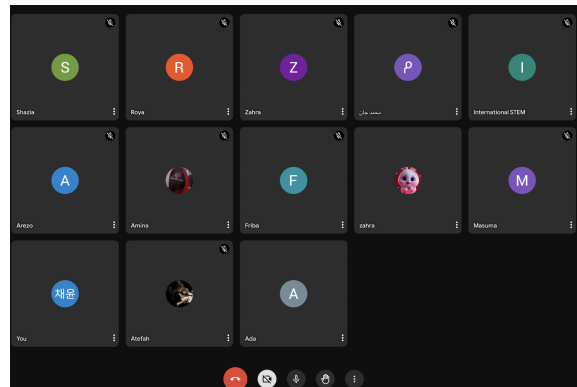


June 16th ISSO report

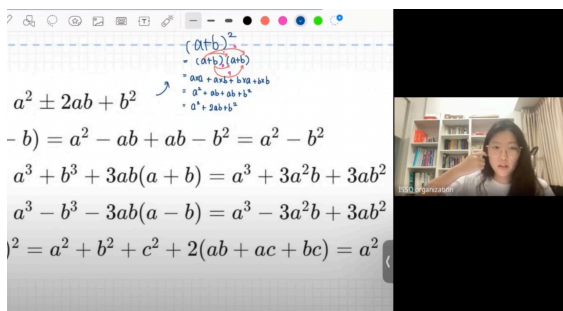
1. Project overview



Picture 1. ISSO website front page

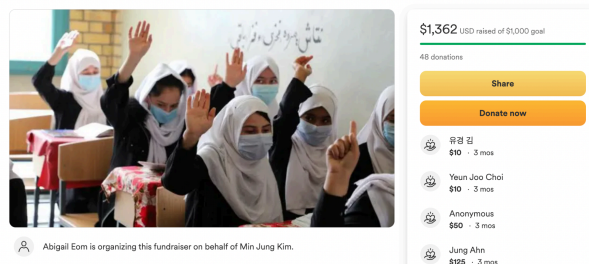


Picture 2. Participating students



Picture 3. Math course (Yewon Eom)

Donate to help education for girls in Afghanistan



Picture 4. Fundraising site (GoFundMe)

Key highlights

- Our organisation ISSO has endeavoured to support the education of girls in Afghanistan by providing online education courses for mathematics, physics, and biology. 11 students from UWCSEA (Singapore), SIS (Japan), Warsaw(Polland), and American School of Kuwait(Kuwait) participated as teachers. A total of **22 students participated online from Afghanistan** and had a sum of **33 hours of education**.
- We fundraised a total of **1,362 USD from [gofundme](#)**, from a total of **48 people**. These funds were transferred to the students for their internet costs for the classes carried out through Google Meet, and homework, which was sent out as a Google form.
- Below is the time table that the students had

| | Monday classes | Wednesday classes | Friday classes |
|--------------|----------------|-------------------------|----------------|
| 6:00 to 7:30 | Math HL theory | Math HL problem solving | Biology |
| | Math SL theory | Math SL problem solving | Physics |

2. Background

Initially, our goal was to unite STEM students internationally and tackle issues around the world. However, we began to notice that there are students who are unable to conspire with us due to their environment, through our first STEM video competition. We saw that the girls who participated had great ideas and ample potential, but they were banned from education, limiting their capabilities to flourish in STEM. Therefore, we decided to open special classes for these girls and help them aspire in their future with the bestowed knowledge from the ISSO classes.

3. Our Approach and Results

We have currently established great progress in not only mathematics for the girls in Afghanistan but also Physics and Biology. With the sum of 1362 USD from gofundme, we were able to provide the internet costs for the girls, allowing them to participate in the Google meeting and review what they learned through the homework, which was sent out as a Google form. In this report, I will thoroughly reflect on the process for each subject and evaluate the strengths of this project and what we need to work on.

Mathematics

For **mathematics**, the table below is what they have learned so far for two months. The students had theory classes on Monday and problem-solving classes on Wednesday.

| | |
|-----------------------|---|
| Unit 1 Numbers | <ol style="list-style-type: none">1. Types of Numbers (number system)<ol style="list-style-type: none">a. Natural numbersb. Integers (positive, zero and negative)c. Rational and irrational numbersd. Prime numbers2. Factors/Multiples<ol style="list-style-type: none">a. Factors<ol style="list-style-type: none">i. Methods of finding: family treeii. Common factorsb. Common multiplesc. Prime factorization3. Powers<ol style="list-style-type: none">a. Indices<ol style="list-style-type: none">i. Rules of indicesii. Negative & fractional indicesb. Standard Formc. Surds |
| Unit 2 Algebra | <ol style="list-style-type: none">1. Algebraic manipulation<ol style="list-style-type: none">a. Factorizing & simplifying expressionsb. Difference of square2. Solving linear equations |

| | |
|--|---|
| | <ol style="list-style-type: none"> 3. Inequalities <ol style="list-style-type: none"> a. Number line 4. Solving linear simultaneous equations (2 equations) 5. Solving quadratic equations <ol style="list-style-type: none"> a. Factorization b. Quadratic formula 6. Sequence <ol style="list-style-type: none"> a. Arithmetic b. Geometric |
|--|---|

We decided to divide the classes into higher-level classes and Standard-Level classes, inspired by the International Bachelor’s course, as we noticed a disparity in the level of understanding of fundamental mathematics among students. However, unlike the International Bachelor’s course, the SL and HL classes learned the same content. We gave them different levels of practice questions so that the students could enhance their problem-solving skills from their current status. As a result, the students in the SL class had enough time to process the knowledge acquired and could apply it to the basic level of GCSE problems for the two units above. Furthermore, students in the HL class could solve a higher level of problems at their own pace without having to wait for other classmates. In conclusion, the education was efficiently carried out for the students through the division of the course.

However, we had some predicaments along the way as well. The internet was the biggest issue; despite the funds for their internet costs, the internet was occasionally slow, which acted as an obstacle during the class as we had to repeat to certain students multiple times. Later, we overcame this problem by sharing the recording of the classes to the students and always being open to them so that they may ask us directly if they were struggling with a problem. During this process, we established meaningful connections with the students, which was a cherishing experience.

Biology

Below is a table of what the Biology students learned for this month.

| | |
|------------------------------|---|
| Unit 1: Review | <ol style="list-style-type: none"> 1. Ask what they know 2. Review <ul style="list-style-type: none"> - scientific inquiry, (hypothesis etc) - States of matter, - types of logic |
| Unit 2: Food Sciences | <ol style="list-style-type: none"> 1. Diet 2. Food nutrition <ul style="list-style-type: none"> - Proteins - Fats - Carbohydrates - Extra: Vitamins, Minerals, water 3. Food science <ul style="list-style-type: none"> - Acids |

| | |
|------------------------------|---|
| | <ul style="list-style-type: none"> - Chemical reactions - Maillard reaction - Oxidation - Raising agents (yeast) - Fermentation <p>4. Food safety</p> <ul style="list-style-type: none"> - Enzymes - Mould - Cross contamination - Yeast action |
| Unit 3: body Sciences | <p>1. Circulatory system</p> <ul style="list-style-type: none"> - red blood cells, white blood cells, platelets and plasma - Blood vessels - Heart - First aid <p>2. Disease & Immunity</p> <ul style="list-style-type: none"> - Pathogens - Contamination - Defence system - Diseases: Diabetes, cancer etc. <p>3. Hormones</p> <ul style="list-style-type: none"> - adrenal glands and adrenaline - pancreas and insulin - thyroid |

| | |
|---------------------------------|---|
| Unit 4: Earth sciences ㉔ | <p>1. Characteristics of living things</p> <ul style="list-style-type: none"> - Movement, Respiration, Sensitivity, Growth, Reproduction, Excretion, Nutrition, Homeostasis <p>2. Classification</p> <ul style="list-style-type: none"> - Species - Binomial system - Dichotomous keys <p>3. Features</p> <ul style="list-style-type: none"> - Taxonomy - vertebrates: mammals, birds, reptiles, amphibians, fish - arthropods: myriapods, insects, arachnids, crustaceans <p>4. Energy flow</p> <ul style="list-style-type: none"> - Food webs - Trophic levels <p>5. Populations and communities</p> <ul style="list-style-type: none"> - Ecosystems - Habitats (Biomes/Climate) |
|---------------------------------|---|

| | |
|--|---|
| | <ul style="list-style-type: none"> 6. Climate change <ul style="list-style-type: none"> - Human influences on destruction of habitat - Pollution 7. Cell structure <ul style="list-style-type: none"> - Prokaryotes & Eukaryotes - Animal vs Plant cell - Specialized cells (eg. Red blood cells) - Photosynthesis - Formula - Chlorophyll - Starch, cellulose, etc. |
|--|---|

Before actually teaching biology, we had to ensure the students understood the basic concept of science overall. So we divided the review part in Unit 1 and categorised the concepts into three major topics : Food Sciences, Body Sciences, and Earth Sciences. Initially, we considered adding Practical Sciences, which would include other sciences like chemistry, physics, and history. However, the students needed more time to memorise and understand the material to complete their homework properly. On the first day, we covered the entire Unit 1 in one class, but now we are separating it into subtopics. We used some of the basic MYP syllabus from Mr. Green's site but made many changes to make it easier for students who had not learned biology at all.

Since biology is a lengthy topic that requires a lot of memorization to do homework perfectly, we encouraged students to take notes so they could easily solve their homework. Unfortunately, after marking the homework, we realized that many students did not seem to pay attention in class or were just taking notes without understanding the concepts. Another issue was the lack of internet connection. We usually take attendance at the beginning and end of the class, but by the end of the class, we noticed that many students had left in the middle without a clear reason. This could be due to the lack of internet or the difficulty of the class. Unlike math, we did not divide the lesson into Standard Level (SL) and Higher Level (HL), which resulted in varying levels of understanding among students and incomplete homework. This might be our first step to address.

For the homework, we sent out a Google Form so that students could answer the questions freely without worrying about what others might think. After they completed the homework, we downloaded the answers into a PDF, marked them, and provided comments on what was done well and what needed improvement. We also contacted students individually to give feedback. For those who did not submit their homework, we tried to reach out and ask them to complete it.

Overall, there were some wonderful experiences where we could share our knowledge with the students and build valuable connections with them. However, we need to work more on addressing our weaknesses.

Physics

For **physics**, the table below is what they have learned so far for two months. The students have classes on Friday.

| | |
|----------------------------|--|
| 1: Kinematics Basics | 1. Difference between displacement and distance & speed and velocity |
| | 1. Kinematics Equations |
| | 1. Acceleration (gravity, $g = 9.8 \text{ m/s}^2$) $a = (v-u)/t$ |
| 2: Forces and acceleration | 1. What is a force? 2. Net forces 3. $f=ma$ |
| 3: Energy | 1. What is energy 2. Conservation of Energy 3. Different types of energy and transformation of energy 4. Introducing Kinetic & Potential Energy |

Unlike the International Bachelor's course, the classes covered less advanced content. We provided varying levels of practice questions to help students enhance their problem-solving skills from their current level. This approach allowed students ample time to process the acquired knowledge and apply it to basic GCSE problems in higher units. Consequently, the course division facilitated efficient education for the students.

However, we encountered some challenges along the way. The biggest issue was the internet; despite funding for internet costs, the connection was occasionally slow, causing us to repeat information for certain students multiple times. We eventually addressed this problem by sharing class recordings with the students and encouraging them to reach out directly if they faced difficulties. This process helped us form meaningful connections with the students, making it a rewarding experience.

4. Our Next Step

Through this project, many of us had a great experience teaching others through compassion. We have gained the adeptness to address a global issue and confront it through various methods, enhancing not only our awareness of the world but also how to apply our academic abilities. We plan to devise new projects to unite the students in STEM and help those in need.

For the online classes, we will aim to have classes for human sciences such as geography, economics, global politics, and psychology. We thereby aim to have 20 more teachers to support the girls and

accommodate more students from various countries. Hence, we aspire to have a total of 3000USD or above for the funds next year, hoping to make the world a better place through STEM students.