needed. However, I will try to practice speaking English more actively as one of the generations that bears the Japanese future.

私がアメリカ研修を通して感じたのは、アメリカ社会全体が互いを認め合うことができる社会だということだ。街中には様々な国籍の人々が行き交い、公共施設には車椅子専用のエレベーターがあるなどバリアフリーの考えも日本より進んでいたように感じられた。この研修を通して学んだことを少しでも多くの人々に広めていきたい。

Wonderful experiences in America

Ryuki Omori

We learned a lot of things in America. Probably many friends want to introduce things about exhibitions and museums. So I'm going to tell you not only about sites but also about cultures or feelings. I want to introduce 3 points.

First of all, the thing I want to tell you is the language (especially English). I'm not boasting about myself, but maybe I'm better at speaking English than others. Thus, before I visited America, I was not worried about my English skills. But when I arrived, sometimes it was hard for me to catch the words or express my feelings. I regretted that my English training did not make sense. Therefore, I must improve my abilities, particularly speaking. I felt that the more important thing is real experience not just sitting and studying. I think this point of view is also important when we learn other languages.

Secondly, I speak about foreign culture. Surprisingly, quite a few Americans are kinder than I expected. For example, when we rode an elevator, many of them greeted and when we were buying something, many clerks said about own cultures, feelings and impressions against Japanese cultures (*Kyoto, Totoro, etc.*)!!

I was so relieved, though, Japanese rarely say something like that. You know, Japanese are so kind, but I felt they're not communicative. These days, many people think about globalism including Japanese. However, I'm concerned about Japanese who lack communication skills. I think those people can't come with world influence.

Thus, I would be a more active person even if I were so busy.

Finally, I'm going to tell you the most important thing which I noticed in the America.

That is the existence of many friends! To tell the truth, in the past, I was not eager to study. In addition, I was a person who was proud of being a Tsuyama high school student but didn't make efforts. However, when I joined this SSH activity, this situation has changed. This was because many of the members were studying much harder than me. I was impressed by them and from that time, I've been studying hard. Now, I can study for the difficult universities and I'm eager to study so hard! Speaking of those wonderful friends, they're so friendly and communicative. For instance, they have a lot of knowledge or ideas. Usually I felt sympathy for them. All in all, I was able to experience many things thanks to them and it changed my life. Thus, I want to appreciate my supporters including many friends.

I want to play an active role in the world by making use of those great experiences.

Report on the Study Trip to the U.S.

Sumire Mimaki

We took a trip to San Francisco, Boston and Washington, D.C. from the 5th to the 13th in March. It was full of excitement for me and I learned a lot of things there.

1. Harvard University

On March 8th, I went to Harvard University. I took a lecture and gave many questionnaires to student there. Especially, I was very happy to talk with students in English through making many questionnaires. They had various objects and their own opinion. I thought that Harvard students have their own opinion and more confidence in themselves than Japanese students. I thought I have much confidence in myself and work hard to fulfill my dream like them.

2. Massachusetts Institute of Technology

On March 8th, I went to MIT. I saw many robots there. Those robots were made to help with disabilities, such as a supporting body robot, which works as a person's additional foot.

I was impressed the most by the robot which works in dangerous situations where humans can't go in and carry goods quickly. Its shape was such as leopard and the robot can jump the obstacle. Now, disaster breaks out in various parts of the world. So I thought it was very useful. Also I thought that producing robots that helps people was wonderful and I wanted to be a person can help people.

3. Findings of this study trip

I found through this trip the importance of English. I met many people of various countries through this trip. When I talked with them and walked around the museum, laboratory, I wanted to understand the explanations in detail, and I thought I could get more knowledge. So I wanted to improve my English.

I'm very happy that I had a chance to take part in this trip and I will benefit from it in my future. I want to try hard and contribute to the world.

今回の研修を通して、色々な人と出会い、見たことのない場所を見て様々な雰囲気を感じることができた。そして自分の中の世界、視野の狭さを感じた。また研究者の方々、博物館で案内をしてくださった方々の研究に対する情熱や、仕事に対する意気込みに感銘を受けた。自分の生き方に対して自信をもち、人に夢をあたえられるような人になりたいと思った。

The study trip in America

Maki Hirayama

I have wanted to participate in this study trip ever since I entered this school. I felt the charm of visiting colleges, laboratories and hearing directly the explanation. So I was very happy when I got this chance. But, on the other hand, my anxiety just kept growing. Can I speak and understand English well? My anxiety continued until just before the study trip.

Now, let me give you some insight to the study trip.

• Academy of Sciences in San Francisco

We went there on the second day. It was crowded with a lot of people, so it seemed to me that it's a popular facility. We made a tour up to the roof of the building, the collections of stuffed specimens and so on. Especially, I was so excited about the stuffed specimens because I had never seen such a lot of them. The staff lady was explaining very hard, I felt her eagerness to make it attractive for us. I thought we must respond to it.

• Harvard University in Boston

There, first, I gave a questionnaire to students. It was my first time in this study trip to talk with local people for a longer time. At first, I couldn't gather the courage to speak to them and missed some chances. But once I could talk with them, I thought I want to ask questions to more people. When I couldn't understand well, I asked them again, but finally I couldn't understand. I gave up because I thought it was rude to ask again. I regret that I didn't ask for spelling or have their answer written. I showed my character and Japanese individuality.

Next, I listened to real lectures. I couldn't find the lecture I had planned to listen to, so I listened to other lectures. It was very difficult for me to understand in English, I could catch only words, but I took notes desperately. I was surprised about the style that a teacher speaks only without using a blackboard or a screen. Some students only listened to the lecture, other students took notes in notebooks or a PC. I could experience the difference between class in this college and the classes I take in Japan.

In this study trip, we had many chances to hear various explanations. Those times, I felt the people's eagerness: they want us to know more and be interested in things. We had to respond to it. I came up with questions, but I couldn't translate them into English quickly enough. I regret not asking questions. If I go to a study trip again, I want to visit NASA. I was looking forward to studying in NASA. But I was frustrated when I couldn't understand completely. So I want to visit NASA again.

I got confidence when I worked in preparation for this study trip. Taking advantage of this experience, I want to challenge various things.

I thank the people who supported us.

英語で理解するのはとても大変でしたが、博物館や大学を案内していただいた方々は私たちに熱心にお話ししてくださり、「もっと知りたい」と思うことがたくさんありました。テレビや本、インターネットを見るよりも、実際に本物を見たり聞いたりする方がより印象に残ると改めて感じました。

The Training in America

Teruya Sugiyama

San Francisco

We went to SF first. Buildings built there ,make use of a vast extent of land,they were not so tall but wide.

We visited a museum ,Academy of Science, in the Golden Gate Park. It stores specimens for research and exhibits of living animals including insects for the general public.

I was excited to see various animals in water. I found the museum was "an ecological museum". For, it uses natural sunlight instead of electric lights so on.

Boston

Next, we went to Boston. Buildings built in Boston are different from SF.

We visited MIT (Massachusetts Institute of Technology). Frederico who is a student there showed us many kinds of robots. He told us about robots devotedly and simply.

Lastly, my friend asked him " Why did you choose MIT ? " He answered " I love robots " Then, I remembered that He had told us about robots enthusiastically. I thought He really loves robots, being proud of his study. I was impressed by his spirit.

Washington D.C.

We could see The Capitol which is under construction once in 60 years. We were so lucky !!

We also visited the Smithsonian National Museum of Natural History. We can enter the museum without paying money. We could watch various insects, stuffed mammals, dinosaur fossil, mummies and minerals. I was so excited to watch a T-rex fossil.

I touched the most advanced technology, American culture, attitude to undertake challenge. In fact, there are many things I have never seen. I was surprised by many things.

But I also found Japan is so great a country. Japan has great technology, service sprit, delicious food. I became proud of my country. This experience made me different from what I was.I want to work for this great country in the future.

私はこの研修を通じて最先端の科学技術、そこで働く人々の姿勢、自分とは異なる価値観や文化を目で、耳で、肌で感じる事ができた。そこでした経験はとても刺激になり、私の将来や様々な物事に対する考え方を大きく変えた。今私は、一回りも二回りも大きな人間になったことを自覚しながら自分の夢に向かって一步一步進んでいる。

About having learned in the U.S.

Maho Ishizaka

I have learned a lot of things in training overseas. I'll introduce a few here.

First, I felt the difference in human nature between the U.S. and Japan. I was expecting it before I went to the U.S, but I was reassured again. American people who I saw were friendly and dignified. Furthermore, they have a good sense of humor and their own opinions. However, most Japanese people humble themselves. It was a good incentive for me to learn different attitudes.

Second, I went to a lot of places and learned a lot.

Harvard...I know the view of the students of Harvard from their state of the lecture and their answers to the questionnaires. I felt the earnest attitude of the students. When I did some questionnaires with the students there, I was surprised to find out that I was able to speak with many foreign students in English. I felt those few days spent in the U.S. changed me a lot. It is that the answer of one question was different from my expectation and I was surprised at this questionnaire result. That question is "What is the goal of your life?" I expected an excellent goal and magnificent dream in their answer. But actually, it was different. I was surprised.

MIT...The study that a student of MIT showed us was a robot which assisted work and the movement of a person. I don't know a lot about a machine and a robot. But I felt the future in his robot. Because I think it is very helpful in a hospital and on the scene of the disaster. And above all I felt his eagerness for studies. His talk was a chance to broaden my horizons. In the MIT museum, there were a lot of inventions which I didn't hit upon myself. Imagination and creativity are important.

NASA...We got explanations about the James Webb Telescope and saw laboratories. I looked into it and made a presentation about the Goddard space center and the James Webb Telescope in the prior training. I still wasn't able to understand it them. But I was surprised at the function of man-made satellite in the explanation. According to the explanation, climate, temperature, the route of the airplane around the world are sent to the earth immediately. In the laboratories, there was a container which can show temperature and atmospheric pressure as well as in outer space and I thought that it was very interesting.

This training oversea gave me a good stimulation. Not to mention English, I was able to learn about the American culture and science. And I was able to enjoy it above all. I deepened the bonds with the friends, too. I found I couldn't often learn alone. I want to make the most of this experience and everything that I absorbed in this training.

今回の研修を通して人間性や文化の違い、自分の研究や考え方に対する自信や熱意を肌で感じる
ことができた。この貴重な体験を将来に活かしていきたいと思う。

Impressions of the study trip to the U.S.

Wakana Sayama

Through this trip, I learned various things.

First, I learned we should not be afraid of making mistakes. I could not speak to Americans at first, because I was worried about not being understood. But people there tried to grasp what I wanted to say. Even when I talked with wrong English grammar, they told me my wrong point. Also, when I asked questions which were beside the point, they didn't laugh and answered my questions so that I could understand. So, I could speak to people around me in English gradually without being afraid of making mistakes. I thought that it is important to show a positive attitude to the person, and not be afraid of making mistakes.

Second, I could find some good points of America. There are many people from various countries and believe in various religions. So, they accept whatever other's personality, may be. There were many people with tattoos and piercing. Japanese react and curse such people, but Americans don't care about them. Japanese are very demanding in the looks of others. I realized that we should have a wider heart and accept any kind of people.

Finally, I was impressed with the American's pride toward their study and job. The people that we met in MIT, NASA, and so on, seemed to like their job and have pride in their study. For example, a woman guide in the Academy of science gave us much information about the institution and answered many of our questions. She looked like she really loved her job and the Academy of science, and she studied so much about exhibitions. Some Japanese don't know about their job or study deeply, and feel forced to do their job. So, when they are asked about their job or study, sometimes they can't answer. If these people had pride and enthusiasm, they would be able to work more comfortably and solve the problem of stress. It can tell us students something. If we have pride toward our learning and school, we can study with more satisfaction. I learned that Japanese should change their way of thinking in many areas.

Through this trip, I could not only improve my English skills, but also change my outlook and sense. Also, I could deepen my interest for science. After this trip, I thought that I want to study many things about science and space in university and to be active abroad in the future.

私はこの研修を通して、英語での会話や、意見を言うことの楽しさ、日本人とアメリカ人の意識や考え方の違いの知ることができた。この経験を生かして、国際社会で活躍できるような人材になりたい。

Meaning of studying abroad

Ryoto Takeuchi

My theme of this trip was “to find the meaning of studying abroad”. I want to be a scientist or an astronaut. I often hear that it is better for these jobs to study abroad in advance rather than in Japan. But, is this really true? I have seen Tokyo University, Osaka University, and so on. They seemed very good. So, I tried to find good points of Universities in the USA and introduce some of them.

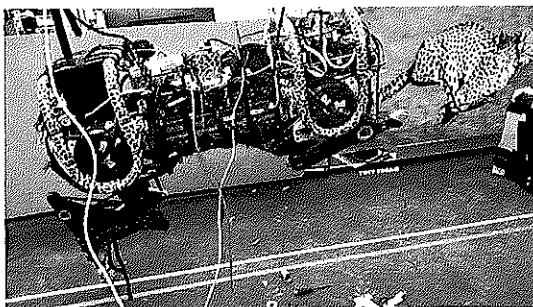
1. Various thoughts, various ideas

I had the chance to visit Harvard University and MIT, which are the most famous universities in the world. I asked some students of Harvard “what is the goal of your life?” Most of them tried to answer this question and give me many kinds of interesting answers. So I thought that if I study at Harvard, I can share problems and discuss them with people who come from many countries. They would have different views. Then, I may extend my approach to problems and develop better ideas.

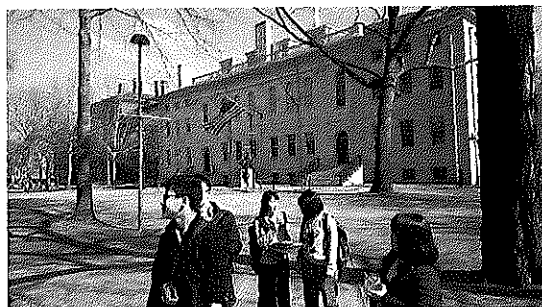
2. Much money for study

Harvard University and MIT are very large. In a lab of MIT, there are many machines which looked very expensive. For these reasons, I thought they must have a lot of money. I searched it after this trip. As a result, I knew that Harvard University stores about \$32.4 billion!!! It is so much money, isn't it? So if I enter, I can study very big stuffs with so much money! It may make my studies really better.

For these points, I think studying abroad is very meaningful. In a few years, I will study abroad. This trip really motivated me to decide it. Next year, I want someone to be inspired like me.



MIT's so cool cheetah!!



At Harvard University

他にもゴダード宇宙センターやインテル、スミソニアン航空宇宙博物館など、科学好きにはたまらない場所をたくさん訪れることが出来た。こういう場所で将来研究に携わっている自分を想像して、モチベーションを上げながら日々の学習をがんばっていきたい。

In the National air and space museum

Tomoki Takemura

We visited the national air and space museum on school trip. I was able to experience what I could not experience in Japan. I want to talk about two things.

1. History Of Aircraft

There are many displays. For example, jet fighter, airplane, balloon, and spacecrafts. There is a real Apollo spaceship. It was rusty and I found it is serious challenge to launch something to space, and to take spacecraft back to the Earth safely.

There is a display of a way how to grasp where I am, too. With a real measuring instrument and easy-to-understand explanation, I realized the way how to grasp where I am. With this display, I learned about an effort toward the sky and the universe of people in those days. And I thought that arms race leads to advances in technology of aviation, spacecraft etc. For example, the GPS system. That was invented for military purpose in America. Now, this system is useful in our life.

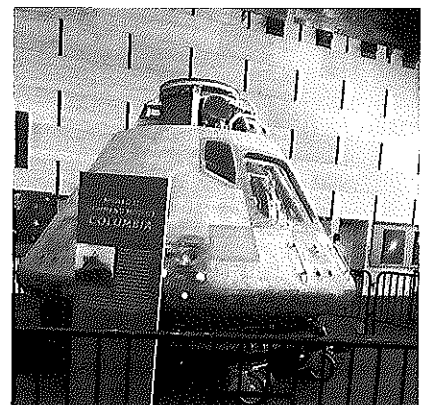
2. Communication With A Foreigner

I had a valuable experience by riding an attraction fighter together with an American. In the museum, there is an attraction of simulation of a flying fighter that we could try in pairs. I was visiting in a group of three people, so I asked an American to ride the attraction fighter with me. I expected that he would refuse my offer. However, He adopted my proposal. I was able to ride the attraction. I was worried about whether I can communicate with him because my English is not fluent. But we could enjoy cooperating in that attraction.

In Japan, many museums don't exhibit fighters associated with war because war is taboo in Japan. But American can visit this museum and learn about war without any money. Probably, America recognizes existence of war. I thought that is a difference between Japan and America.

It was a very important experience to know the history of aviation and spacecraft and to communicate with American people.

この博物館では、人類の空や宇宙への挑戦の歴史を学ぶことができた。私はこの研修を通じて、日本では体験できないような経験を得ることができた。何よりも現地の人とコミュニケーションをとることができたのは、私にとって良い経験になったと思う。



The Difference of Attitude toward Science

Kentaro Tsujimoto

What shocked me the most in America is that Americans' attitude toward science is by far more positive than that of Japanese.

First, they seemed to regard science as a kind of hobby or art. At MIT, we found some students playing music in a room next to the laboratory and there is the environment where students can enjoy drawing and sports in their pastime. And we watched pictures which captured beautiful moment of scientific phenomena like a landscape at the MIT museum. Most museums displayed their exhibits, hoping to make people understand and enjoy them.

Second, many Americans have interest in science, though I have to consider that we visited facilities related to science. A graduated student in MIT, volunteer guides at the Academy of Science, and a staff in Goddard Space Flight Center explained us a lot of things about science every time we asked them. I guess we met many women, who are interested in science. Above all, the number of families with their children who visit museums in America seemed larger than in Japan. Children enjoyed exhibitions and looked excited.

Now, in terms of science, Japan may not be inferior to America. But in terms of the environment where future scientists grow, America is superior to Japan, for sure. This difference in conditions will make a big difference in departments of science and technology. I think we Japanese need to see science and mathematics in a more positive view and I hope the number of science lover will increase.

It is true that we visited museums around America, but most of them are related to space. So I felt I watched the same things over and over. It would be better to visit facilities which work with chemistry or mathematics next year.

I can't thank enough the teachers and agents who planned our school trip, and the Japanese government. I am also grateful for the SSH project because I was able to have opportunities to see most advanced science and technology.

Finally I want to write some ideas down and finish this report.

I felt Japanese surpasses America in food options. We can eat various food at lower prices than in America. I guess, with no doubts, that Japanese food is the most delicious food in the world. It is said that today's young Japanese are happier than in any other past period. I think the variety of Japanese food plays an important role in this situation. "Food diversity" leads to happiness of mankind.

私が MIT ミュージアムで買ったマクスウェル方程式 T シャツを来て NASA の施設を歩いていると、職員の方に笑顔で話しかけられました。このとき私は数式もまた、一つの世界的な言語であることを実感しました。もしかすると今現在求められている、世界に通用する人材というのは、英語が喋れる人ではなく数式で物事を語れる人なのではないでしょうか。

Report about my study trip

Shunta Tsumori

Through this trip, I had a lot of experiences. I write about particularly impressive things, because there were so many.

Harvard University

I saw classes there and did a questionnaire.

At first I write about the class. I took the physics and the economic class at there. Both were very difficult. In the physics classes, people used words that I did not know and was able to understand almost none of the classes. However, I was able to understand the economic class because I knew the words that were used in the classes. From this, I see that if I knew the word I understood class which is the top level class in the world.

Fathermore, I want to write about my questionnaire. We asked students about the reason why they had chosen Harvard University or what the goal of their life. It was the biggest experience for me in this trip. This is because I really felt my English level is poor, especially my listening ability. In the questionnaire they understood what I said, but I was not able to catch their answer. The speed in which that they talked was fast and was not grammatical. So I noticed that ability to listen was very important.

From these two events, I found that I should improve my hearing ability and vocabulary to study abroad someday.

American culture

I often felt the difference of culture in this trip.

I felt freedom and equality in particular which symbolizes the United States. Because most museums were free where we went. From this, I thought that any person was given the opportunity to receive education.

Compared with Japan it seemed the ratio of vagrants is high. So I realized that the difference between the poverty and wealth is big in the United States. However, many people showed mercy for the poor, because it is common to support. I think it is very good and I hope the number of such people will increase in Japan.

The food was not more delicious than in Japan. However, there was another superior point. It is consideration of religion and principles because the United States is a multicultural society. For example the explanation whether pork is used or the consideration to vegetarian. But I felt they did not explain about allergy as they do in Japan.

I intend to use what I have learned through this trip for the rest of my life.

この研修を通して海外と日本の価値観、文化、教育の差を感じた。他国を学んだことで日本の課題や誇るべきことが分かった。

The Report of my Study Trip in the US

Masaiku Miwaka

First of all, I appreciate that I could join this study trip. The reason why I joined this study trip is to get abilities of communicating actively in English and thinking globally with many points of view.

Before going to the US, I wondered whether my English could pass or not. I had no confidence. During the trip, I tried to understand what American people said even I could hardly listen to what they said. Gradually, I could respond in English quickly. Not only that, I felt awkward in everyday life because I didn't hear English conversations in Japan. So I gained confidence. I learned it was important to try and act positively.

I got to be interested in American culture. This time, we visited San Francisco, Boston, and Washington, DC. I want to go to other cities. And I want to know the culture more deeply. I also found Japan's good points. I learned what we thought was natural in Japan wasn't natural in the US. For example, the attitude to customers in the US was worse than that in Japan. We should be proud of the high level of service in Japan.

At MIT, we met a Japanese man. He was doing research on robots. We asked "What is the most important thing when you work with foreign people?" He said "The US has a lot of races. I'm one of them. So it's important to communicate positively and be accustomed to being a member of them. Now, the globalization is proceeding. It might be difficult for Japanese to assert ourselves. But I'm going to assert myself because I learned how important that is through this trip.

My dream is to be a doctor. I think it's important to have the communication ability and the determination to help patients. So it might be good to have both American and Japanese ways of thinking. At high school, I'd like to have a good influence on the other students. I'm certain this experience will help in my life.

今回の研修で、アメリカ合衆国の様々な面を見たり、日本との違いを発見したりすることで、自分の視野を広げることができた。私の英語力はまだまだなので、この研修をきっかけとして、更に英語力を身につけていきたい。

The Study Trip in The U.S.

Kohei Yamamoto

We got on an airplane to go to The U.S.. In the airplane, I was flabbergasted. I wanted to drink Coca-Cola, so I said "Cola, please.". Then, surprisingly, the cabin attendant gave me Water!! If I want Cola, I had to say "Coke". In the U.S., Coca-Cola is pronounced "Coke".

Then, we arrived in San Francisco. There, we went to google, Intel, California Academy of Science, and so on. In the CAS, we saw a lot of things that are not available in public. It was really exciting and helpful. We could learn many things about San Francisco's history, difficulties in research and so on.

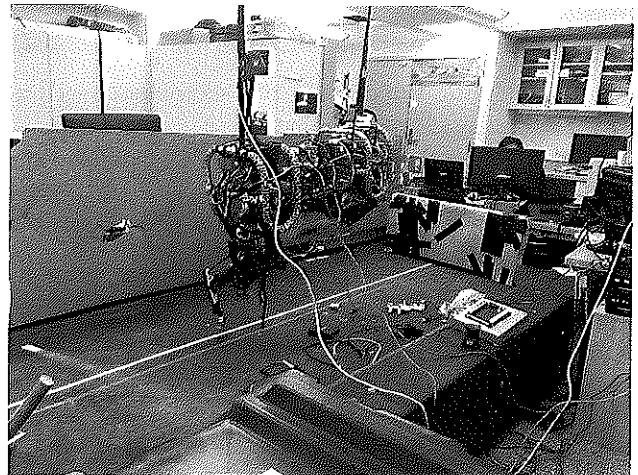
Next, we arrived in Boston. We went to Harvard University and MIT. When we handed out questionnaires at the Harvard University, we got nervous but students were very kind, so we could finish them. Thanks to this experience, we came to speak with local people personally. And we received a lecture at the Harvard University. But it was very difficult, so we couldn't understand it. However we could taste the atmosphere of a high level University. These were very good experiences. And we went to MIT. In there, we saw a laboratory which wasn't ordinarily open to the public. There are a lot of Robots. It was really exciting for me! We asked a lot of questions and the guide answered in detail and easily, so we understood well.

Finally, we arrived in Washington D.C.. And we went to the National Air and Space Museum. The most impressive display item was a rocket engine. It was very big and powerful. On the other hand, The moon stone is anticlimactic. It was flat and smooth. Next we went to receive an explanation about the James Webb Space Telescope. And we saw this laboratory. There was a lot of largescale experimental equipment. We asked a lot of questions, so we ran late. It was a nice mistake. And we went to The National Museum of Natural History. The T-rex's fossil was very cool. And mineralogical specimens were very beautiful.

I felt culture differences in the U.S.. First of all, I was surprised by the culture of the tip. Always we have to pay tip and it is a little bit expensive for me. And Americans are very generous for better or worse. Moreover, Americans tend to appear scary, but they are kind and amusing. I and my friends met a gentleman in the hotel. He asked us "Are you Chinese?". So I answered "Japanese.". Then, he said "Wow!" and talked to us about the good points of Kyoto. According to him, he loves Kyoto and had been to Kyoto many times. I was happy. I think, I had a good encounter.

We had many good experience through this study trip. I'm really happy that I could take part in this study trip.

我々はこの研修を通して様々な知識を学ぶだけでなく、海外に行くことで文化の違いを感じることができました。外国の方々と話すのは緊張しましたが、自分の英語が通じたときの達成感は何事にも代え難いものでした。また、研究機関の方々は本当に自分がやりたいことをやっているようで、とても生き生きしていました。それに影響され、自分も将来本当にやりたいことを仕事にしたとより強く思えました。



The Study Trip in The U.S.A

Rina Toi

This was my first time to travel abroad and I experienced a lot from transportation to science through my trip. I will write about some of them that were the most impressive for me.

・Academy of Science

In this museum, what was the most interesting was the Backyard Tour. During this tour, we saw a lot of interesting things like hills and bones on the roof, so many bones and fishes in storerooms. The guide told us about their studies and why they collect so many bones and fishes. Especially, she told us about the whale in detail and I was really surprised that a whale can be identified with just a part of its baleen. Also, there were interesting exhibits like the Sea of Skulls and various bones.

・Harvard University

At Harvard University, we attended lectures and conducted a survey questionnaire. On the way to the lecture room, we faced some problems but eventually, we managed to arrive there. The lecture was so difficult that I could only understand a little but it was very interesting. After that, we walked around and asked people to answer the questions. We plucked up our courage to speak to someone albeit many of them were in a hurry and had no time to answer us. Through this experience, I realized that I can speak English and don't need to be afraid of speaking in English at all.

・Smithsonian's National Air and Space Museum

In this Museum, I saw a Zero Fighter for the first time. There were various bullets and uniforms in the same room. I learned what the American army was like and about World War 2. It was very interesting to see the Japanese army as a foreign army and I learned about it better.

・Others

We went to listen to jazz at the San Francisco Jazz Center on the first day. The songs were beautiful. It was difficult to understand what the singer was singing or speaking, but I tried to understand her and I could a little.

On our way, we saw some people playing music on roads. It made me think about why there are less people like that in Japan. Maybe it's just because of my lack of knowledge.

I learned a lot from this trip and I decided to learn foreign languages. Through this trip (including prior learning), my English skills have improved and I got interested in the history of Japan and other countries, the differences of food, culture, industry, climate and so on. I owe those great experiences to my family, teachers, friends and other people who helped us.

それぞれの研究機関で、自分が疑問に思ったことを研究者本人に直接答えていただけたことはとても貴重な体験でした。ガイドの方にも道中、研究施設ではわからないような幅広いことを教えていただき、現地への理解が深まったと感じます。

Report of the Study Trip in America

Kokoro Nakashima

This trip was one of the most exciting experiences of my life. I visited various facilities and cultural buildings and learned American culture and a new sense. I'll talk about some impressive things.

1. Harvard University

At Harvard University, first, we carried out a survey. Every student was polite and corresponded to my poor English with kindness and eagerness. I felt the generosity which is typical of America where many different races of people live. What I was surprised at the most was that they tried to learn something even from strange foreign high school students like us.

After doing that, unfortunately, we couldn't take any lecture. So we visited Harvard Museum of Natural History. (When I read a map, I found it by chance.) There is a huge amount of exhibits such as stuffed specimens of all kinds of animals, dinosaur fossils, insect specimens, and minerals. I was disappointed that I couldn't take any lecture, but I had a meaningful time. I thought Harvard University is as wonderful as I had expected.

2. California Academy of Science

We took part in a backyard tour. Of course the exhibitions were great, but after seeing the backyard. I realized that its exhibitions are only one part of many interesting things they research.

Half a day was too short to see all exhibitions, but it was a valuable experience.

In this trip, I learned about America and realized good points of Japan again. Grace and sensitive consideration of Japanese is characteristic and we should be proud of them. And I learned a lot from friends, too.

I'd like to make use of this experience and be a capable person who can play an active part in the world.

Finally, I wish to express my deep appreciation to teachers, friends, my parents, and all people who supported me.

一週間という短い期間ながらも、多くの貴重な体験をさせていただきました。特にハーバード大学で生徒の方々と実際に話し、意見を交わすことのできた一日は、とても良い刺激となりました。この研修で学んだことや成長した部分を、将来に役立て、社会へ貢献していきたいと思います。

The study trip in America

Miho Furuta

○ The museums in America

I went to some museums during this trip. I was most impressed by Harvard Museum of Natural History. I had expected it to be small-scale because it was in the university. However there were a lot of specimens (about 12,000) and very big ones such as a giraffe and dinosaurs.

I was able to see many precious stones. I was surprised about how they were displayed.. If they are displayed in Japan, probably they will be strictly guarded. But there, they were in a thin glass box and we were able to touch the big ones.

○ The people in America

The people in America, especially in Washington D.C. (the capital of America), were very kind to us Japanese.

For example, a shop assistant said to me "Are you Japanese? I can speak Japanese a little." And another asked me "What do you call 'thank you' in Japanese?"

When I was troubled with the calculation of change at a supermarket, there was even a clerk who gave advice to me.

I supposed that they are used to have relationships with people who are different from themselves because there are people of various races and religions there.

○ Differences between Japan and America

During this trip, I knew many excellent things about America. On the other hand, I also realized good points of Japan again.

I thought the service in Japan is much better than that in America.

For example when we get out of a train.

While all flight attendants said "Thank you." to us in Japan, some of the flight attendants talked with each other and didn't see us in America.

アメリカの人々は、私が想像していたのは違い、とてもフレンドリーで、私たち日本人に優しく接してくれた。日本より、異文化に触れることが日常的になっている、アメリカならではのと感じた。私が今回の研修で最も良かったと思うことは、アメリカと比較することで、アメリカの偉大さを感じるとともに、日本の良さを再確認できたことだった。



IV 成果と課題

①事前学習での GSO の効果

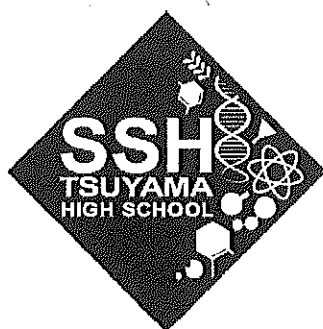
今年度も実施した岡山県事業の GSO による月 1 回の外国人指導者 4 名での指導は、非常に効果が高かった。単なる英語コミュニケーションに限らず、自分の意見を示すことの大切さなどについても学ぶことができた。毎回様々なテーマ・シチュエーションを想定して研修できたことは実際の海外研修のあらゆる場面で役に立ち、大変有効な事前研修であったといえる。

②次回に向けて

昨年同様、研修先、研修内容、事前学習での GSO の活用など、それぞれ高い効果が確認できたため、次年度も概ね今回の活動をベースに実施することとした。また、次年度に向けてより有意義な研修となるよう継続的に研修内容を精査し改善していく予定である。本研修に関わってくださったすべての方々に感謝申し上げます。

最後に、今回の研修に参加した生徒の言葉で報告を締めくくりたい

I'm very happy that I had a chance to take part in this trip and I will benefit from it in my future. I want to try hard and contribute to the world.



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