

# ザンビアでの理数教育

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## 1. 配属先の概要

- 1) 中高一貫の女子校
- 2) 施設
- 3) 職員

## 2. 配属先での活動

- 1) 数学の教科指導
- 2) 物理の教科指導
- 3) クラス担任
- 4) Teacher on Duty と呼ばれる週番の仕事
- 5) 課外活動

V T R (学習指導・生徒の様子)

## 3. 小さなハートプロジェクト

## 4. 要請外の自主活動

- 1) J O C V 主催のワークショップ
- 2) 現地の現職の数学の先生方対象の活動
- 3) 教員養成学校での学生対象の活動

■ ピタゴラスの定理の多様な証明法

■ 母線の長さが一定のときの円錐の体積の最大値(微分の導入)

■ 円周率、円の面積の求め方(数列、極限、積分の導入)

■ Earth Geometry (地球の表面上の任意の二点間の最短距離を求める公式)

## 5. 最後に

- 1) 青年海外協力隊現職派遣参加で得たもの
- 2) 最後のお別れの歌



## FINAL REPORT

### 1. Description of my professional background

I taught maths at public senior high school in Japan for 6 years after graduating a post graduate school.

### 2. Main objectives of my assignment

I came to ZAMBIA in order to teach maths at Njase Girls' High School in CHOMA as a member of JOCV. Main objectives of my activity were as follows :

- 1) Cultivating pupils' ability in Maths
- 2) Improving surroundings of pupils and teachers
- 3) Offering the opportunities for maths teachers and students to study how to teach maths and advanced maths.

### 3. Description of the main activities

I will describe the activities I undertook during the period in order of the objectives.

- 1) I was engaged in teaching grade 8 pupils in term 3 in 2002. I made the pupils summarize what they had studied in the year and prepare for learning in grade 9.

I taught grade 10 pupils from term 3 in 2002 up to term 1 in 2004. I tried to make the contents taught in junior level take root in the pupils and establish fundamental skills for the pupils to study maths in senior level.

In teaching grade 11 pupils which had been done from term 1 up to term 3 in 2003, I made much of cultivating total ability of pupils in maths in view of final exam. And also I supplied the pupils with pamphlets which were made by JOCV to help them to prepare for the final exam in maths and science.

I organized, through the whole period as often as possible, extra lessons of my own free will for the purpose of improving pupils' arithmetic and keeping time for pupils to learn maths.

- 2) I was in charge of a class in grade 10 from term 1 up to term 3 in 2003. I drew lists of the class, rolled call pupils every morning, disciplined them, wrote report forms at the end of every term and so on.

I supervised preventive maintenance of a portion assigned in addition to my class room by handling the related girls and instructing them what to do.

Teacher on duty who is supposed to supervise and discipline pupils of whole school wherever and whenever during the period was assigned at the rate of about once in a term.

I took advantage of "Small Heart Project" with the view to buying "Electric pot for cooking

nshima” which was requested for by the school. Fortunately we were able to buy it from Republic Of South Africa through this project supported by Japanese Foundation.

I helped the school to apply for Japan Grass Root Assistance for the purpose of constructing a wall fence surrounding the school. But the Embassy of Japan did not embrace our project so we failed to put it into practice.

- 3) The workshop organized by JOCV took place in Kalomo Secondary School where I demonstrated my lesson in September 2003. My demonstration seemed to be able to be beneficial to participants.

I held something of a workshop named “ADVANCED MATHEMATICS ON DISPLAY” which consisted of introducing some teaching aids and studying expanded academic contents of maths in syllabus for secondary school as shown in following programme :

Date	Venue	The number of attendants
16 <sup>th</sup> Feb.04	Choma Secondary School	7 teachers from 2 schools
17 <sup>th</sup> Feb.04	Namwianga Teachers College	29 students
18 <sup>th</sup> Feb.04	Njase Secondary School	7teachers from 2 schools
8 <sup>th</sup> Feb.04	Nkrumah Teachers College	About 50 students
10 <sup>th</sup> Feb.04	COTSECO	About 100 students

These activities were approved officially by Choma Provincial Resource Centre and Curriculum Development Centre which wrote letters of appreciation to me. I also made and distributed some types of pamphlets concerning this demonstration at a good price so that as many people as possible could buy them.

#### 4. Achievement of my activities

I think the objectives 1), 2) and 3) outlined in the work plan have been almost achieved apart from improving surroundings of teachers and the wall fence project.

#### 5. Major changes seen as a result of my activities

- 1) In the pupils I taught for over 4 terms, I believe they have rather got total mathematical ability including how to study it and gained interest in mathematics in terms of academic way of thinking. In fact they have come to be able to solve difficult problems with their meaning as well as fundamental questions. The extra lessons I planned resulted in increasing time the pupils study in mathematics.
- 2) The school succeeded in realizing more stable ways of providing meals to the pupils than before through “Small Heart Project” I organized.
- 3) The people who attended “ADVANCED MATHS ON DISPLAY” generally implied that my work was beneficial for them and actually in some venues they requested me to leave the

teaching aids I produced and sheets of manila paper on which advanced and academic contents were written after my demonstration. The pamphlets prepared in advance were also well sold. This attempt has encouraged the participants especially those who commit in JETS to study maths again in an academic way of thinking

#### 6. Personal learning experience

These activities were very beneficial for myself as well. I have got a lot of valuable experience by living and working in a different society and culture from what I had been used to. Especially it seemed quite meaningful for me, a teacher in Japan to find out what education, teachers and pupils in Zambia are like. I would like to refer to some aspects I have found in the education system in Zambia after I go back to Japan.

While I was teaching in Japan, it was difficult for me to find time to consider how to improve lessons in maths with teaching aids and expand it to more academic contents because I was in charge of many assignments apart from lessons. I am sure I have grown as a maths teacher through this experience.

#### 7. Major obstacles and how to overcome them

It is true that there were several obstacles such as my ability in language, means of transport, different way of thinking and so on but the head teacher, colleagues in Njase, other school teachers, lecturers, officers above all, pupils I came to know were so kind and cooperative that I was able to manage to achieve my objectives.

Lastly I want to thank you for giving me such a valuable opportunity. I hope teachers in Japan are acceptable in this country and both teachers will continue sharing their knowledge from now on as they have done until now. Thank you very much.

Yours Faithfully

Y. TODO

Japan Overseas Cooperation Volunteers