

The Palestine Authority
Ministry of Education and Higher Education

The Palestine Authority
Palestine–Japan Education Cooperation for
Mathematics and Science Curriculum Development

Project Completion Report

October 2018

Japan International Cooperation Agency (JICA)

International Development Center of Japan Incorporated

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Abbreviation Table

AIDA	Association of International Development Agencies
AMIDEAST	Africa-Mideast Educational and Training Services
AQAC	Accreditation and Quality Assurance Commission
BTC	Belgian Development Agency
CDTP	Commission for Developing the Teaching Profession
DAC	Development Assistance Committee
EMIS	Education Management Information System
EUREP	European Union Representative
GDP	Gross Domestic Product
ICT	Information and Communication Technology
IEA	International Association for the Evaluation of Educational Achievement
IT	Information Technology
JFA	Joint Financial Arrangement
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau
NGO	Non-Governmental Organization
NIET	National Institute for Educational Training
OJT	On-the-Job Training
OQR	Office of the Quartet Representative
PCDC	Palestinian Curriculum Development Center
PNGO	Palestinian Non-Governmental Organizations Network
QRC	Queen Rania Center for Educational Technology
SEED	Science Education Enhancement and Development
SPSS	Statistical Package for Social Science
TIMSS	Trends in International Mathematics and Science Study
TMT	Technical Management Team
ToT	Training of Trainers
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the Near East
UNSCO	Office of the United Nations Special Coordinator for the Middle East Peace Process
USAID	United States Agency for International Development
WFP	World Food Programme

Exchange Rate (October 2018)

USD1.00 = ¥113.029

ILS1.00 = ¥31.4141

Chapter 1 Basic Information of the Project

1.1 County

The Palestine Authority

1.2 Title of the Project

The Palestine-Japan Education Cooperation for Mathematics and Science Curriculum Development

1.3 Duration of the Project

From November 2016 to October 2018 (The actual duration was as planned)

1.4 Background

Palestine addresses human resources development as one of the priorities in the process of state-building. Access to education, as the foundation of the human resources development, has reached 95% of the net enrolment rate in primary education as equal level as the average of other Arab nations by the successful implementation of Policy Strategy for Promotion of Primary Education (Grade 1 to 9). JICA also has contributed to improving the access of education by constructing primary schools through the Grand Aid.

On the other hand, quality of education remains as a challenge. World Bank Report in 2006 pointed out the issue of the former curriculum and crammed textbook contents in primary education by the fact that incompleteness of textbook contents within allocated teaching hours in each academic year. MOEHE also recognizes that less than 20% of the Palestinian students choose science stream as their career options in Grade 11 despite Ministry's effort in strengthening science education by introducing new science subject "technology" as mandatory subject from Grade 5.

To tackle the issues in quality of education in mathematics and science, the capacity of the personnel concerned in the reform of curriculum, textbooks in primary education for mathematics and science needs to be strengthened.

Based on the situation above, MOEHE requested a Technical Cooperation Project from Government of Japan in August 2013 to upgrade teaching, curriculum, textbooks in science education for primary grades. During the Data Collection Survey in Education Sector in March 2014 and the Detailed Planning Surveys conducted so far, both MOEHE and JICA confirmed the strong and urgent needs for the Technical Cooperation Project in capacity development for the reform of curriculum and textbooks in

primary mathematics and science education as the one of the top priorities in the Education Development Strategic Plan for 2017-2022.

1.5 Overall Goal and Project Purpose

Overall Goal:

Teaching and learning in the classroom are improved.

Project Purpose:

Quality of textbooks and other relevant teaching and learning materials¹ of Mathematics and Science is improved.

1.6 Implementing Agency

Palestine Curriculum Development Center

¹ The other relevant materials mainly include teacher's guide and training material for central training.

Chapter 2 Results of the Project

2.1 Activities of the Project

2.1.1 Input by the Japanese Side

(1) Dispatch of Japanese Experts

Four Japanese Experts and one Arabic - Japanese Interpreter

Name	Position
Koji SATO	Team Leader / Mathematics and Science Education
Izumi NISHITANI	Mathematics Education (Textbook Development)
Masaomi HIROSE	Science Education (Textbook Development)
Takeshi MIWA	Training and Coordination
Nassim JEBARI	Arabic - Japanese Interpreter

The details of planned and actual dispatch of the Japanese Experts are shown in Annex 1.2.

(2) Counterpart Training in Japan

The number of participants: 6 persons

Duration: From September 11th, 2017 - September 21st, 2017

- Activities:
- 1) Visiting Hyogo Industrial Public High School, Hyogo Prefecture
 - 2) Visiting Tennoji Primary School attached to Osaka Kyoiku University
 - 3) Visiting Tennoji Junior High School attached to Osaka Kyoiku University
 - 4) Visiting Kobe City Education Center
 - 5) Visiting Shinkoshupan Keirinkan (Textbook publishing company)
 - 6) Visiting Suma Aqua-life Park
 - 7) Drafting a proposal for next curriculum and textbook development

* The details of the counterpart training are shown in Annex 1.3.

(3) Equipment Supply

Science laboratory instruments for 12 schools in West Bank and 4 schools in Gaza (The list of the supplied science instruments is in Annex 5)

2.1.2 Input by the Palestinian Side

(1) Counterpart personnel and administrative personnel

The total number is 8 persons who mainly worked with the Japanese Experts from the Palestine Curriculum Development Center (PCDC). In addition, these eight (8) persons conveyed the

knowledge and skills that they learned from the Japanese Experts to the sixty seven (67) other mathematics author members and 80 (eighty) other science author members.

(2) Project office space

A suitable project office room with necessary furniture and equipment was provided in the PCDC building.

(3) Other necessary measures by the counterpart

- Necessary arrangement for the preparation of workshops
- The expense of utility and venue costs for conducting the workshops
- Necessary arrangement for the preparation and implementation of the Baseline and End-line Surveys
- The expense of vehicle for visiting schools during the Baseline and End-line Surveys
- Permission of participation in regional textbook formulation meetings and seminars
- Necessary arrangement for school selection and distribution for science experimental equipment provision
- Provision of papers and usage of photocopy machines
- Provision of information on safety of the Japanese Experts such as demonstration and protest activities

2.1.3 Activities

[Activities related to Output 1]

Output 1 Narrative Summary:

Knowledge and skills of the coordinators and authors are enhanced for developing/ revising textbooks and other relevant teaching and learning materials of Mathematics and Science.

The review by the Japanese Experts and discussion with the PCDC authors team of the draft textbooks from Grade 1 to 9 (the textbooks of the first and second semesters) were not able to be done as planned. The tables below show the details. One of the reasons is that the draft textbooks of Grade 1 to 4 were almost completed before the Japanese Experts dispatched. Also, because the actual work was progressing faster than the schedule of drafting textbooks indicated by R/D, only one Japanese Expert in mathematics and science had difficulties to review all the first to ninth grades for a limited period.

Table 1.1 Reviewed Draft Mathematics Textbooks and Teacher's Guides

Grade	Mathematics Textbooks				Mathematics Teacher's Guide			
	1st Semester		2nd Semester		1st Semester		2nd Semester	
	No. of Units	Reviewed	No. of Units	Reviewed	No. of Units	Reviewed	No. of Units	Reviewed
1	6	0	5	5	6	0	5	0
2	5	0	6	0	5	0	6	0
3	5	0	5	5	5	0	5	0
4	6	0	5	5	6	6	5	5
5	5	0	4	4	5	5	4	1
6	4	0	4	3	4	0	4	0
7	4	4	4	0	4	0	4	0
8	4	1	4	0	4	0	4	0
9	4	0	5	0	4	0	5	0

Table 1.2 Reviewed Draft Science Textbooks and Teacher's Guides

Grade	Science Textbooks				Science Teacher's Guide			
	1st Semester		2nd Semester		1st Semester		2nd Semester	
	No. of Units	Reviewed	No. of Units	Reviewed	No. of Units	Reviewed	No. of Units	Reviewed
1	-		-		-		-	
2	-		-		-		-	
3	2	2	2	2	2	0	2	0
4	3	3	3	3	3	1	3	1
5	3	2	3	3	3	0	3	0
6	3	3	4	4	3	0	4	1
7	4	4	3	0	4	0	3	0
8	4	0	3	0	4	0	3	0
9	3	0	3	0	3	0	3	0

The table below shows the activity summary of each Output on PDM. The Plan of Operation (planned and actual) is also attached to Annex 1.4. The main activities of Output 1 are to strengthen the knowledge and skills of the PCDC authors and coordinators involved in the development of mathematics and science textbooks and Teacher's Guides.

Table 1.3 Activity Summary of Output 1 on PDM

Activity 1-1: Make proposal by reviewing drafts of textbooks of Mathematics	<ul style="list-style-type: none"> - The Japanese Science Expert quickly reviewed the Grade 3 draft science textbooks. - The Japanese Mathematics Expert quickly reviewed the Grade 1 and Grade 3 drafts textbooks.
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and Science for Grade 1 to 9.	<ul style="list-style-type: none"> - Japanese Mathematics and Science Experts mainly reviewed the Grade 4 - 7 draft textbooks and made these proposals. - By PCDC's strong request, Japanese Mathematics Expert reviewed the Grade 12 draft textbook and made a proposal. 														
Activity 1-2: Conduct textbook authors meetings by referring the proposal made in activity 1-1.	<ul style="list-style-type: none"> - Japanese Mathematics and Science Experts regularly held mathematics and science draft textbook author meetings with the PCDC author team members and discussed the proposals. - Japanese Science Expert periodically participated in the opinion hearing conference of Grade 5 and 6 draft science textbooks conducted by the PCDC science team. 														
Activity 1-3: Revise the draft of textbooks.	<ul style="list-style-type: none"> - The PCDC mathematics and science author teams revised and edited the draft textbook of Grade 4 - 7 based on the results of the meetings with the Japanese Experts (In case of Mathematics, Grade 12 was also included). 														
Activity 1-4: Conduct validation in the validation schools.	<ul style="list-style-type: none"> - Japanese Expert Team working together with PCDC and the JICA Gaza Field Office conducted the Baseline and End-line Surveys as shown the table below. <table border="1" data-bbox="580 931 1390 1055"> <thead> <tr> <th></th> <th>West Bank</th> <th>Gaza</th> </tr> </thead> <tbody> <tr> <td>Baseline Survey</td> <td>February 2017</td> <td>May 2017</td> </tr> <tr> <td>End-line Survey</td> <td>January 2018</td> <td>February 2018</td> </tr> </tbody> </table>				West Bank	Gaza	Baseline Survey	February 2017	May 2017	End-line Survey	January 2018	February 2018			
	West Bank	Gaza													
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End-line Survey	January 2018	February 2018													
Activity 1-5: Conduct workshops regularly to strengthen the capacity of coordinators and authors to develop the textbooks.	<ul style="list-style-type: none"> - The Japanese Expert Team conducted workshops four times as shown in the table below. <table border="1" data-bbox="580 1167 1390 1973"> <thead> <tr> <th></th> <th>Date</th> <th>Objective/Outline</th> </tr> </thead> <tbody> <tr> <td>1st WS</td> <td>Dec. 13, 2016</td> <td>The main objectives were 1) Sharing strong points and weak points of Palestinian basic education, 2) Introducing changes of Japanese curriculum guidelines and 3) Sharing Japanese textbook development procedure and textbook characteristics.</td> </tr> <tr> <td>2nd WS</td> <td>Feb. 13, 2017</td> <td>The main objectives were 1) How to utilize textbooks at primary school in Japan by showing videos, 2) How to use mathematics teaching tools in Japan and active learning, and 3) Sharing challenges found by science textbook review consultation and how to deal with them.</td> </tr> <tr> <td>3rd WS</td> <td>Nov 26, 2017</td> <td>The Japanese Science Expert became a science teacher and taught air pressure principle by conducting an experiment to grade 6 students at a school. The aim of this open lesson was to show a concrete example of active learning with a child center approach.</td> </tr> </tbody> </table>				Date	Objective/Outline	1 st WS	Dec. 13, 2016	The main objectives were 1) Sharing strong points and weak points of Palestinian basic education, 2) Introducing changes of Japanese curriculum guidelines and 3) Sharing Japanese textbook development procedure and textbook characteristics.	2 nd WS	Feb. 13, 2017	The main objectives were 1) How to utilize textbooks at primary school in Japan by showing videos, 2) How to use mathematics teaching tools in Japan and active learning, and 3) Sharing challenges found by science textbook review consultation and how to deal with them.	3 rd WS	Nov 26, 2017	The Japanese Science Expert became a science teacher and taught air pressure principle by conducting an experiment to grade 6 students at a school. The aim of this open lesson was to show a concrete example of active learning with a child center approach.
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3 rd WS	Nov 26, 2017	The Japanese Science Expert became a science teacher and taught air pressure principle by conducting an experiment to grade 6 students at a school. The aim of this open lesson was to show a concrete example of active learning with a child center approach.													

	4 th WS	Apr. 29, 2018	Japanese Mathematics Expert became a mathematics teacher and taught “Probability” applying an active learning method to Grade 8 students at a school. After the lesson, the Japanese Expert Team had a reflection meeting with PCDC authors. The knowledge and learning obtained at the reflection meeting were applied to the finalization process of mathematics textbooks.
Activity 1-6: Implement other related activities for textbook development including developing teacher’s guides and developing materials for central training	<ul style="list-style-type: none"> - The Japanese Experts visited several schools and observed lessons to understand teaching and learning process once in November and once in December 2016 as well as twice in February and once in May 2018. - The Japanese Experts visited two printing companies to confirm the printing capacity of school textbooks in January 2017. - Japanese Experts participated in the regional training of Grade 6 and 7 draft textbooks of mathematics and science in Jenin, Ramallah and Bethlehem. They gave some comments and advices during the training. - Japanese Science Expert reviewed DVD reference for the science Teacher’s Guide of Grade 5. This DVD consists of series of photos and illustrations related to biology and videos of how to conduct experiments. - Japanese Mathematics Expert mainly reviewed the Grade 4 and 5 draft Teacher’s Guides, made proposals and held draft textbook author meetings with the PCDC mathematics author team members. - Japanese Science Expert mainly reviewed the Grade 3 and 4 draft Teacher’s Guides, made proposals and held draft textbook author meetings with the PCDC science author team members. - The Japanese Expert Team interviewed personnel at various directorates in MoEHE and development partners for information gathering which became a reference document for formulating JICA’s future projects. 		

[Activities related to Output 2]

Output 2 Narrative Summary:

Reference material for developing/revising textbooks and other relevant teaching and learning materials of Mathematics and Science is developed.

The Japanese Experts and the PCDC authors have recorded consultation minutes of discussion every time during this Project, The Reference Material was developed by using these consultation minutes as

basic resources. Also, in preparing the Reference Material, lessons learned in the counterpart training conducted in September 2017 in Japan are also included.

Activities related to Output 2 of PDM were largely implemented as planned. The following table outlines each activity.

Table 1.4 Activity Summary of Output 2 on PDM

<p>Activity 2-1: Conduct a training programme in Japan for senior officers involved in curriculum/textbook development.</p>	<ul style="list-style-type: none"> - Japanese Expert Team prepared for a counterpart training (CP) program in Japan including the arrangement of visiting places, development of reference materials and their translation, and other logistic arrangement. - Japanese Expert Team conducted the counterpart training in Japan in September 2017. There are 6 participants from PCDC including a curriculum coordinator in Gaza.
<p>Activity 2-2: Develop proposals for improving the process of curriculum reform and textbook development based on what they have learnt in the training in Japan.</p>	<ul style="list-style-type: none"> - The participants of the training in Japan developed a proposal for improving the process of textbook development and teaching and learning based on what they have learnt in the training. In the proposal, the following points are noted. <ul style="list-style-type: none"> - We would like students themselves to study things by themselves and incorporate activities in the class that lead the results. - We introduce more examples through textbooks and guide students' way of thinking. - We raise the quality of illustrations and inscriptions in textbooks. - We will further promote the implementation of experiments by students. - We will ask for Palestinian teachers "higher ability", "conscience" and "sense of responsibility" more than ever. - We will review and strengthen students' assessment of learning and methods of teacher evaluation. - We will strengthen school management as well as textbooks. - The Director General of PCDC submitted the proposal (as a Report of the CP training in Japan) to Deputy Minister of MoEHE.
<p>Activity 2-3: Conduct a workshop to share what they have learned in Japan to improve textbook development and the process of curriculum reform.</p>	<ul style="list-style-type: none"> - The Director General of PCDC who participated in the CP in Japan shared experiences and lesson learnt from the CP training with PCDC authoring members and personnel in various occasions such as an internal meeting and a seminar where other subject authoring members joined.
<p>Activity 2-4: Develop a reference material to be used for the current textbook development and future curriculum development plan based on the issues identified, and comments made in the workshops of activity 1-5 and 2-3.</p>	<ul style="list-style-type: none"> - The Japanese Expert Team explained to the PCDC Director General about the framework of the reference material and got consent. - The Japanese Expert Team drafted the reference material in Japanese in August 2018 and JICA personnel commented on it in September 2018. - The draft reference material translated in Arabic was submitted to PCDC in October 2018. PCDC reviewed it and gave comments.

	- The Japanese Expert Team finalized the reference material in Arabic and Japanese. The material was officially submitted to PCDC and JICA.
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2.2 Achievement of the Project

2.2.1 Outputs and Indicators

2.2.1.1 Output 1

Knowledge and skills of the coordinators and authors are enhanced for developing/ revising textbooks and other relevant teaching and learning materials of Mathematics and Science.

【Indicator】

Strengthened knowledge and skills of the authors and coordinators reported in the evaluation sheets to be conducted at the end of the reflection workshops.

Verifiable Points of Strengthening Knowledge and Skills of Authors

"Common points of mathematics and science" and "In the Case of Mathematics" shown below are the main verification points for measuring the outcome of Output 1 in mathematics.

[Common points of Mathematics and Science]

Textbook:

- a) Textbooks have contents that take into account the students' understanding and interests
- b) The content of the textbook is one that emphasizes the systematicity between the unit and the grade.
- c) Textbooks are structured in consideration of the cognitive development of students (it is gradually leveling up).
- d) A textbook is made to the content of how to proceed with student's centered activities from teacher-oriented teaching approach.
- e) There are few parts in the textbooks that are influenced by the skill and ability of the teacher.

Teacher's Guide:

- f) The teacher's guide has contents that help teaching for new teachers and teachers who are not good at that subject.
- g) The teacher's guide shows concrete examples of various ways of solving questions.
- h) The teacher's guide uses plenty of tables, figures and illustration to support teachers for conducting a lesson.
- i) The teacher's guide shows student's common mistakes and their countermeasures.

[In the Case of Mathematics]

Textbook:

- a) The textbook shows the importance of helping people's lives and the significance of learning mathematics.
- b) The textbook asks not only for answers but also for processes and reasons.
- c) The textbook not only asks students to do drill type mathematical calculation, but also helps enhance mathematical thinking ability.
- d) The textbook shows that there are various answering methods, and as students tackle it, it becomes a textbook that will foster a flexible way of thinking.
- e) There are explanations and hints of the problem in the textbook, which has ingenuity to alleviate student's stumbling and find clues to think about.

Teacher's Guide

- f) The teacher's guide shows concrete how to proceed active learning.

【Achievement of Output 1 in Mathematics】

As shown in "Table 1.1 Reviewed Draft Mathematics Textbooks and Teacher's Guides" in the previous section, the grades of textbooks and the Teacher's Guides that the Japanese Experts were able to discuss with their reviews are listed in the table.

As one of PDM indicators to measure the achievement of Output 1, it says "to evaluate by the evaluation sheet at the workshop." In the 4th workshop, as a substitute for the evaluation sheet, the Japanese Expert Team held a reflection session after the open class and exchanged opinions what the PCDC participants and the Japanese experts learned in the workshop and evaluated the achievement of Output 1. The PCDC author representatives at the workshop mentioned that they had learned concrete methods for active learning from the Japanese Expert since the Project was launched.

From the beginning of the Project, the Japanese Expert has been guiding teaching methods using examples of Japanese textbooks and Teacher's Guide, which made the PCDC authors easy to incorporate student-centered activities. After a year and a half since the start of this Project, the PCDC authors understood the points and it is confirmed that they were gradually able to express these on their textbooks and Teacher's Guide.

Regarding the textbooks, the draft contents have been improved every time the author meeting was held. For example, there were more explanations and clues on questions, and there is ingenuity to reduce the chances of student's making mistakes compared to the zero draft. Another example, the processes to let students' think have been increased and the textbooks had more questions of asking 'why' instead of just asking answers. Based on the fact of draft textbook improvement, it can clearly say that the knowledge and skills of the mathematics textbook authors were strengthen.

The same phenomenon was occurred during the development of the draft Teacher's Guides. For example, the Japanese Expert had suggested to introduce student's mistakes and their countermeasures, which were actually written in the Teacher's Guides. (e.g. The minutes of discussion on Unit 5 and 6 of G-5 Mathematics, May 8, 2018). Also, the Japanese Mathematics Expert had been giving suggestions on the interest and depth of mathematics such as there are always multiple answers to a single question. Reflecting that, the PCDC author team incorporated it into the Teacher's Guides. (e.g. The minutes of discussion on Unit 4 of G-5 Mathematics, May 8, 2018).

In this way, the PCDC author team has learned what the Japanese Expert suggested in every author meeting and started exerting their strengthened knowledge and skills on the development of textbooks and Teacher's Guides.

Verifiable Points of Strengthening Knowledge and Skills of Authors

"In the Case of Science" shown below is the main verification points for measuring the outcome of Output 1 in science.

[In the Case of Science]

Textbook:

- a) The textbook shows how science is closely related to human life and the significance of learning science.
- b) The textbook shows illustrations, figures, photographs that are easy for students to see and understand.
- c) The textbook emphasizes student's doubts and is written in line with the flow of natural thinking.
- d) The textbook does not have any inaccurate or uncertain description.
- e) The textbook shows safety considerations in experiments and observations.

Teacher's Guide:

- f) The teacher's guide shows experiment activity preparation including aware of danger.
- g) The Teacher's Guide shows examples of how to talk to students and make students think deeply.

【Achievement of Output 1 in Science】

As shown in "Table 1.2 Reviewed Draft Science Textbooks and Teacher's Guides" in the previous section, the grades of textbooks and the Teacher's Guides that the Japanese Experts were able to discuss with their reviews are listed in the table.

From the beginning of the project, the Japanese Science Expert has instructed the PCDC authoring members to eliminate incorrect descriptions, diagrams, photographs and illustrations in the textbooks. When this project has been over a year and a half, the number of misrepresentations in the textbooks

has clearly decreased. This fact shows that the ability of the PCDC author team to edit the textbooks has improved. (e.g. There were 16 editorial mistakes pointed out in the 2nd semester of G4 textbook in the minutes of discussion No.3 dated on December 5, 2016; There were 7 editorial mistakes pointed out in the 2nd semester of G5 textbook in the minutes of discussion No.30 dated on October 29, 2017)

From the early stage of the project, the Japanese Science Expert has instructed and explained that the textbook should have the content according to the developmental stage of the student. However, in the first half of this Project, the PCDC author team did not fully get points and it was partially reflected in the draft textbooks. After a year and a half, however, the Japanese Expert confirmed that the content that does not match ability of the grade has been corrected. (e.g. Unit of Human Spinal Structure, 2nd semester of G5, pp6). This means that the PCDC author team has acquired skills to understand the guidance of the Japanese Expert and to create the textbooks that are in line with students' understanding with their own ability.

In addition, the PCDC author team is learning a lot from Japanese Teacher's Guides under the guidance of the Japanese Expert. As a result, the Japanese Expert confirmed that the PCDC author team is making corrections that incorporate the essence of Japanese type description on multiple pages of their Teacher's Guide. (e.g. Unit 2-3 "Magnet" of G4 Teacher's Guide)

【Evaluation Result of Knowledge and Skills Acquired by PCDC Authors from Japanese Experts】

The following is the result of knowledge and skills acquired by PCDC authors from the Japanese Experts. The five PCDC authors who mainly worked with the Japanese Experts filled in the questionnaire. (Likert scale method was applied. “1” means Learnt very less, “2” means Learnt less, “3” means More or less, “4” means Learnt much and “5” means Learnt very much). This evaluation was conducted in September 2018, and an evaluation sheet with the following question (statement) was distributed to the five PCDC authors and asked for the answers.

	Statement	Average Score
a	Know-how to deepen students' understanding.	3.2
b	Know-how to draw out students' willingness to learn and their interest and learn happily.	3.8
c	Know-how to make more important for students' learning by their initiative.	3.2
d	Know-how to make it easier for students to do homework, preparation and review at home.	2.6
e	Know-how to further improve students' thinking power.	4.0
f	Know-how to further improve students' problem-solving skills.	3.6
g	Know-how to make textbooks tied to everyday life.	3.8
h	Know-how to make it a thought type of lesson from a memorization type of lesson.	3.4

i	Know-how to make textbooks that teachers easily teach with them.	3.2
j	Know-how to consider student's cognitive development.	4.0
k	Know-how to make contents that can cope with first learning as well as slow learning students.	3.4
l	Know-how to make experiments and operation activities easier for teachers.	4.0
m	Know-how to be able to see composition of learning contents from Grade 1 to 9 throughout.	2.6
n	Know-how to make textbooks easy to understand, including layouts, fonts, and designs.	4.2
o	Know-how to make textbooks of appropriate quantity (page numbers) for students.	3.6

The statements of “e: Know-how to further improve students' thinking power”, “j: Know-how to consider student's cognitive development”, “l: Know-how to make experiments and operation activities easier for teachers” and “n: Know-how to make textbooks easy to understand, including layouts, fonts, and designs” give 4.0 or more than 4.0 on average. These four statements are exactly what the Japanese Experts emphasized in their technical assistance. The statements of “b: Know-how to draw out students' willingness to learn and their interest and learn happily” and “g: Know-how to make textbooks tied to everyday life” give 3.8 on average. These are also activities that the Japanese Expert emphasized during the technical assistance.

On the other hand, the statement of “m: Know-how to be able to see composition of learning contents from Grade 1 to 9 throughout” give less than 3 on average. When the Japanese Experts were dispatched, the draft textbooks of Grade 1 to Grade 4 had already been completed. Therefore, It is assumed that this average answer value shows the fact that the technical support through Grade 1 to 9 was not completed.

Taken together, the above results show that the activities of this Project were very effective for achieving the Project objective.

【Degree of Achievement of Output 1】

As shown in the results described above, it can be said that the degree of accomplishment based on the verifiable indicators is generally high, as it is possible for the PCDC authors to reflect on advice and guidance by the Japanese Experts in the draft textbook corrections and edits. However, the part that cannot be achieved is that the Japanese Experts could not directly provide technical knowledge and skills to all PCDC mathematics and science authors.

2.2.1.2 Output 2

Reference material for developing/revising textbooks and other relevant teaching and learning materials of Mathematics and Science is developed.

【Indicator】

Reference material developed during/after the final reflection workshop

【Achievement of Output 2】

The reference material was developed based on all discussion records of the author meetings between the PCDC mathematics and science authors and the Japanese Mathematics and Science Experts. It also extracted important points and results from the series of workshops held four times during this Project. Therefore, this reference material does not discuss educational policy and theory. It is a so-called practical book which is written important points, learning points, lessons learned in the process of actual textbook formulation through the implementation of this Project. In other words, this reference material is a book of technical guidance for preparing new textbooks and Teacher's Guidebooks as well as new curriculum.

In the process of developing this reference material, the overall concept, table of contents, and details of the contents were prepared at each stage by receiving opinions and comments from PCDC.

During the final workshop, the final reference material was distributed to each participant and the Japanese Expert Team collected the last comments. By reflecting these comments, the Team finalized the reference material and submitted to PCDC and JICA. PCDC appreciated the reference material. PCDC committed themselves to make it useful for future curriculum development and textbook development.

【Degree of Achievement of Output 2】

As the results described above, the Reference Material was has undergone almost the expected process, and it was the time when finalization was planned. Therefore, the degree of achievement is high.

2.2.2 Project Purpose and Indicators

【Project Purpose】

Quality of textbooks and other relevant teaching and learning materials² of Mathematics and Science is improved.

【Indicators】

- (1) Improvements observed in the final drafts of textbooks by comparing the final drafts with the first drafts
- (2) Improvements observed in the final drafts of Teacher's Guides compared with the current versions of teacher's guides.

² The other relevant materials mainly include teacher's guide and training material for central training.

[Textbooks]

From G5 to G9 new textbooks of mathematics and science are clearly improved compared with the first draft, especially from G5 to G8 textbooks which the Japanese Experts reviewed and consulted with the PCDC author team. The following changes are seen.

- In the case of mathematics, explanations, hints, and examples of problems in the textbooks are increasing, and questions to make students think as well as fill-in-the-blank questions are also increasing.
- In the case of science, the number of incorrect descriptions, charts, photographs, and illustrations has been decreased, and contents that are difficult to understand due to the developmental stage of the students are deleted. In addition, consideration to safety was made for experiment and observation.

Example of the change between the first draft and the final draft of the Grade 5th mathematics textbook

Before

$(3 \times 3) \times 2 \times 2 \times 2 =$
 $3 \times 3 \times 2 \times 2 \times 2 =$

يُمثّل التحليل السابق للعدد ٧٢ إلى عوامله الأولية بطريقة أخرى كما يأتي:

$3 \times 3 \times 2 \times 2 \times 2 = 72$

تُسمى هذه الطريقة التحليل باستخدام شجرة العوامل الأولية.

ب) أعاون مع أفراد مجموعتي في كتابة طُرُق أخرى؛ لتحليل العدد ٧٢ إلى عوامله الأولية باستخدام شجرة العوامل.

After

نشاط (٥)

أ) يُحلّل العدد ٧٢ إلى عوامله بعدة طرق، هي:

$9 \times 8, 12 \times 6, 18 \times 4, 24 \times 3, 36 \times 2, 72 \times 1 = 72$

بينما يُحلّل العدد ٧٢ إلى عوامله الأولية كما يلي:

$36 \times 2 = 72$
 $(18 \times 2) \times 2 =$
 $(9 \times 2) \times 2 \times 2 =$
 $(3 \times 3) \times 2 \times 2 \times 2 =$
 $3 \times 3 \times 2 \times 2 \times 2 =$

يُمثّل التحليل السابق للعدد ٧٢ إلى عوامله الأولية بطريقة أخرى كما يلي:

$3 \times 3 \times 2 \times 2 \times 2 = 72$

تُسمى هذه الطريقة التحليل باستخدام شجرة العوامل الأولية.

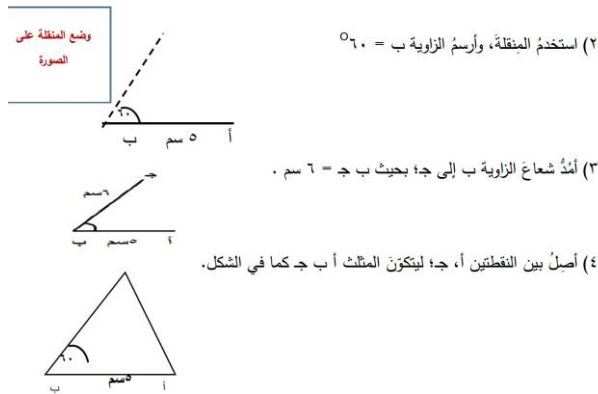
[Before]

The first draft shows the way of prime factorization. The figure on the left ('Before') explains the usual way.

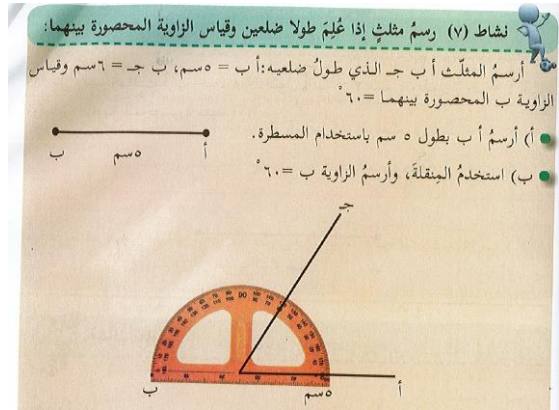
[After]

The Japanese Expert always instructed the PCDC author team to show various solutions from a student's standpoint. Here the final draft shows a different way as shown in the right figure ('After'). Also, in the final draft, "prime factors" are emphasized by the 'red font'. The PCDC author team's ingenuity is seen.

Before

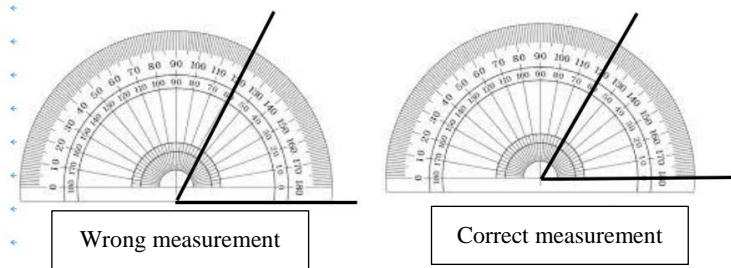


After



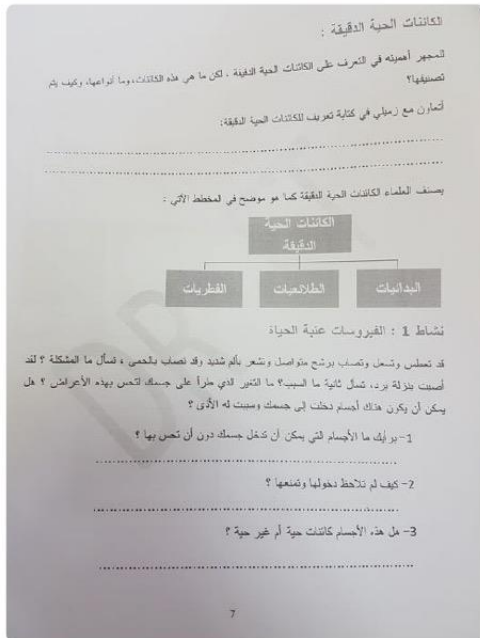
The figure on the left is the first draft and the figure on the right is the final draft. Here these textbooks explain the angle and its measurement, but in the first draft there is no explanation showing a protractor. Meanwhile, there was advice from the Japanese Expert, and the final draft shows how to measure concrete angles with the illustration of protractor.

In addition, the Japanese Expert instructed the PCDC author team to pay attention, as an advice to the Teacher's Guide of this unit, by visually pointing an example of a common mistake in using the protractor as shown in the figure on the right.

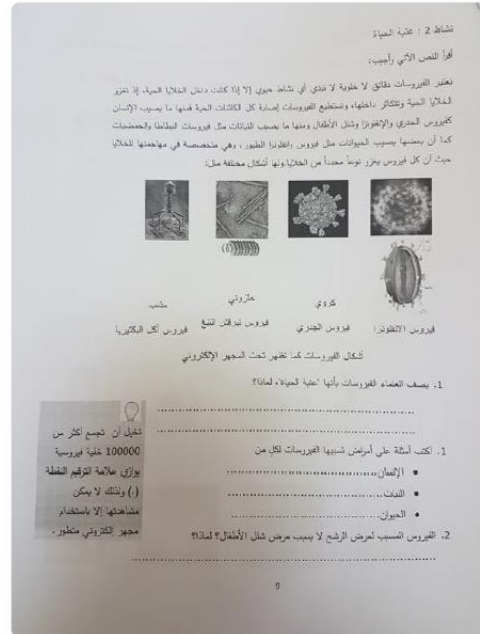


Example of the change between the first draft and the final draft of the Grade 6th science textbook

Before



After



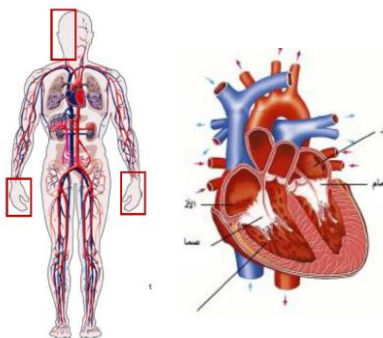
[Before]

In the first draft, there is no definition and suddenly questions about viruses are coming out. (Questions : How to prevent viruses from entering the body?; Is the virus biological?; and Can you see a virus with an optical microscope?)

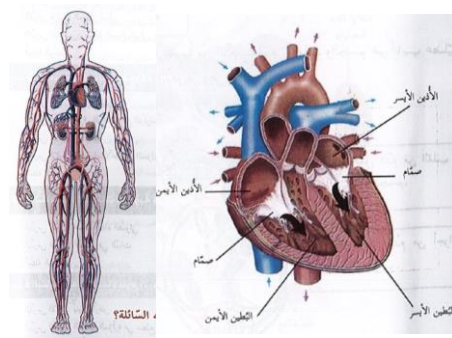
[After]

In the final draft which received advice from the Japanese Expert, the PCDC author team amended and put the definition which is easy to understand at the first. After that, the questions come out. Also hints to answer the questions are hidden in the definition.

Before



After



[Before]

In the first draft, the depiction of the blood vessels of the human body is not represented in the head and the hands as shown in the figure. Also, in the explanation of the figure of the heart, there is only a description of the external part.

[After]

In the final draft which received advice from the Japanese Expert, blood vessels are drawn in the head and the hands as shown, and the explanations of the heart of the interior part are additionally written.

[Teacher's Guides]

As for the contents of G4 to G7 mathematics and science Teacher's Guides, clear improvements are made in the final draft compared with the first draft, as with textbooks.

- In mathematics, misunderstandings of students and their countermeasures have been described concretely.
- In science, the PCDC science author team refers to the Japanese Teacher's Guides, and some parts of the format are adopted to their Teacher's Guides.

Therefore, the quality of the final draft of Teacher's Guides has been improved.

[Comparison Result between Baseline and End-line Surveys]

From the comparison result between Baseline and End-line Surveys, it can be seen that students of Grade 5 and 6 have a good impression such as being easy to understand the final draft mathematics and science textbooks compared to the old textbooks. From various data of the comparison result, it can be said that the evaluation of students who are end users of the final draft textbooks is positive. This indicates that the quality of the new textbooks is improving. (Please refer to the End-line Survey Report as well as Section 4.1 Prospects to achieve Overall Goal)

[Degree of Achievement of Project Purpose]

Since the schedule of the PCDC's new textbook and Teacher's Guide formulation was very short and the number of the Japanese Experts was limited, there were limitations on the number of grades that the Japanese Experts can review. Thus, it cannot be said that the textbooks and Teacher's Guides from G5 to G9 have uniformly improved to the same level. However, the Japanese Experts confirmed that the quality of the first draft textbooks and the Teacher's Guides has surely improved in the final draft from Grade 5 to 9, which the Japanese Experts have advised, although there is a difference in degree. The Japanese Experts also confirmed that the core members of the PCDC author teams gained knowledge and skills from the Japanese Experts day by day, they shared the gained knowledge and skills to the other team members, and these other team members made use of them in the development of the textbooks and Teacher's Guides.

From these results, the degree of accomplishment based on the verifiable indicators is generally within the assumption and the degree of achievement is high. The rest that has not been achieved is due to the fact that the Japanese Experts were unable to respond to the same level of technical assistance for all grade textbooks and Teacher's Guides.

2.3 History of PDM Modification

The PDM is attached to Annex 3. During the Project, there was no amendment of PDM including all indicators.

2.4 Others

2.4.1 Results of Environment and Social Consideration

There is no environment and social consideration in this Project.

2.4.2 Results of Considerations on Gender/Peace Building/Poverty Reduction

There are no considerations on gender/peace building/poverty reduction in this Project.

Chapter 3 Results of Joint Review

3.1 Results of Review based on DAC³ Evaluation Criteria

3.1.1 Relevance: High

[Consistency with the Policies of Palestine]

- Under the 4th Education Development Strategic Plan (EDSP4: 2017-2022) by Palestine, there are four policy priorities;
 - 1) Early Education for Children,
 - 2) Improvement of the Quality of Education,
 - 3) Sustained Enrollment and
 - 4) From Education to Employment.Among them, “2) Improvement of the Quality of Education” is highly relevant to the Project purpose.
- Under “2) Improvement of the Quality of Education”, one of the important policies is “to improve and develop educational curricula”.
- Under “to improve and develop educational curricula”, there are three objectives;
 - 1) Evaluate and develop curriculum for basic stage in a suitable manner to student (f/m) needs,
 - 2) Compose curricula for grades (5-12) by end of 2018, and
 - 3) Develop evaluation and diagnostic methods of all aspects of learning in accordance with curriculum philosophy, training strategy and student-centered learning.
- As it is mentioned above, the Project purpose and its activities are highly relevant to the MOEHE’s prioritized policies and objectives.

[Consistency with Japanese Government and JICA’s Assistance Policy]

- The Project is consistent with “Learning Strategy for Peace and Growth – Achieving Quality Education through Mutual Learning –“ by Government of Japan announced in 2015 in which quality learning is one of the priority areas. Also, under “JICA Position Paper in Education Cooperation” of October 2015, quality education for learning improvement is one of JICA’s important focus areas. JICA focuses on improving learning comprehensively by strengthening the Learning Cycle.
- This approach provides comprehensive solutions with consistent interventions throughout (1) curriculum, (2) textbooks and teaching and learning materials, (3) lessons, and (4) assessment.
- As mentioned above, the Project purpose and its activities are highly relevant to the Japanese Government’s and JICA’s assistance policy.

³ Development Assistance Committee (DAC) under the Organization for Economic Co-operation and Development's (OECD).

3.1.2 Effectiveness: High

< Verification: Whether Achievement Output 1 and 2 Achieved Project Purpose >

【Indicator of Project Purpose】

- (1) Improvements observed in the final drafts of textbooks by comparing the final drafts with the first drafts
- (2) Improvements observed in the final drafts of Teacher's Guides compared with the current versions of teacher's guides.

【Result】

- As shown in the section of “2. Achievements of the Project”, Output 1 and 2 achieved the Project Purpose. Every time the Japanese Experts reviewed new drafts, they recognized that the contents were obviously improving.
- The quality improvement of some grade textbooks and Teacher's Guides has not been thoroughly verified by the Japanese Expert. Because of the small number of the Japanese Experts and the very tight schedule of textbook and Teacher's Guides development planned by PCDC, the Experts could not provide technical assistance of the same quantity and quality to each PCDC author.
- However, the Japanese Experts transferred sufficient knowledge and skills for textbook and Teacher's Guide development to the PCDC author teams so that the quality of the other grade textbooks and the Teacher's Guides which the Japanese Experts put less input is also improved. The Japanese Experts confirmed it. In other words, the skill transfer was also done among the PCDC authors during the Project period.

3.1.3 Efficiency: High

【Output 1】

- Despite being one Japanese Mathematics Expert and one Japanese Science Expert in this Project, the Japanese Experts confirmed that knowledge and skills of the PCDC author team of developing textbooks and Teacher's Guides have been enhanced compared with the beginning. Therefore, the cost-effectiveness of expert input is high, and the efficiency of this project is high.
- As for the input period of the Japanese Experts, the Japanese Expert Team checked the PCDC textbook and Teacher's Guide formulation schedule from time to time, flexibly dealt with the demand of the PCDC author teams, adapting to the time when the writing work is thriving and so on, in order to improve the efficiency of the operations. (The team decided to avoid traveling during the time of printing of draft textbooks and delivery to schools and the period when the writing work density declined during the time of Ramadan)
- In the case of science, as the writing of Grade 7 Teacher's Guide was delayed, the Japanese Science Expert shifted immediately to the preparation support of Teacher's Guide for another grade and tried

to improve the efficiency of his work.

- Conducting the Baseline Survey and the End-line Survey was efficient. Instead of having a sub-contract to a local consultant company, the PCDC author team and the Japanese Expert Team jointly conducted the surveys in West Bank, and the PCDC Gaza office and the JICA Gaza Field Office jointly conducted the surveys in Gaza. The Japanese Expert Team, the PCDC author team and the JICA Gaza Field Office as one team, carried out these two surveys very efficiently from the survey preparation to arrangement of school visits and implementation of the surveys.
- In order to ensure the distribution of laboratory instruments to 16 schools, the Japanese Expert Team decided to respond flexibly and assign two Japanese Experts who initially did not schedule at the time. These Japanese Experts were dispatched to Palestine, checked and confirmed laboratory instruments in June 2018 in consultation with PCDC.

[Output 2]

- To develop an empirical reference material and to improve the efficiency of its creation, the Japanese Expert Team has kept minutes of all consultations with the PCDC author teams. These minutes describe ideas and comments provided by the Japanese Experts and what they discussed and agreed with the PCDC author teams. The Reference Material reorganized these consultation records, combined and edited them for each theme. In this way, the Japanese Expert Team has incorporated the efficient creation process of the Reference Material from the beginning of this Project.

From the above facts, it can be said that the efficiency of this Project is high.

3.1.4 Impact: High (at some level)

[Overall Goal Achievement Prediction]

The Japanese Experts have already observed several lessons where the new textbooks were used. The common fact taken from the observation is that not every class is teaching using the blackboard by the teacher, but learning through group activities and students' experiments is occurring. Also, in the interview with the mathematics and science teachers, they emphasized that the new textbooks put the importance of student centered activities compared to the old textbook. From these results, it can be said that teachers' teaching in the classroom and students' learning are shifting toward increasing ability to think more and emphasis on learning on their own initiative. The result of the End-line Survey also shows positive impact on students.

Having said that, whether the Project results and achievement can lead the achievement of the Overall Goal depends on the quality of in-service training for teachers in near future.

[Causal Relationship between Overall Goal and Project Purpose]

In general, there must be a positive linkage between the quality of the textbooks and other relevant teaching and learning materials and the quality of teaching and learning in a lesson. Therefore, the relationship between the Overall Goal and the Project Purpose is not divergent. Having said that, the factor that strongly links the causal relationship is the quality of each teacher. Improvement of quality of textbooks and other relevant teaching and learning materials is a necessary condition, but not a sufficient condition. Improvement of teaching and learning in the classroom ultimately depends on each teacher's capacity.

[Ripple Effect]

One of ripple effects is the fact that there are many opinions from parents who evaluate or condemn the new textbooks. These opinions may affect the formulation of next Education Development Strategic Plan and the new policy of in-service teacher training.

3.1.5 Sustainability: High

[Policy and Institutional]

One of four policy priorities under Education Development Strategic Plan (EDSP4: 2017-2022) is “To improve and develop educational curricula”. Under this, there are three objectives;

- 1) Evaluate and develop curriculum for basic stage in a suitable manner to student (f/m) needs,
- 2) Compose curricula for grades (5-12) by end of 2018, and
- 3) Develop evaluation and diagnostic methods of all aspects of learning in accordance with curriculum philosophy, training strategy and student-centered learning.

This Project provided a technical assistance to achieve “2) Compose curricula for grades (5-12) by end of 2018”. PCDC received the technical assistance from the Project Expert Team and successfully accomplished the objective including new textbook and Teacher's Guides development

PCDC will continue to work for “3) Develop evaluation and diagnostic methods of all aspects of learning in accordance with curriculum philosophy, training strategy and student-centered learning”. Therefore, the transition activity is continued and developed.

[Structure of Executing Agency]

The organization and structure of the executing agency necessary for sustaining the project effect has been already established. In addition, from the beginning of the Project, the ownership of the executing agency for the Project is sufficiently secured.

Having said that, in the next textbook revision, the Japanese Expert Team recommends PCDC to strengthen the structure of the editorial staff for textbook preparation.

[Technical Capacity of Executing Agency]

The core PCDC author members obtained sufficient knowledge and skills from the Japanese Experts for textbook and Teacher's Guide development. Therefore, there is sufficient technical level of the executing agency necessary for the sustaining project effect.

[Finance of Executing Agency]

During the Project implementation, almost all general work expenses except the supply of the science experimental instruments are covered by PCDC. The Japanese Expert Team never provided or partially covered any budget including printing cost and textbook distribution cost. Therefore, it is highly likely that future resources will be secured for sustaining the effect.

3.2 Key Factors Affecting Implementation and Outcomes

[Textbook Development Schedule]

Because the progress of textbook development and Teacher's Guides by PCDC has been faster than the plan written in R/D between MoEHE and JICA, the Japanese Expert Team has difficulties to review several textbooks simultaneously. As a result, the Japanese Mathematics and Science Experts could not fully review Grade 8 and 9 textbooks. The Japanese Experts also faced the same difficulty on reviewing Teacher's Guides.

[Lesson Observation together with PCDC Authors and JICA Experts]

In order for the Japanese Experts to provide more relevant and useful advice with deeper insights, it is necessary to understand deeply and comprehensively how the new textbooks are implemented in an actual classroom. Observing lessons together with the PCDC officials is more effective for the Japanese Experts to understand the context of Palestinian class teaching and learning. Thus, the JICA Consultation Team recommended that the Japanese Experts and the PCDC authors jointly observe lessons conducted with new textbooks so that they can discuss the lessons together.

3.3 Evaluation on the Results of the Project Risk Management

3.3.1 Result of Risk Management

[Textbook Development Schedule]

In the case of the Japanese Science Expert, he mostly stopped translating units of draft science textbooks.⁴ Instead, he requested PCDC to directly participate in PCDC science authoring internal

⁴ When Japanese Science Expert can receive a draft before the internal meeting, he quickly reviews it and marks important issues.

meetings with Japanese-Arabic interpreter. This is in order to save time on the reviewers. PCDC gave the permission. During these meetings, the expert caught authors' discussion by receiving interpretation, and directly gave comments and ideas to the authors. This was more efficient than translating draft textbooks, reviewing them and holding the author meeting.

In the case of mathematics, previously, the Japanese Expert Team hired one or two translators, but increased it to four at required points and accelerated the translation of the draft mathematics textbooks. By doing this, the Expert could take countermeasures that he could review them faster than before. The PCDC mathematics authoring team also started sending the author who was in charge of the unit writing to the Japanese Expert Office and discussed the content directly with Japanese expert. Earlier, the PCDC mathematics team leader and/or the coordinator came to the Japanese Expert on behalf of the writer of the unit. This change was efficient and provided a valuable opportunity of capacity building for each author.

[Lesson Observation together with PCDC Authors and JICA Experts]

The Japanese Science Expert and the PCDC authors visited a school together and observed a science class. After that, they had a reflection meeting together and discussed how to use the new textbooks and teaching methods.

Through these observations and the reflections with the PCDC authors, the Japanese Experts more understood the context of textbooks utilized by teachers and students. These experiences were relevant and useful for developing textbooks and Teacher's Guides.

After the suggestion from the JICA Consultation Team, the Japanese Expert Team conducted an open lesson, where the Japanese Mathematics Expert became a teacher at a school and the PCDC authors observed the lesson. After the lesson, the Japanese Expert Team and the PCDC authors had a reflection meeting.

3.3.2 Results of Utilizing Lesson Learned

[Lesson Learned by the Fourth Detailed Planning Team of JICA]

The fourth detailed planning team of JICA wrote down "Lessons of previous similar projects and their application to this project" as follows.

- (1) In this Project, the Japanese Experts need to visit schools of Palestine as soon as possible after the start of the Project and grasp the teacher's skills and the student's learning situation, so that they are able to provide advices and suggestions on the textbook development based on the current situation of Palestine.

- (2) It is recommended not only support through advice to the current process on writing activity but also through workshops where the Japanese Experts summarize issues and lessons learned which were analyzed during each dispatch period. They also provide support for the counterparts to systematically understand the textbook revision process.

[Utilization of the Lesson Learned for the Project]

- (1) After the Japanese Experts arriving in Ramallah in the first dispatch period, they visited a nearby school before long with the PCDC authors and observed a science lesson. The Japanese Experts grasped the teacher's skills and the student's learning situation from the observation. One of the Japanese Experts also recorded the lesson by video. Later, the video was edited and utilized during a workshop. The Japanese Experts also kept visiting other schools, observed lessons and interviewed the principals and teachers to understand the school situations in Palestine more deeply.

- (2) The Japanese Expert Team held a workshop four times in total. At each workshop, the agenda was based on the issue and lessons learned which were analyzed during each dispatch period. The themes of each workshop are described below.

The 1st Workshop: Confirming the strengths and weaknesses of Palestine basic education, and introduction of the flow of making Japanese textbook development.

The 2nd Workshop: Issues of the composition of draft textbooks picked up at the PCDC author meetings and concerning the content of draft textbooks in line with the developmental stages of students, and how to deal with them. In addition, utilization of teaching materials for active learning.

The 3rd Workshop: The workshop participants' observation of the student's learning process in a science open lesson with an experiment. Holding a reflection meeting on what the participants observed, what they learned about, and the effects of the experiment.

The 4th Workshop: Demonstration of active learning by the Japanese Mathematics Expert using a real class. At the reflection meeting, PCDC authors and the Japanese Experts discuss what they learned from the lesson, how the lesson can be improved, and how to proceed with the lesson study.

3.4 Lesson Learned

[Showing Concrete Example]

To give advice and revision measures to the PCDC authors, it was very effective to show real Japanese textbooks and Teacher's Guides. The Japanese Expert Team brought Grade 1 to 9 Japanese Mathematics

textbooks and Grade 3 to 12 Japanese Science textbooks. They also brought Japanese Teacher's Guides. In the case of mathematics, the English version of the Japanese textbooks was brought.

In addition to this, the Japanese Experts were doing the following thing.

In the Japanese Teacher's Guides, a copy of the textbook is on the spread page. Also, there are commentaries on them and on both sides, making it easier to understand which part of the textbook should be taught. Therefore, in order to explain about this, the Japanese Experts fully translated the facing page of the Japanese mathematics and science Teacher's Guides to Arabic and showed it. It helps the PCDC authors to deeply understand the essential characteristics and details.

[Showing Real Example of Active Learning]

One of the emphasis in Palestinian new curriculum is the introduction of active learning. As a result, the new textbooks differ from the old textbooks in terms of writing style and question contents, and the number of figures and illustrations also increased. This big change is a strong message that teachers must introduce active learning in a lesson.

The first thing the PCDC authors need to do is to understand active learning correctly. To do that, the PCDC authors have to verify not only how to write textbooks but also how active learning is deployed in an actual class. To support this, the participants of the counterpart training in Japan visited a primary school and a junior secondary school, observed active learning lessons and had reflection meetings to discuss the active learning. The Japanese Expert Team also conducted a real lesson of active learning and the PCDC authors observe it. The Japanese Science Expert opened a lesson, "Let's examine the nature of air and water" for Grade 6 students. As the second time, the Japanese Mathematics Expert opened a lesson, "What is probability - the point of contact between mathematics and reality -" for Grade 8 students. Active learning was embedded in these two open lessons and the PCDC authors observed these lessons. What was more important in these occasions was not the observation of the lessons, but the reflection meeting held after the classes. In other words, how the PCDC authors captured active learning, how they observed students' learning process, and how they realized the effect of active learning. Through the discussion, it is significant that they could deeply learn active learning through the field.

[Experienced Experts in Textbook Development]

There are two Japanese Experts in this Project. One is mathematics and the other is science. The Mathematics Expert is a professor at a university and has been an author of mathematics textbooks for more than two decades in Japan. He is a senior author with extensive experience and knowledge.

The Science Expert is a professional in making science textbooks. He has been engaged in textbook development for science in a textbook publishing company for over two decades. He is a person who has know-how from the beginning to the end of making textbooks.

Some of the consultants have experienced former teachers, but these experiences are not sufficient in the project like this one. We need a consultant who has experience in writing textbooks and/or actually publishing textbooks.

Chapter 4 For the Achievement of Overall Goal after the Project Completion

4.1 Prospects to achieve Overall Goal

The narrative summary of overall goal is “Teaching and learning in the classroom are improved”.

Below is a partial comparison result between the Baseline Survey and the End-line Survey in the student questionnaire as information on achieving the overall goal. The surveys were conducted for students in Grade 5 and 6. During the Baseline Survey, those students were still using the old textbooks, and during the End-line Survey they used the new textbooks.

Table 4.1 Contents of Mathematics Textbook

	Questions for Students	BL Ave.	EL Ave.	Difference	Significance
a	Math textbook descriptions are easy to understand.	3.47	3.84	0.37	**
b	Math textbook layout is easy to see.	3.96	4.31	0.35	***
c	Contents of math textbook are substantial.	4.35	4.26	-0.08	
d	Contents of math textbooks are difficult.	2.96	2.67	-0.30	*
e	You feel easy to study using math textbook.	4.15	4.19	0.03	
f	You feel easy to study math if you have a reference book.	3.94	3.88	0.06	
g	Math textbook needs more examples for better understanding.	3.48	3.34	-0.13	
h	Math textbook needs more exercise drills) for better understanding.	3.59	3.57	-0.02	
i	Math textbook needs more figures for better understanding.	4.13	3.75	-0.38	**
j	Math textbook has too many contents.	3.81	3.38	-0.43	***

*: p<0.05 **: p<0.01 ***: p<0.001

Note : The difference between the two average values and the average values of BL and EL are rounded to three decimal places

Table 4.2 Contents of Science Textbook

	Questions for Students	BL Ave.	EL Ave.	Difference	Significance
k	Science textbook descriptions are easy to understand.	3.80	3.98	0.17	
l	Science textbook layout is easy to see.	3.82	4.23	0.40	***
m	Contents of science textbook are substantial.	4.01	4.27	0.26	*
n	Contents of science textbook are difficult.	2.84	2.61	-0.23	
o	You feel easy to study using science textbook.	3.96	4.04	0.07	
p	You feel easy to study science if you have a reference book	4.12	3.94	-0.17	
q	Science textbook needs more examples for better understanding.	3.38	3.18	-0.20	
r	Science textbook needs more exercises (drills) for better understanding.	3.39	3.35	-0.05	
s	Science textbook needs more figures for better understanding.	3.89	3.80	-0.09	
t	Science textbook has too many contents.	3.67	3.14	-0.54	

*: p<0.05 **: p<0.01 ***: p<0.001

Note : The difference between the two average values and the average values of BL and EL are rounded to three decimal places

Table 4.3 Mathematics Teacher’s Teaching

	Questions for Students	BL Ave.	EL Ave.	Difference	Significance
a	Your math teacher makes you memorize the contents of the textbook.	3.70	3.53	-0.17	
b	Your math teacher makes a class by grouping the students.	2.64	2.97	0.32	*
c	Your math teacher pairs students and gives a lesson.	2.59	3.20	0.60	***
d	Your math teacher incorporates activities where the students discuss.	3.54	3.68	0.14	
e	Your math teacher conducts a class while asking questions to the students.	3.80	4.06	0.26	*
f	Your math teacher helps the students who do not understand the lesson.	4.10	4.35	0.25	*
g	Your math teacher receives questions from students who do not understand the lesson.	4.06	4.32	0.27	*
h	Your math teacher gives students enough time to solve questions.	3.77	4.11	0.34	**
i	Your math teacher gives the students opportunities to present their thoughts.	3.85	4.07	0.21	
j	Your math teacher confirms students' understanding level during class.	3.89	4.18	0.29	*

*: p<0.05 **: p<0.01 ***: p<0.001

Note : The difference between the two average values and the average values of BL and EL are rounded to three decimal places

Table 4.4 Science Teacher’s Teaching

	Questions for Students	BL Ave.	EL Ave.	Difference	Significance
k	Your science teacher makes you memorize the contents of the textbook.	3.76	3.59	-0.18	
l	Your science teacher makes a class by grouping the students.	3.14	2.84	-0.30	*
m	Your science teacher pairs students and gives a lesson.	2.79	3.13	0.34	*
n	Your science teacher incorporates activities where the students discuss.	3.91	3.80	-0.11	
o	Your science teacher conducts a class while asking questions to the students.	3.84	3.75	-0.09	
p	Your science teacher helps the students who do not understand the lesson.	4.07	4.12	0.05	
q	Your science teacher receives questions from students who do not understand the lesson.	4.07	4.14	0.07	
r	Your science teacher gives students enough time to solve questions.	3.75	4.00	0.25	
s	Your science teacher gives the students opportunities to present their thoughts.	3.87	3.99	0.12	
t	Your science teacher confirms students' understanding level during class.	3.94	3.96	0.02	

*: p<0.05 **: p<0.01 ***: p<0.001

Note : The difference between the two average values and the average values of BL and EL are rounded to three decimal places

A summary of the comparison results of the Baseline Survey and End-line Survey in the tables above is as follows.

- Students recognized significant changes in the contents of the new mathematics textbook compared to the old one. In case of Science, students feel there are less clear changes in the new science textbook compared to the mathematics textbook.
- Students seem to feel that the new mathematics and science textbooks are easier to see compared to the old ones. However, the students feel that the volume of the content in the new mathematics textbook is too much.
- Students seem to feel that there have been some changes in teaching methods of teachers since the new textbooks were introduced. It can be inferred that the new curriculum influences teacher's way of teaching. For example, students feel that teachers have more use of group learning and pair learning than before.
- Since the introduction of the new textbooks, students started to try hard to understand the contents by themselves more than they did before when they were not sure of mathematics and science questions. Previously, students often asked the answers to their friends when they used the old textbooks.

Below is a partial comparison result between the Baseline Survey and the End-line Survey in the questionnaire targeted for teachers. The surveys were conducted for mathematics and science teachers at school. During the Baseline Survey, those teachers were still using the old textbooks, and during the End-line Survey they used the new textbooks.

Table 4.5 Preparing Lesson Plan

	Questions for Students	BL Ave.	EL Ave.	Difference	Significance
a	You prepare a lesson plan each time.	4.85	4.22	-0.62	*
b	You use a textbook for preparing a lesson plan.	4.85	4.61	-0.24	
c	You use a teacher's guide book for preparing a lesson plan.	3.67	2.47	-1.20	*
d	You use a reference material for preparing a lesson plan.	4.31	3.83	-0.47	
e	You receive advices from your colleague for preparing a lesson plan.	3.38	3.28	-0.11	

*: p<0.05 **: p<0.01 ***: p<0.001

Note : The difference between the two average values and the average values of BL and EL are rounded to three decimal places

Table 4.6 Spending time for Lesson Plan Preparation

	More than 2 hrs	1 - 2 hrs	0.5 - 1 hrs	Less than 30 min.
Baseline Survey	7.7%	7.7%	23.1%	61.5%
End-line Survey	5.6%	27.8%	33.3%	33.3%

Table 4.7 Teachers' Interest in Lessons

	Questions for Students	BL Ave.	EL Ave.	Difference	Significance
a	You are interested in how students learn.	4.54	4.44	-0.09	
b	You are interested in how students are learning with other students during a class.	3.75	4.44	0.58	*
c	You have something to learn from your students.	3.69	4.11	0.42	
d	You are pleased to see the students learning more and more with good scores.	4.92	4.83	-0.09	
e	You are glad to see the slow learning students doing their best.	4.77	4.78	0.01	
f	You think that a student with poor grades is due to his/her poor learning ability.	3.00	3.28	0.28	
g	You like your occupation as a teacher.	4.15	3.94	-0.21	
h	You try hard for teaching students with passion.	4.62	4.28	-0.34	

*: p<0.05 **: p<0.01 ***: p<0.001

Note : The difference between the two average values and the average values of BL and EL are rounded to three decimal places

Table 4.8 Contents of Textbooks

	Questions for Students	BL Ave.	EL Ave.	Difference	Significance
a	Textbooks are easy to understand for students.	3.33	2.78	-0.56	
b	Textbook description is easy to understand for students.	3.46	2.61	-0.85	**
c	Textbook layout is easy to see for students.	3.23	2.56	-0.68	*
d	Textbook contents are substantial.	3.46	3.06	-0.41	
e	Textbook contents are carefully selected.	3.00	3.06	0.06	
f	Textbook contents are at the level of the student.	3.17	2.72	-0.44	
g	Array of textbook units is good.	3.23	3.39	0.16	
h	It is easy to teach using textbooks.	3.31	3.00	-0.31	
i	Textbooks need more examples for better understanding.	3.50	3.22	-0.28	
j	Textbooks need more exercises for better understanding.	3.00	3.00	0.00	
k	Textbooks need more figures for better understanding.	4.00	3.13	-0.88	*
l	Textbook contents are too much.	4.08	3.67	-0.41	
m	Textbooks have ingenuity to make students think.	2.69	3.22	0.53	
n	Textbooks are easy to memorize for students.	2.92	2.67	-0.26	

*: p<0.05 **: p<0.01 ***: p<0.001

Note : The difference between the two average values and the average values of BL and EL are rounded to three decimal places

Table 4.9 Learning among Teachers

	Questions for Students	BL Ave.	EL Ave.	Difference	Significance
a	You discuss pedagogy with your colleague.	4.08	4.06	-0.02	
b	Principal encourage you to discuss pedagogy with your colleague.	4.31	3.89	-0.42	
c	You have a chance to observe a lesson of your colleague.	3.85	3.67	-0.18	
d	You open your lesson to your colleague and receive advices.	3.62	3.28	-0.34	

*: p<0.05 **: p<0.01 ***: p<0.001

Note : The difference between the two average values and the average values of BL and EL are rounded to three decimal places

Table 4.10 Teaching Management

	Questions for Students	BL Ave.	EL Ave.	Difference	Significance
a	You make students memorize the contents of textbooks.	2.92	3.00	0.08	
b	You make students grouped for teaching lessons.	3.31	3.56	0.25	
c	You make students paired and for teaching lessons.	2.77	3.44	0.68	*
d	You incorporate activities to make students have discussion.	3.85	4.06	0.21	
e	You conduct a lesson over asking questions to students.	3.42	3.76	0.35	
f	You help students who do not understand a lesson in your class.	3.85	4.17	0.32	
g	You receive questions from students who don't understand a lesson.	4.25	4.11	-0.14	
h	You give students enough time to solve questions.	4.46	4.56	0.09	
i	You give students an opportunity to present their thoughts.	4.31	4.76	0.46	*
j	You confirm students' understanding level during a lesson.	4.31	4.72	0.41	*
k	You find students' good points and praise them.	4.62	4.83	0.22	
l	You find students' problems and advise them not to do it.	4.54	4.78	0.24	
m	You give students a lot of homework.	3.25	3.39	0.14	

*: p<0.05 **: p<0.01 ***: p<0.001

Note : The difference between the two average values and the average values of BL and EL are rounded to three decimal places

The following is a summary of the comparison results of the Baseline Survey and the End-line Survey in the teacher questionnaire.

- Teachers seem to feel difficulty in making lesson plans since the introduction of the new textbooks. Since the introduction of the new textbooks, teachers are taking more time to make lesson plans.
- It seems that teachers have been more interested how a student learn from other students since the introduction of the new textbooks.
- Teachers do not feel that students are deepening their understanding of lessons just because the new textbooks are introduced.
- Even though the new textbooks are introduced, there is no tendency for teachers to discuss more about their teaching methods with their colleagues. They also do not have more opportunities to receive advices from their colleagues for each other's lessons.

From the results of the End-line Survey, it can be said that students are more interested in the new mathematics and science textbooks. It seems that students are ready to use the new textbooks. From this point, it can be said that one condition for achieving the overall goal is in place. Having said that, teachers are still confused by the new textbooks.

The greatest feature of the new textbooks is to incorporate active learning into lessons. In this regard, teachers who participated in the surveys seem to be promoting student-centered approach as can be seen from the data in Table 4-10. (For example, “Question: You give students an opportunity to present their thoughts” and “Question: You confirm students' understanding level during a lesson” shows significant results statistically) However, they do not seem to be ready enough yet because most of questions of

Table 4-10 do not show any significance. From Table 4-10, it can be inferred that teachers are wondering how to conduct classes with the new textbooks. In order to introduce active learning, training with certain practices is necessary. Therefore, whether the overall goal will be achieved or not depends on how much teachers can do active learning in a class in near future. In this regard, it is very important to increase quality of in-service teacher training, especially for active learning.

From the above points, improvement of the quality of each teacher is required to achieve the overall goal in PDM, and class observation becomes necessary to measure it. Thus, the indicator of the overall goal is considered to be appropriate. The means of verification of the overall goal is “Lesson observation sheet”. In addition to this, it is recommended that PCDC can utilize the questionnaires of the End-line Survey conducted in this Project and will carry out a small survey. The questionnaires of the End-line Survey include many questions of teaching and learning in a class.

4.2 Plan of Operation and Implementation Structure of the Palestinian side to Achieve Overall Goal

In this Project, improvement of the quality of mathematics and science textbooks and Teacher's Guides was confirmed, and it can be concluded that the project goal was largely achieved. On the other hand, whether the overall goal; “Teaching and learning in the classroom are improved” will be achieved or not is not sure at this moment because it is required to improve the quality of the teacher. Therefore, in order to achieve the overall goal, the Palestinian side is expected to implement the following two activities, which are proposed by the Japanese Expert Team.

- 1) In-service teacher training for the new mathematics and science textbooks
- 2) Improvement of the Teacher’s Guides and other teaching materials

As mentioned in the previous section, the greatest feature of the new textbooks is to incorporate active learning and child-centered approach into lessons. These teaching methods are new for many teachers, so that some of them are confused in what way they teach. What is the right way to teach? How can they correctly utilize the new textbooks? Many teachers need training that can be learned concretely and used from tomorrow, not on lectures. For example, as the Japanese Expert Team proposes, the training can be at the school using an ordinary class and students. It is not a model lesson with a model teacher who rehearsed the lesson several times before. It should be a lesson study where one teacher opens her/his class and other teachers at the school observe the lesson. After that, they have a reflection meeting. The reflection meeting is the main part of this training. Not criticizing the lesson, but learning from the lesson together.

Another thing is to improve the Teacher’s Guide, especially for novice teachers. The Teacher’s Guide already includes lesson plans, student work sheets, concrete examples of ways of questioning to students,

additional information and detailed explanation, various evaluation tools, a concrete procedure for an experiment (for science), points to pay attention, an instruction of group work, examples of how to write on the whiteboard, photos and videos in DVD-ROM. However, it is desirable to improve the contents. The Teacher's Guides can be revised every two years.

[Implementation System]

1) In-service Teacher Training

This activity has two stages. In the first stage, the PCDC author team becomes a trainer and conducts training (ToT) for the officers of the Directorate of the Supervision and Education Qualifying (DSEQ). The ToT provides characteristics and notes of the new curriculum, textbooks and Teacher's Guides and how to utilize them efficiently.

In the second stage, the trained officers of DSEQ which is in charge of in-service teacher training provide training for teachers. For that purpose, DSEQ sets up a technical working group and invite the PCDC author team to make a detailed plan of teacher training for utilization of the new textbooks.

2) Teacher's Guide

PCDC is in charge of this activity. PCDC can set up a technical working group and invite DSEQ officers, university professors, education personnel, school supervisors and teachers from several districts to discuss the contents of the mathematics and science Teacher's Guides as well as work for revision of the contents.

4.3 Recommendation for the Palestinian Side

As mentored in the previous section, it is important that PCDC and DSEQ work together to achieve the Overall Goal.

The followings are necessary steps for the recommendations.

[Working Group for In-service Teacher Training]

- 1) PCDC conducts training (ToT) for DSEQ officers on the new curriculum, the new textbooks and the new Teacher's Guides.
- 2) DSEQ will set up a Working Group (WG) for development of new teacher's training program. PCDC will join the WG.
- 3) The WG visits several schools, observe lessons and study the strength and weakness of the teaching and learning process with the new textbooks.
- 4) Based on the result of the study, the WG will develop a detailed plan of the new teacher's training.

[Working Group for Teacher's Guide]

PCDC will set up a Working Group (WG) to improve and revise the Teacher's Guides. The members are composed of PCDC officers, school supervisors from districts, university professors, educational personnel, teachers and others. Based on the needs and suggestions from teachers and schools, the WG continuously improves and revises Teacher's Guides.

Annex 1 Result of the Project

Annex 1.1 List of Dispatched Experts

The JICA Expert Team consists of the following 5 experts as shown in the table.

Table A-1 List of JICA Experts

Position Name	Name
Team Leader / Mathematics and Science Education	Mr. Koji Sato International Development Center of Japan
Mathematics Education (Textbook Development)	Prof. Izumi Nishitani Faculty of Education, Gunma University
Science Education (Textbook Development)	Mr. Masaomi Hirose Former chief editor of textbook publishing company
Training and Coordination	Mr. Takeshi Miwa International Development Center of Japan
Arabic – Japanese Interpreter	Mr. Jebari Nassim International Development Center of Japan

The following table shows the list of the counterparts.

Table A-2 List of Counterparts

Position Name	Name
Chair (Project Director)	Dr. Basri Saleh Deputy Minister of Education and Higher Education
Project Manager	Mr. Tharwat Lutfi Zaid Director General of Palestine Curriculum Development Center (PCDC)
JCC Member	Dr. Mohammed Matar Director General of Assessment, Evaluation and Examination
JCC Member	Dr. Shahnaz I.K. Far Director General of Training-Supervision and Educational Qualifying
Project Coordinator	Mr. Ahmad Ali Sayaareh Director of Science Department, PCDC
Coordinator of Mathematics Author Team	Mr. Qais Abdelrahim Shabaneh Director of Mathematics Department, PCDC
Deputy Coordinator of Mathematics Author Team	Ms. Nisreen Hikmat Dweikat Mathematics Department, PCDC
Coordinator of Science Author Team	Ms. Jinan Mahmoud Abo Rahim Science Department, PCDC
Member of Science Author Team	Ms. Iman Suleiman Awad Al- Badareen Science Department, PCDC

Annex 1.2 Inputs of Japanese Experts

	Rank	No. of travels	2017																								No. of days	Total MM
			2016		2017												2018											
			11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10		
Fieldwork	Koji SATO Team Leader / Mathematics and Science Education	Plan	8	11/20-12/19 (30days)		1/8-1/27 (14days)	2/3-2/16 (20days)		4/12-5/12 (34days)		7/19-8/23 (50days)		11/11-11/29 (50days)		1/15-2/21 (33days)		4/9-5/11 (30days)		10/2-10/28 (31days)		258	8.60						
		Actual	9	11/20-12/19 (11days) (19days)		1/8-1/27 (20days) (14days)	2/3-2/16 (19days) (12days)		4/12-5/12 (19days) (12days)		7/19-8/23 (13days) (23days)		11/11-11/29 (29days)		1/15-2/21 (17days) (21days)		4/9-5/11 (22days) (11days)		10/2-10/28 (27days)		258	8.60						
	Izumi NISHITANI Mathematics Education (Textbook Development)	Plan	8	11/20-12/30 (41days)		1/8-1/27 (14days)	2/3-2/16 (34days)		4/1-5/6 (30days) (6days)		7/12-9/6 (80days)		11/22-12/31 (40days)		1/17-3/25 (61days)		4/19-5/11 (23days)		10/2-10/28 (24days)		317	10.57						
		Actual	7	11/20-12/30 (11days) (30days)		1/8-1/27 (14days)	2/3-2/16 (30days) (6days)		4/1-5/6 (20days) (31days) (6days)		7/12-9/6 (9days) (31days) (6days)		11/22-12/31 (15days) (28days) (25days)		1/17-3/25 (12days) (11days)		4/19-5/11 (30days) (11days)				279	9.30						
	Masaomi HIROSE Science Education (Textbook Development)	Plan	8	11/20-12/30 (41days)		1/8-2/16 (40days)	3/19-5/12 (52days)		7/12-9/6 (69days)		10/16-12/11 (60days)		1/15-3/9 (54days)		4/9-5/11 (30days)		6/22-7/4 (30days)		10/9-10/28 (24days)		370	12.33						
		Actual	9	11/20-12/30 (11days) (30days)		1/8-2/16 (24days) (16days)	3/19-5/12 (13days) (30days) (12days)		7/12-9/6 (20days) (31days) (6days)		10/16-12/11 (16days) (30days) (11days)		1/15-3/9 (17days) (28days) (9days)		4/9-5/11 (22days) (11days) (9days) (4days)		6/22-7/4 (30days)		10/9-10/28 (20days)		370	12.33						
	Takeshi MIWA Training and Coordination	Plan	3	11/20-12/19 (30days)		1/31-2/16 (17days)																63	2.10					
		Actual	3	11/20-12/19 (11days) (19days)		1/31-2/16 (1days) (16days)																63	2.10					
	Fieldwork Total																					Plan	1008	33.60				
	Fieldwork Total																					Actual	970	32.33				

Interpreter	Nassim JEBARI Arabic-Japanese Interpreter	Plan	8	12/3-12/30 (41days)		1/8-2/16 (40days)	3/19-5/12 (52days)		7/12-9/6 (69days)		10/16-12/11 (60days)		1/15-3/9 (54days)		4/11-5/11 (30days)		6/22-7/5 (30days)		10/2-10/29 (24days)		370	12.33
		Actual	9	12/3-12/30 (28days)		1/8-2/16 (24days) (16days)	3/19-5/12 (13days) (30days) (12days)		7/12-9/6 (20days) (31days) (2days)		10/16-12/11 (16days) (30days) (11days)		1/15-3/9 (17days) (28days) (9days)		4/11-5/11 (20days) (11days) (9days) (5days)		6/22-7/5 (12days) (5days)		10/2-10/29 (28days)		360	12.00

	Rank	No. of travels	2017																								No. of days	Total MM
			2016		2017												2018											
			11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10		
Domestic	Izumi NISHITANI Mathematics Education (Textbook Development)	Plan																										
		Actual																									9/24-10/1 (7days) (1days)	7/20-7/31 8/1-7/5 (12days) (5days)
Takeshi MIWA Training and Coordination	Plan																											
	Actual																									7/4-7/10-13 (8days) (11days) (1days)	8/3-4, 7-10, 14-18, 9/1 (11days) (1days)	20

Domestic total		Plan	20	1.00
Domestic total		Actual	45	2.25
Total		Plan	1028	34.60
Total		Actual	1015	34.58

Project Planning Report	△																											
Work Plan / Project Completion Report	△	Work Plan																										Project Completion Report △
Workshops	△	First	△	Second																								△ Third
Monitoring Sheets																												△ Ver.2
Others																												△ Ver.3
																												Reference Material △
																												△ 3rd JCC

Annex 1.3 Counterpart Training in Japan

Table A-3 List of Participants

	Name	Position
1	Mr. ZAID Tharwat L M	Director General, Palestine Curriculum Development Center (PCDC), Ministry of Education and Higher Education (MoEHE)
2	Mr. SAYARA Ahmed A M	Director of Scientific Department, PCDC, MoEHE
3	Mr. SHABANA Qais A I	Head of Mathematics Department, PCDC, MoEHE
4	Ms. ABUERHEM Jenan M M	Administrative Officer of Science Department, PCDC, MoEHE
5	Ms. JABER Nisreen H A	Officer of Mathematics Department, PCDC, MoEHE
6	Dr. ALNAKHALA Somia S S	Curriculum Coordinator, PCDC, MoEHE

Table A-4 Training Program

Date	Program	Place to Visit	Accommodation
Sep. 11 (Mon)	Arrival at Kansai International Airport		KSIC
Sep. 12 (Tue)	- Orientation - Lecture on Japanese education policy - Points of visiting a textbook publishing company and schools	KSIC	KSIC
Sep. 13 (Wed)	- Understanding of vocational education in Japan and class observation - Characteristics of science and mathematics textbooks and learning assessment	- Hyogo Industrial Public High School - Keirinkan, Shinko Publishing Company	KSIC
Sep. 14 (Thu)	- Observation of how textbooks are used at elementary schools and child-centered classes - Reflection meeting of the class observation	- Tennoji State Elementary School - KSIC	KSIC
Sep. 15 (Fri)	- Observation of how students use mathematics and science textbooks at junior high school and students' learning in those classes	- Tennoji State Junior High School	KSIC
Sep. 16 (Sat)	- Education system in Japan and transition of curriculum · textbook development - Reflection meeting of the class observation of the junior high school	KSIC	KSIC
Sep. 17 (Sun)	- Drafting a proposal of curriculum and textbook development	KSIC	KSIC
Sep. 18 (Mon)	- Understanding learning methods of experiential science in Japan - Drafting a proposal of curriculum and textbook development	- Suma Aqualife Park Kobe - KSIC	KSIC

Sep. 19 (Tue)	- In-service teacher training for improvement of teacher's ability	- Kobe City Education Center	KSIC
Sep. 20 (Wed)	- Finalizing a proposal of curriculum and textbook development - Review meeting of the counterpart training	- KSIC	KSIC
Sep. 21 (Thu)	- Departure from Kansai International Airport		

KSIC: JICA Kansai International Center

Annex 1.4 Plan of Operation

Inputs	Plan	2016				2017				2018				Remarks
	Actual	□	□	□	□	□	□	□	□	□	□	□	□	
Expert														
Team Leader / Mathematics and Science Education	Plan													
	Actual													
Mathematics Education (Textbook Development)	Plan													
	Actual													
Science Education (Textbook Development)	Plan													
	Actual													
Training and Coordination	Plan													
	Actual													
Arabic - Japanese Interpreter	Plan													
	Actual													
Training in Japan														
Counterpart training for the Project	Plan													
	Actual													
Activities														
Sub-Activities	Plan													
	Actual													
Output 1: Knowledge and skills of the coordinators and authors are enhanced for developing/revising textbooks and other relevant teaching and learning materials of Mathematics														
1-1. Make proposal by reviewing drafts of textbooks of Mathematics and Science for Grade 1 to 9.	Plan													
	Actual													
1-2. Conduct textbook authors meetings by referring the proposal made in activity 1-1.	Plan													
	Actual													
1-3. Revise the draft of textbooks.	Plan													
	Actual													
1-4. Conduct validation in validation schools.	Plan													
	Actual													
1-5. Conduct workshops regularly to strengthen the capacity of coordinators and authors to develop the textbooks.	Plan													
	Actual													
1-6. Implement other related activities for textbook development including developing teacher's guides and developing materials for central training.	Plan													
	Actual													
Output 2: Reference material for developing/ revising textbooks and other relevant teaching and learning materials of Mathematics and Science is developed.														
2-1. Conduct a training programme in Japan for senior officers involved in curriculum/textbook development.	Plan													
	Actual													
2-2. Develop proposals for improving the process of curriculum reform and textbook development based on what they have learnt in the training in Japan.	Plan													
	Actual													
2-3. Conduct a workshop to share what they have learned in Japan to improve textbook development and the process of curriculum reform.	Plan													
	Actual													
2-4. Develop a reference material to be used for the current textbook development and future curriculum development plan based on the issues identified, and comments made in the workshops of activity 1-5	Plan													
	Actual													
Monitoring Plan														
Monitoring	Plan													
	Actual													
Joint Coordination Committee	Plan													
	Actual													
Set-up the Detailed Plan of Operation	Plan													
	Actual													
Submission of Monitoring Sheet	Plan													
	Actual													
Monitoring Mission from Japan	Plan													
	Actual													
Joint Monitoring	Plan													
	Actual													
Post Monitoring	Plan													
	Actual													
Reports/Documents														
Project Completion Report	Plan													
	Actual													

Annex 2 List of Products

1. Project Implementation Plan, November 2016 (Japanese)
2. Work Plan, November 2016 (English Summary and Japanese)
3. Monitoring Sheet Version 1, May 2017 (English and Japanese Summary)
4. Information Collection Study Report on Future Cooperation, May 2017 (Japanese)
5. Monitoring Sheet Version 2, November 2017 (English and Japanese Summary)
6. Monitoring Sheet Version 3, May 2018 (English and Japanese Summary)
7. Reference Material Collection, October 2018 (Arabic and Japanese)
8. Project Completion Report, October 2018 (English and Japanese)

Annex 3 PDM

PROJECT DESIGN MATRIX (PDM) Version 0 (Approved on 22, August, 2016)

Project Title: Palestine-Japan Education Cooperation for Mathematics and Science Curriculum Development (PAJEC)

Duration: 2 years (November 2016 to November 2018)

Direct beneficiary: Textbook authors and coordinators (mainly from Palestine Curriculum Development Center) and senior officials who are involved in curriculum reform and textbook development of Mathematics and Science

Indirect beneficiary: Pupils and Teachers at primary and secondary education level

Target Area: West Bank and Gaza

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumption
Overall Goal Teaching and learning in the classroom are improved.	Results of lesson observation in Mathematics and Science.	Lesson observation sheet	
Project Purpose Quality of textbooks and other relevant teaching and learning materials ⁵ of Mathematics and Science is improved.	(1) Improvements observed in the final drafts of textbooks by comparing the final drafts with the first drafts (2) Improvements observed in the final drafts of teacher's guides compared with the current versions of teacher's guides.	(1) Developed Textbooks (2) Developed Teacher's guides	Developed textbook and other relevant teaching and learning materials are distributed on time and used continuously.
Output 1 Knowledge and skills of the coordinators and authors are enhanced for developing/revising textbooks and other relevant teaching and learning materials of Mathematics and Science.	Strengthened knowledge and skills of the authors and coordinators reported in the evaluation sheets to be conducted at the end of the reflection workshops.	Evaluation sheets of the workshops	(1) There is not a fatal delay in the process of textbook development. (2) The majority of the authors continue to be engaged in authoring the textbooks.
Output 2 Reference material for developing/ revising textbooks and other relevant teaching and learning materials of Mathematics and Science is developed.	Reference material developed during/ after the final reflection workshop.	Developed reference material	(3) Final drafts of the textbooks are completed by the end of project. (4) Final drafts of teacher's guides are completed by the end of project.

⁵ The other relevant materials mainly include teacher's guide and training material for central training.

Activities	Inputs	
<p>Output1:</p> <p>1-1. Make proposal by reviewing drafts of textbooks of Mathematics and Science for Grade 1 to 9.</p> <p>1-2. Conduct textbook authors meetings by referring the proposal made in activity 1-1.</p> <p>1-3. Revise the draft of textbooks.</p> <p>1-4. Conduct validation in the validation schools.</p> <p>1-5. Conduct workshops regularly to strengthen the capacity of coordinators and authors to develop the textbooks.</p> <p>1-6. Implement other related activities for textbook development including developing teacher's guides and developing materials for central training.</p>	<p>Input from JICA side</p> <ul style="list-style-type: none"> ● Dispatch of experts; <ul style="list-style-type: none"> ➢ Mathematics Education (Textbook Development) ➢ Science Education (Textbook Development) *Having the expertise of Pedagogical Knowledge is desirable. ● Cost for implementation of the workshops etc. proposed by JICA experts, namely, refreshment, lunch, printing of workshop materials, transportation. Transportation fee will be supplied according to the regulation of the Palestinian Authority; ● Cost for translation (English – Arabic) when necessary; ● Educational materials needed to conduct Mathematics and Science lessons in validation schools and model schools; ● Training in Japan; ● Input other than indicated above will be determined through mutual consultations between MOEHE and JICA during the implementation of the Project, as necessary. <p>Input from Palestinian side</p> <ul style="list-style-type: none"> ● Services of MOEHE's counterpart personnel and administrative personnel; ● Assistance to support JICA experts for office matters; ● Suitable office space for JICA experts with necessary equipment; ● Running cost for the implementation of the Project including utility costs and venue costs; ● Necessary arrangement for the preparation and implementation of the workshops; ● Data (including educational statistics) and information needed for the implementation of the Project; ● Input other than indicated above will be determined through mutual consultations between MOEHE and JICA during the implementation of the Project, as necessary. 	<p>(1) Sufficient budgets are secured and disbursed in a timely manner.</p> <p>(2) Other tasks do not adversely affect coordinators' and authors' participation in project activities.</p> <p>(3) Drafts of the textbooks are provided to JICA experts as scheduled.</p>
<p>Output2:</p> <p>2-1. Conduct a training programme in Japan for senior officers involved in curriculum/textbook development.</p> <p>2-2. Develop proposals for improving the process of curriculum reform and textbook development based on what they have learnt in the training in Japan.</p> <p>2-3. Conduct a workshop to share what they have learned in Japan to improve textbook development and the process of curriculum reform.</p> <p>2-4. Develop a reference material to be used for the current textbook development and future curriculum development plan based on the issues identified, and comments made in the workshops of activity 1-5 and 2-3.</p>		<p>Pre-conditions</p>

Annex 4 Photos of Project Activities

	
<p>Third grade student working on arithmetic exercises in mathematics</p>	<p>Seventh grade students studying the transmission path of taste in science</p>
	
<p>The opening remarks of Mr. Tharwat, PCDC Director General at the 1st Workshop</p>	<p>Mr. Hirose, Japanese Science Expert wears an organ T-shirt and explains it at the 1st Workshop</p>
	
<p>Class observation in the counterpart training in Japan</p>	<p>Interaction with students in the counterpart training in Japan</p>

خطوات العمل:

1. اعمل تقنين مبيعين في حبة الليمون مستخدماً السكن.
2. ثبتت صفححة الخارصين في أحد القطبين، وصفححة النحاس في القطب الآخر.
3. صل الصفحتين بجهاز الجلفانوميتر باستخدام أسلاك التوصيل.
4. سجل ملاحظتك، ثم أجب عن الأسئلة الآتية:
 - باتجاه أي صفححة الحرف مؤشر الجلفانوميتر؟
 - ما مسبب هذا الانحراف؟
 - أعد تصميم التجربة باستخدام موزة وأدوات أخرى.

إن انحراف مؤشر الجلفانوميتر نحو صفححة النحاس، هو دلالة على حركة سيل من الإلكترونات باتجاه معكك (تيار كهربائي) خرجت من ذرات صفححة الخارصين عبر السلك نحو صفححة النحاس، وتعدّ من مكونات الدارة وشحنها سالبة ويروم إليها بالرمز (-).
 شرح حركه سيرون من الزنك الى النحاس في الدارة
 في اتجاه فرد / لا بد من ملاحظة
 إلكترونات
 دوائر
 حركه
 خطوط
 اتجاه

ثانياً- البيوترون

نأمل الشكل المجاور والذي يمثل تركيب أبسط ذرة في الطبيعة وهي ذرة الهيدروجين التي إذا سخنت إلى درجات حرارة عالية جداً، تفقد إلكترونها السالب الوحيد، لينتج في مركزها جسيم موجب الشحنة، أطلق عليه اسم البروتون، ويروم له بالرمز (p+)، وتعاادل كتلته تقريباً كتلة 2000 إلكترون.

ذرة الهيدروجين
 1840 إلكترون

ثالثاً- النيوترون

اكتشف البيرون كأحد مكونات الذرة مؤخراً، وهو جسيم متعاادل كهربائياً وكتلته أكبر قليلاً من كتلة البروتون، وسمي النيوترون ويروم له بالرمز (n).

فكر

آخر جسيمات الذرة اكتشافا هو النيوترون.

Writing memos on the draft science textbook by a PCDC author at the science author meeting

This block contains the Arabic translation of Japanese mathematics teacher's guides. It features several pages with mathematical problems, diagrams, and tables. The problems involve probability and combinatorics, such as calculating the number of possible outcomes for a sequence of events. The diagrams include a tree diagram for a sequence of events and a table for a probability distribution. The text is in Arabic and includes mathematical symbols and formulas.

Part of Arabic translation of Japanese mathematics Teacher's Guides



Open lesson "Enclosed air and water" that the Japanese Science Expert became a teacher



Open lesson " What is probability?" that the Japanese Mathematics Expert became a teacher

Annex 5 List of Property Lending

物品名称 (Name of Property)	規格・品番 (Standard, Part Number)	個数 (Quantity)	取得価格 (Purchase Price)			検査合格日 (Date of Inspection Passed)	配置場所 (Location)	現況 (Current State)	備考 (Remarks)	事業終了後の 取扱い (After Completion of Project: Handover/Return)
			取得価格 (Purchase Price)	通貨 (Currency)	日本円換算 取得価格 (In Japanese Yen)					
Mobile phone	Nokia 105 DS	2	200	ILS	5,450	Nov.21, 2016	PAJEC Office	In operation		Handover to PCDC
Projector	Vivitek DLP Projector DX255	1	1,890	ILS	51,503	Nov.23, 2016	PAJEC Office	In operation		Handover to PCDC
Digital camera	SAMSUNG ST150F	1	540	ILS	14,715	Nov.23, 2016	PAJEC Office	In operation		Handover to PCDC
Laser printer	KYOCERA FS-4100DN	1	348	USD	39,082	Dec.1, 2016	PAJEC Office	In operation		Handover to PCDC
Mobile printer	CANON PIXUS iP110	1	35,313	YEN	35,313	Nov.10, 2016	PAJEC Office	In operation		Handover to PCDC
A set of Japanese science equipment	A microscope, solar panel batteries, Neodym and electromagnet, thermometers and others	1	190,995	YEN	190,995	Nov.11, 2016	PAJEC Office	In operation		Handover to PCDC
A set of Japanese mathematics textbooks for basic education (Japanese)	Gakko Toshō	1	0	YEN	0	Dec.15, 2016	PAJEC Office	In operation		Handover to PCDC
A set of Japanese mathematics textbooks for basic education(English)	Gakko Toshō	2	32,923	YEN	32,923	Dec.15, 2016	PAJEC Office	In operation		Handover to PCDC
A set of Japanese mathematics teacher's guides for Grade 5 to 12 (in Japanese)	Gakko Toshō	1	0	YEN	0	Dec.15, 2016	PAJEC Office	In operation		Handover to PCDC
A set of Japanese science textbooks for basic education (in Japanese)	Kyoiku Shupan	2	0	YEN	0	Dec.15, 2016	PAJEC Office	In operation		Handover to PCDC
A set of Japanese science teacher's guides for basic education (in Japanese)	Kyoiku Shupan	1	176,688	YEN	176,688	Dec.15, 2016	PAJEC Office	In operation		Handover to PCDC
A set of Japanese mathematics learning tools	Showa Mathematics Tool Set	2	5,840	YEN	5,840	Dec.24, 2016	PAJEC Office	In operation		Handover to PCDC
Video camera	Panasonic HC-360MS	1	36,557	YEN	36,557	Jan.3, 2017	PAJEC Office	In operation		Handover to PCDC
Japanese mathematics textbooks for high school	Tokyo Shoseki	1	3,605	YEN	3,605	Dec.21, 2016	PAJEC Office	In operation		Handover to PCDC
Japanese science textbooks for high school	Tokyo Shoseki	1	24,030	YEN	24,030	Dec.26, 2016	PAJEC Office	In operation		Handover to PCDC
Mobile monitor	GeChic ON-LAP 1101	1	22,980	YEN	22,980	Jul.12, 2017	PAJEC Office	In operation		Handover to PCDC
A set of science experiment tools		1	10,697	YEN	10,697	Oct.10, 2017	PAJEC Office	In operation		Handover to PCDC
【以下、JICAから貸与されている物品 (Property Lent by JICA)】										

Annex 6 List of Supplied Science Instruments

Summary of Science Equipment Expenses

No.	Area	School Name	Sub total (ILS)
1	West Bank	Al Khansa Girls Elementry School	2,686.7
2		Ain Al- Baidaa Mixed High School	4,845.0
3		Beit Aksa Boys High School	4,993.9
4		Al- Mazraa Al Qabalia Boys Elementry School	5,786.8
5		Al Khas & Noaman Mixed Elementry School/ Bethlehem	3,124.0
6		Qiira Mixed Elementry School / Salfeet	1,408.5
7		Shoufa Girls High School / Tulkarem	6,810.2
8		Khalil Al Wazeer School/ South Nablus	7,021.9
9		Al Khawarizmy Girls High School	5,975.0
10		Shoroqat Mixed Elementry School	3,343.7
11		Showayka Mixed Elementry School	3,309.6
12		Zeif Elementry School	2,959.7
13	Gaza	Al - Shaima' Primary Girls School (Gaza)	12,967.2
14		Taha Hussien Primary Boys School (Rafah)	15,367.5
15		Kamel Al Agha Primary Boys School (Khanyounes)	12,367.0
16		Bilal Bin Rabah Primary School (Al Westa)	14,708.0
Total in ILS			107,674.7
Total in USD (ILS 1 = USD 0.27862)			30,000

Al Khansa Girls Elementry School

No.	Experiment Tool	Number	Price/ Unit	Total
1	Glass Flask 250ml	2	7.0	14.0
2	Bunsen Bumer with 190g Cartilage	1	57.0	57.0
3	Electric Kettle	1	62.0	62.0
4	Measuring Cylinder	2	11.0	22.0
5	Glass Beaker 1000ml	2	11.0	22.0
6	Glass Flask 1000ml	2	13.0	26.0
7	Plastic tube 1 m	1	3.0	3.0
8	Balloons	1	1.0	1.0
9	Lamp 2.5 V	1	1.0	1.0
10	Crocodile wires	1	2.0	2.0
11	Battery 1.5 V	1	1.0	1.0
12	Coin	1	1.0	1.0
13	Bar Magnet	1	8.0	8.0
14	Plastic stand with needle	1	5.0	5.0
15	Thread	1	1.0	1.0
16	Plastic Beaker 250ml	1	4.0	4.0
17	Wood piece	1	6.0	6.0
18	Distilled Water 1 L	1	4.0	4.0
19	Iron Nail	1	1.0	1.0
20	Iron Powder 50 g	1	9.0	9.0
21	Copper wire/ 1 m	1	2.0	2.0
22	Plastic Jar 1.5 g	1	3.0	3.0
23	Tunning Fork	1	9.0	9.0
24	Hummer Wooden	1	11.0	11.0
25	Vaccum Vassel	1	183.0	183.0
26	Alarm (Bell)	1	29.0	29.0
27	Microscope	1	367.0	367.0
28	Cork	1	1.0	1.0
29	Electronic balance	1	114.0	114.0
30	Magnifying glass	2	4.0	8.0
31	Aluminium Powder 100 g	1	28.0	28.0
32	Sulpher powder 100g	1	13.0	13.0
33	Funnel	2	4.0	8.0
34	Generator	1	78.0	78.0
35	Solarcell	1	13.0	13.0
36	electroscope	4	27.0	108.0
37	Petri's dish	4	1.0	4.0
38	Dissection tools	1	28.0	28.0
39	Dissection plate	1	23.0	23.0
40	Rubber Gloves	1	16.0	16.0
41	Sheep heart	1	57.0	57.0
42	Plastic bottle	1	6.0	6.0
43	Straw	1	3.0	3.0
44	Red colored water	1	7.0	7.0
45	Plastic par	5	5.0	25.0
46	Battery 9 V	4	3.0	12.0
47	Extension wires	1	2.0	2.0
48	Lamp with a socket	1	2.0	2.0
49	Glass tube U shape	1	5.0	5.0
50	rubber tube	1	7.0	7.0
51	Iron ball 3 cm	2	11.0	22.0
52	Spring Balance	2	8.0	16.0
53	Three glasses (water, Oil, Alchohol)	3	23.0	69.0
54	Displacement Flask	2	11.0	22.0
55	Metal Net	2	3.0	6.0
56	Bendict's Solution	1	10.0	10.0
57	Iugol's solution	1	10.0	10.0
58	Copper Solfate Solution 100 ml	1	4.0	4.0
59	Ethanol	1	15.0	15.0
60	Indopenol solution	1	11.0	11.0

61	Dropper	1	0.5	0.5
62	Starch solution 2%	1	6.0	6.0
63	Iodin solution	1	10.0	10.0
64	Litmus paper	1	4.0	4.0
65	Bicarbonate sodium	1	2.0	2.0
66	Scissor	1	9.0	9.0
67	Stop Watch	1	11.0	11.0
68	Iron Sulfate Solution II 100 ml	1	13.0	13.0
69	Ammeter	1	19.0	19.0
70	Voltimeter	1	19.0	19.0
71	Multimeter	1	19.0	19.0
72	Carbon Resistors	1	0.2	0.2
73	Lamp 12v-2w lamp 12v-4w	1	11.0	11.0
74	Solar System Model	1	188.0	188.0
75	Prism	1	8.0	8.0
76	Periodic table poster	1	63.0	63.0
77	Sodium Metal 25 g	1	28.0	28.0
78	Potassium metal 25 g	1	40.0	40.0
79	Calcium metal 25 g	1	28.0	28.0
80	Magnesium tape	1	18.0	18.0
81	Carbon Pars	1	2.0	2.0
82	Galvanometer	1	19.0	19.0
83	Sodium Hydrogen Carbonate	1	4.0	4.0
84	Hydrogen Oxide Liquid 6%	1	17.0	17.0
85	Potassium iodide 50 g	1	25.0	25.0
86	Zinc powder 100 g	1	11.0	11.0
87	Hydrochloric acid 32%	1	13.0	13.0
88	Copper II Sulfate 100 g	1	6.0	6.0
89	Iron II Sulfate 100 g	1	13.0	13.0
90	Silver Nitrate 10 g	1	80.0	80.0
91	Copper Powder 50 g	1	28.0	28.0
92	Glass Flask 100ml	1	6.0	6.0
93	Copper Chloride 100 g	1	28.0	28.0
94	Acetic Acid 99% 1 L	1	28.0	28.0
95	Sodium Carbonate 100 g	1	2.0	2.0
96	Phenolphthalin	1	5.0	5.0
97	Glass Burette 50 ml	1	23.0	23.0
98	Volumetric flask 50 ml	1	9.0	9.0
99	Zink Plate	1	3.0	3.0
100	Copper Plate	1	3.0	3.0
101	Sodium Sulfate Crystals solid 100 g	1	2.0	2.0
102	Copper Nitrate II 50 g	1	23.0	23.0
103	Iron Plate	1	3.0	3.0
104	Eclipse model	1	114.0	114.0
105	Mirrors 10cm	1	4.0	4.0
106	Laser pointer	1	20.0	20.0
107	Convex mirror 5 cm	1	4.0	4.0
108	Curve mirror 5 cm	1	4.0	4.0
109	Glass and plastic rectangle	1	11.0	11.0
110	Curved lens	1	4.0	4.0
111	Convex lens	1	4.0	4.0
112	Aptimus artificial soil	1	23.0	23.0
113	Magnifying glass	1	4.0	4.0
114	Gibberelic acid (powder)	1	23.0	23.0
115	Onion Sample	1	5.0	5.0
116	Plant section sample	1	5.0	5.0
117	Leaf section sample	1	5.0	5.0
			Total	2686.7

Ain Al- Baidaa Mixed High School				
No.	Item name	Number	Price/ Unit	Total
1	Glass Flask 250ml	2	7.0	14.0
2	Bunsen Burner 190 g Cartilage	3	57.0	171.0
3	Measuring Cylinder	5	11.0	55.0
4	Glass flask 1000ml	5	13.0	65.0
5	Glass Beaker 1000ml	5	11.0	55.0
6	Thermometer	3	5.0	15.0
7	Lamp 2.5 V	1	1.0	1.0
8	Crocodile wires	1	2.0	2.0
9	Battery 1.5 V	1	1.0	1.0
10	Coin	1	1.0	1.0
11	Globe Model	1	108.0	108.0
12	Microscope	3	367.0	1101.0
13	Filter paper	3	9.0	27.0
14	Electronic Balance	3	114.0	342.0
15	Aluminium powder 100 g	50	28.0	1400.0
16	Funnel	2	4.0	8.0
17	Separation funnel	2	23.0	46.0
18	Magnesium tape	1	18.0	18.0
19	Generator	1	78.0	78.0
20	Solar cell 2V	3	13.0	39.0
21	Fan	3	5.0	15.0
22	Switch	10	2.0	20.0
23	Extension wires	50	2.0	100.0
24	Petri's dish	1	1.0	1.0
25	Dissection tools	1	28.0	28.0
26	Dissection plate	1	23.0	23.0
27	Gloves	1	16.0	16.0
28	Sheep heart	1	57.0	57.0
29	Plastic tube	1	3.0	3.0
30	Balloon	1	1.0	1.0
31	Straw	1	3.0	3.0
32	Glue	1	4.0	4.0
33	Red color water	1	7.0	7.0
34	Electroscope	1	27.0	27.0
35	Wool	3	4.0	12.0
36	Battery 9 V	10	3.0	30.0
37	Metal Stand	3	28.0	84.0
38	Transparent rubber tube	3	2.0	6.0
39	Tes Tube Plastic Stand	2	11.0	22.0
40	Tripoid	2	13.0	26.0
41	Vacuum vessel	1	183.0	183.0
42	Ethanol	1	15.0	15.0
43	Indophenol solution	2	11.0	22.0
44	Dropper	20	0.5	10.0
45	Starch solution 2%	1	6.0	6.0
46	Iodine solution	1	10.0	10.0
47	Litmus	1	4.0	4.0
48	Sodium Bicarbonate 100 g	1	2.0	2.0
49	Scissors	1	9.0	9.0
50	Stop watch	1	11.0	11.0
51	Blood cells slides	1	6.0	6.0
52	Iron Sulfate Solution II 100 ml	1	13.0	13.0
53	Ammeter	1	19.0	19.0
54	Voltmeter	1	19.0	19.0
55	Melting meter	1	19.0	19.0
56	Carbon Resistors	20	0.2	4.0
57	Lamp 12v-2w lamp 12v-4w	1	11.0	11.0
58	Eclipse Model	1	114.0	114.0
59	Solar System Model	1	188.0	188.0
60	Prism	2	8.0	16.0
61	Periodic table poster	1	63.0	63.0
62	Zinc plate	1	3.0	3.0
63	Copper plate	1	3.0	3.0
64	Sodium Sulfate Crystals solid 100 g	1	2.0	2.0
65	Copper Nitrate II 50 g	1	23.0	23.0
66	Gibberellic acid (Powder)	1	23.0	23.0
67	Onion Sample	1	5.0	5.0
68	Plant section sample	1	5.0	5.0
69	Leaf section sample	1	5.0	5.0
			Total	4,845.0

Beit Aksa Boys High School

No.	Item Name	Number	Price/ Unit	Total
1	Glass Flask 250 ml	12	7.0	84.0
2	Bunsen Burner with 190 cartilage	3	57.0	171.0
3	Electric Kettle	1	62.0	62.0
4	Cold Glass Surface	2	13.0	26.0
5	Even Balance	2	50.0	100.0
6	Weights	12	28.0	336.0
7	Spring balance	3	8.0	24.0
8	Measuring Cylinder	12	11.0	132.0
9	Glass Flask 1000 ml	12	13.0	156.0
10	Iron ball and iron ring device	2	16.0	32.0
11	Thermometer	4	5.0	20.0
12	Plastic bottle 1 L	2	6.0	12.0
13	Plastic Tube 1 m	4	3.0	12.0
14	Lamp 2.5 V	6	1.0	6.0
15	Crocodile wires	12	2.0	24.0
16	Battery 1.5 V	12	1.0	12.0
17	Magnet	12	8.0	96.0
18	Plastic Stand with needle	2	6.0	12.0
19	Iron powder	2	9.0	18.0
20	Copper wire	12	2.0	24.0
21	Globe model	1	108.0	108.0
22	Tuning Fork	3	9.0	27.0
23	Hummer	3	11.0	33.0
24	Vacuum Vessel	1	183.0	183.0
25	Alarm	2	29.0	58.0
26	Microscope	1	367.0	367.0
27	Cork	3	1.0	3.0
28	Electronic Balance	2	114.0	228.0
29	Magnifying Glass	4	4.0	16.0
30	Aluminium powder 100 g	2	28.0	56.0
31	Sulphur powder 100 g	2	13.0	26.0
32	Filter paper 9 Cm	1	9.0	9.0
33	Funnel Glass 5 cm	3	4.0	12.0
34	Seperation funnel	2	23.0	46.0
35	Magnesium tape 15 meter	12	18.0	216.0
36	Generator	3	78.0	234.0
37	Solar cell 2 V	3	13.0	39.0
38	Fan	3	5.0	15.0
39	Switch	6	2.0	12.0
40	Extension wires	12	2.0	24.0
41	Electroscope	3	27.0	81.0
42	Petri dish	6	1.0	6.0
43	Dissection tools	1	28.0	28.0
44	Dissection plate	2	23.0	46.0
45	Straws	1	3.0	3.0
46	Glue	2	4.0	8.0
47	Plastic par	2	5.0	10.0
48	Wool	1	4.0	4.0
49	Lamp with a socket	6	2.0	12.0
50	Battery 9V	4	3.0	12.0
51	Glass tube U shape	4	5.0	20.0
52	Metal Stand	2	28.0	56.0
53	Rubber Tube	2	7.0	14.0
54	Syring big	4	2.0	8.0
55	Syring small	4	1.0	4.0
56	Transparent rubber tube	4	2.0	8.0
57	Test Tube Plastic Stand	2	11.0	22.0
58	Displacement flask	4	11.0	44.0
59	Test Tube	12	1.0	12.0
60	Tripod	3	13.0	39.0
61	Metal net	3	3.0	9.0
62	Bendict's solution	3	10.0	30.0
63	Lugol's solution	3	10.0	30.0
64	Copper sulfate solution	1	4.0	4.0
65	Ethanol	1	15.0	15.0
66	Indepheanol solution	1	11.0	11.0
67	Dropper	1	0.5	0.5
68	Starch solution 2%	1	6.0	6.0
69	Iodine solution	1	10.0	10.0
70	Litmus paper	4	4.0	16.0
71	Sodium bicarbonate	1	2.0	2.0
72	Scissor	3	9.0	27.0
73	Stope watch	3	11.0	33.0
74	Blood cells slides	1	6.0	6.0
75	Iron sulfate solution II 100 ml	1	13.0	13.0
76	Ammeter	1	19.0	19.0
77	Voltimeter	1	19.0	19.0
78	Multimeter	1	19.0	19.0
79	Carbon Resistors	12	0.2	2.4
80	lamp 12v-2w lamp 12v-4w	4	11.0	44.0
81	Solar System Model	1	188.0	188.0
82	Prism	3	8.0	24.0
83	Periodic table poster	1	63.0	63.0
84	Sodium	1	28.0	28.0
85	potassium	1	40.0	40.0
86	Calcium	1	28.0	28.0
87	Carbon Pars	6	2.0	12.0
88	Hydrogen Oxide Liquid 6%	1	17.0	17.0
89	Potassium Iodine	1	25.0	25.0
90	Zinc powder 100g	1	11.0	11.0
91	Hydrochloric acid	1	13.0	13.0
92	Copper Sulfate II	1	6.0	6.0
93	Iron Sulfate II 100 g	1	13.0	13.0
94	Silve nitrate	1	80.0	80.0
95	Copper Powder	1	28.0	28.0
96	Silver	1	28.0	28.0
97	Copper Chloride	1	28.0	28.0
98	Acetic Acid	1	28.0	28.0
99	Sodium Carbonate	1	2.0	2.0
100	Phenolphthalin	1	5.0	5.0
101	Zinc plate	2	3.0	6.0
102	Copper plate	2	3.0	6.0
103	Copper Nitrate II	1	23.0	23.0
104	Eclipse model	2	114.0	228.0
105	Mirrors	4	4.0	16.0
106	Laser Pointers	2	20.0	40.0
107	Convex mirror	4	4.0	16.0
108	Curve mirror	4	4.0	16.0
109	Glass and plastic rectangle	4	11.0	44.0
110	Curved lens	4	4.0	16.0
111	Convex lens	4	4.0	16.0
112	Aptimus artificial soil	1	23.0	23.0
113	Gibberellic acid (powder)	1	23.0	23.0
114	Onion Sample	2	5.0	10.0
115	Plant section sample	2	5.0	10.0
116	Leaf section sample	2	5.0	10.0
Total				4,993.9

Al- Mazraa Al Qabalia Boys Elementry School

No.	Item Name	Number	Price/ Unit	Total
1	Glass Flask 250ml	6	7.0	42.0
2	Bunsen burner with 190g Cartilage	2	57.0	114.0
3	Even Balance	6	50.0	300.0
4	Weights	1	28.0	28.0
5	Spring Balance	3	8.0	24.0
6	Measuring Cylinder	4	11.0	44.0
7	Glass Beaker 1000ml	8	11.0	88.0
8	Glass Flask 1000ml	6	13.0	78.0
9	Iron ball and iron ring device	4	16.0	64.0
10	Thermometer	6	5.0	30.0
11	Lamp 2.5 V	10	1.0	10.0
12	Crocodile wires	10	2.0	20.0
13	Battery 1.5 V	8	1.0	8.0
14	Magnet	4	8.0	32.0
15	Iron Powder	60	9.0	540.0
16	Globe model	1	108.0	108.0
17	Tunning fork	2	9.0	18.0
18	Hummer	1	11.0	11.0
19	Vaccum Vassel	1	183.0	183.0
20	Microscope	6	367.0	2202.0
21	Electronic Balance	2	114.0	228.0
22	Magnifying Glass	2	4.0	8.0
23	Aluminum Powder	2	28.0	56.0
24	Sulpher powder	2	13.0	26.0
25	Filter paper	1	9.0	9.0
26	Funnel	4	4.0	16.0
27	Seperation funnel	1	23.0	23.0
28	Magnesium tap	1	18.0	18.0
29	Generator	1	78.0	78.0
30	Solarcell 2 V	2	13.0	26.0
31	Switch	4	2.0	8.0
32	Electroscope	2	27.0	54.0
33	Dissection tools	2	28.0	56.0
34	Dissection plate	1	23.0	23.0
35	Plastic par	2	5.0	10.0
36	Wool	1	4.0	4.0
37	Extension wires	10	2.0	20.0
38	Battery 9 V	4	3.0	12.0
39	Lamp with a socket	8	2.0	16.0
40	Glass tube U shape	3	5.0	15.0

41	Metal stand	4	28.0	112.0
42	Syring (small)	10	1.0	10.0
43	Iron ball	2	11.0	22.0
44	Displacement flask	2	11.0	22.0
45	Test tubes	40	1.0	40.0
46	Dropper	20	0.5	10.0
47	Glass Beaker 250ml	8	5.0	40.0
48	Tripod	2	13.0	26.0
49	Metal net	3	3.0	9.0
50	Bendict's solution	2	10.0	20.0
51	Lugol's solution	2	10.0	20.0
52	Copper Sulfate Solution	1	4.0	4.0
53	Ethanol	2	15.0	30.0
54	Indophenol Solution	2	11.0	22.0
55	Litmus Papers	1	4.0	4.0
56	Sodium Bicarbonate	1	2.0	2.0
57	Stop watch	1	11.0	11.0
58	blood cells slides	4	6.0	24.0
59	Iron Sulfate Solution II 100 ml	2	13.0	26.0
60	Carbon Resistors	4	0.2	0.8
61	Solar System Model	1	188.0	188.0
62	Prism	2	8.0	16.0
63	Periodic table poster	1	63.0	63.0
64	Hydroxide sodium	2	3.0	6.0
65	Copper chloride	2	28.0	56.0
66	Acetic Acid	2	28.0	56.0
67	Phenolphthalin	2	5.0	10.0
68	Burette	1	23.0	23.0
69	Zinc Plate	3	3.0	9.0
70	Copper Plate	3	3.0	9.0
71	Sodium Sulfate Crystals solid 100 g	3	2.0	6.0
72	Copper Nitrate II	1	23.0	23.0
73	Eclipse model	1	114.0	114.0
74	Mirrors	2	4.0	8.0
75	Laser pointers	1	20.0	20.0
76	Convex mirror	2	4.0	8.0
77	Curve mirror	2	4.0	8.0
78	Glass and plastic rectangle	2	11.0	22.0
79	Curve lens	4	4.0	16.0
80	Convex lens	4	4.0	16.0
81	Plant section sample	1	5.0	5.0
			Total	5786.8

Al Khas & Noaman Mixed Elementry School/ Bethlehem				
No.	Item Name	Number	Price/ Unit	Total
1	Bunsen Burner	3	57.0	171.0
2	Spring Balance	3	8.0	24.0
3	Vaccum Vassel	3	183.0	549.0
4	Electronic balance	3	114.0	342.0
5	Magnifying glass	6	4.0	24.0
6	Aluminuim powder	1	28.0	28.0
7	Filter paper	5	9.0	45.0
8	Funnel	6	4.0	24.0
9	Seperation funnel	6	23.0	138.0
10	Generator	3	78.0	234.0
11	Solarcell 2 V	6	13.0	78.0
12	Electroscope	4	27.0	108.0
13	Glass tube U shape	6	5.0	30.0
14	Metal stand	3	28.0	84.0
15	Rubber tube	6	7.0	42.0
16	Tripod	6	13.0	78.0
17	Metal net	6	3.0	18.0
18	Microscope	1	367.0	367.0
19	Solar System Model	1	188.0	188.0
20	Test Tube Plastic Stand	5	11.0	55.0
21	Eclipse model	1	114.0	114.0
22	Sodium	1	28.0	28.0
23	Potassium	1	40.0	40.0
24	Acetic Acid	1	28.0	28.0
25	Phenolphthalin	1	5.0	5.0
26	Burette	3	23.0	69.0
27	Laser pointers	5	20.0	100.0
28	convex mirror	5	4.0	20.0
29	curve mirror	5	4.0	20.0
30	convex lens	5	4.0	20.0
31	Gibberellic acid (powder)	1	23.0	23.0
32	Onion sample	2	5.0	10.0
33	Plant root section sample	2	5.0	10.0
34	Plant section sample	2	5.0	10.0
			Total	3,124.0

Qiira Mixed Elementry School / Salfet

No.	Item Name	Number	Price/ Unit	Total
1	Microscope	1	367.0	367.0
2	Electronic balance	1	114.0	114.0
3	Generator	1	78.0	78.0
4	Electroscope	1	27.0	27.0
5	Ammeter	1	19.0	19.0
6	Voltimeter	1	19.0	19.0
7	Multimeter	1	19.0	19.0
8	Vaccum vassel	1	183.0	183.0
9	Bunsen Burner	2	57.0	114.0
10	Plastic Stand with needle	1	5.0	5.0
11	Thermometer	3	5.0	15.0
12	Test Tube Plastic Stand	3	11.0	33.0
13	Displacement flask	2	11.0	22.0
14	Tes Tubes	1	1.0	1.0
15	Measuring Cylinder	5	11.0	55.0
16	Glass funnel	4	4.0	16.0
17	Glass Flask 1000ml	2	13.0	26.0
18	Brutte	1	23.0	23.0
19	Glass tube U shape	1	5.0	5.0
20	Volumetric flask one liter	1	11.0	11.0
21	Water dropper device with equipments	1	0.5	0.5
22	Eclipse pannel	1	114.0	114.0
23	plant cell panel	1	5.0	5.0
24	Indophenol Solution	1	11.0	11.0
25	Calcium	1	28.0	28.0
26	Zinc par	10	3.0	30.0
27	Ethanol Chohol	1	15.0	15.0
28	Potassium yoride	1	25.0	25.0
29	Copper Chloride	1	28.0	28.0
			Total	1,408.5

Shoufa Girls High School / Tulkarem				
No.	Item Name	Number	Price/ Unit	Total
1	Glass Beaker 1000ml	20	11.0	220.0
2	Bunsen Burner	20	57.0	1140.0
3	Even Balance	20	50.0	1000.0
4	Weights	4	28.0	112.0
5	Spring balance	10	8.0	80.0
6	Measuring Cylinder	20	11.0	220.0
7	Glass Flask 1000ml	20	13.0	260.0
8	Thermometer (Electronic, Alcohol, Mercury, medical)	10	5.0	50.0
9	Lamp 2.5 V	20	1.0	20.0
10	Crocodile Wires	50	2.0	100.0
11	Battery 1.5 V	10	1.0	10.0
12	Battery 9 V	10	3.0	30.0
13	Magnet	10	8.0	80.0
14	Voltmeter	10	19.0	190.0
15	Ammeter	10	19.0	190.0
16	Galvanometer	10	19.0	190.0
17	multimeter	10	19.0	190.0
18	Tuning set	2	9.0	18.0
19	Globe model	2	108.0	216.0
20	Vacuum vassel	2	183.0	366.0
21	Electronic balance	1	114.0	114.0
22	Aluminium powder	4	28.0	112.0
23	Iron powder	4	9.0	36.0
24	Filter paper	6	9.0	54.0
25	Generators	2	78.0	156.0
26	Glass funnel	10	4.0	40.0
27	Magnesium tap	2	18.0	36.0
28	Petri's dish	10	1.0	10.0
29	Displacement flask	5	11.0	55.0
30	Dropper	10	0.5	5.0
31	Metal net	10	3.0	30.0
32	Microscope	1	367.0	367.0
33	Bendict's Solution	1	10.0	10.0
34	Iugol's solution	1	10.0	10.0
35	Copper Solfate Solution	1	4.0	4.0
36	Ethanol	1	15.0	15.0
37	Indopenol solution	1	11.0	11.0
38	Starch solution 2%	1	6.0	6.0
39	Iodin solution	1	10.0	10.0
40	Litmus paper	1	4.0	4.0

41	Bicarbonate sodium	1	2.0	2.0	
42	Dissection tools	1	28.0	28.0	
43	Scissor	1	9.0	9.0	
44	Stop watch	1	11.0	11.0	
45	Iron Sulfate Solution II 100 ml	1	13.0	13.0	
46	Copper wires	1	2.0	2.0	
47	Switch	1	2.0	2.0	
48	Carbon Resistors	1	0.2	0.2	
49	Lamp 12v-2w lamp 12v-4w	1	11.0	11.0	
50	Solar System Model	1	188.0	188.0	
51	Prism	1	8.0	8.0	
52	Periodic table poster	1	63.0	63.0	
53	Sodium	1	28.0	28.0	
54	Potassium	1	40.0	40.0	
55	Calcium	1	28.0	28.0	
56	Carbon Pars	1	2.0	2.0	
57	Galvanometer	1	19.0	19.0	
58	Hydrogen Oxide Liquid 6%	1	17.0	17.0	
59	Potassium iodide	1	25.0	25.0	
60	Zinc powder	1	11.0	11.0	
61	Hydrochloric acid	1	13.0	13.0	
62	Copper Solphate II	1	6.0	6.0	
63	Iron II Sulfate 100 g	1	13.0	13.0	
64	Silver Nitrate	1	80.0	80.0	
65	Copper Powder	1	28.0	28.0	
66	Silve plate	1	28.0	28.0	
67	Hydroxide Sodium	1	3.0	3.0	
68	Copper Chloride	1	28.0	28.0	
69	Acetic Acid	1	28.0	28.0	
70	Sodium Carbonate	1	2.0	2.0	
71	Phenolphthalin	1	5.0	5.0	
72	Burette	1	23.0	23.0	
73	Volumetric flask	1	9.0	9.0	
74	Glass Flask 100ml	1	6.0	6.0	
75	Zink Plate	1	3.0	3.0	
76	Copper Plate	1	3.0	3.0	
77	Sodium Sulfate Crystals solid 100 g	1	2.0	2.0	
78	Copper Nitrate II	1	23.0	23.0	
79	Iron Plate	1	3.0	3.0	
80	Eclipse model	1	114.0	114.0	
81	Mirrors	1	4.0	4.0	
82	Laser pointer	1	20.0	20.0	
83	Convex mirror	1	4.0	4.0	
84	Curve mirror	1	4.0	4.0	
85	Glass and plastic rectangle	1	11.0	11.0	
86	Curved lens	1	4.0	4.0	
87	Convex lens	1	4.0	4.0	
88	Aptimus artificial soil	1	23.0	23.0	
89	Magnifying glass	1	4.0	4.0	
90	Gibberellic acid (powder)	1	23.0	23.0	
91	Onion Sample	1	5.0	5.0	
92	Plant section sample	1	5.0	5.0	
93	Leaf section sample	1	5.0	5.0	
				Total	6,810.2

Khalil Al Wazeer School/ South Nablus					
No.	Item Name	Number	Price/ Unit	Total	
1	Glass Flask 250ml	2	7.0	14.0	
2	Bunsen Burner	2	57.0	114.0	
3	Electric Kettle	2	62.0	124.0	
4	Cold Glass Surface	2	13.0	26.0	
5	Even Balance	2	50.0	100.0	
6	Weights	2	28.0	56.0	
7	Spring Balance	2	8.0	16.0	
8	Measuring Cylinder	4	11.0	44.0	
9	Glass Beaker 1000ml	4	11.0	44.0	
10	Glass Flask 1000ml	4	13.0	52.0	
11	Iron ball and ring device	4	16.0	64.0	
12	Thermometer	4	5.0	20.0	
13	Balloons	10	1.0	10.0	
14	Lamp 2.5 V	10	1.0	10.0	
15	Crocodile wires	10	2.0	20.0	
16	Battery 1.5 V	2	1.0	2.0	
17	Plastic Stand with needle	2	5.0	10.0	
18	Thread	2	1.0	2.0	
19	Magnet	4	8.0	32.0	
20	Plastic Beaker 250ml	4	4.0	16.0	
21	Wood piece	4	6.0	24.0	
22	Distilled water	4	4.0	16.0	
23	Iron powder	4	9.0	36.0	
24	Copper wire	4	2.0	8.0	
25	Globe model	4	108.0	432.0	
26	Tuning fork	4	9.0	36.0	
27	Hummer	4	11.0	44.0	
28	Vacuum vessel	4	183.0	732.0	
29	Alarm (bell)	4	29.0	116.0	
30	Microscope	4	367.0	1468.0	
31	Cork	4	1.0	4.0	
32	Magnifying Glass	4	4.0	16.0	
33	Aluminium powder	4	28.0	112.0	
34	Sulphur powder	4	13.0	52.0	
35	Filter paper	4	9.0	36.0	
36	Funnel	4	4.0	16.0	
37	Bottle	4	6.0	24.0	
38	Separation funnel	4	23.0	92.0	
39	Magnesium tap	2	18.0	36.0	
40	Generator	2	78.0	156.0	
41	Solarcell 2 V	4	13.0	52.0	
42	Fan	4	5.0	20.0	
43	Switch	4	2.0	8.0	
44	Extension wires	10	2.0	20.0	
45	Electroscope	4	27.0	108.0	
46	Petri's dish	5	1.0	5.0	
47	Dissection tools	2	28.0	56.0	
48	Dissection plate	2	23.0	46.0	
49	Gloves	2	16.0	32.0	
50	Battery 9 V	4	3.0	12.0	
51	Glass tube U shape	2	5.0	10.0	
52	Rubber tube	3	7.0	21.0	
53	Syringe Big	3	2.0	6.0	
54	Syringe small	3	1.0	3.0	
55	Transparent rubber tube	3	2.0	6.0	
56	Iron ball	3	11.0	33.0	
57	Displacement Flask	2	11.0	22.0	
58	Test tubes	50	1.0	50.0	
59	Dropper	3	0.5	1.5	
60	Metal net	2	3.0	6.0	
61	Benedict's solution	2	10.0	20.0	
62	Lugol's solution	2	10.0	20.0	
63	Copper Sulfate Solution	2	4.0	8.0	
64	Ethanol	2	15.0	30.0	
65	Indopenol solution	2	11.0	22.0	
66	Starch solution 2%	2	6.0	12.0	
67	Iodin solution	2	10.0	20.0	
68	Litmus paper	2	4.0	8.0	
69	Bicarbonate Sodium	2	2.0	4.0	
70	Scissor	2	9.0	18.0	
71	Stop Watch	2	11.0	22.0	
72	Iron Sulfate Solution II 100 ml	2	13.0	26.0	
73	Ammeter	2	19.0	38.0	
74	Voltmeter	2	19.0	38.0	
75	Multimeter	2	19.0	38.0	
76	Carbon Resistors	2	0.2	0.4	
77	Lamp 12v-2w lamp 12v-4w	2	11.0	22.0	
78	Solar Cell Model	2	188.0	376.0	
79	Prism	2	8.0	16.0	
80	Periodic table poster	2	63.0	126.0	
81	Sodium	2	28.0	56.0	
82	Potassium	2	40.0	80.0	
83	Calcium	2	28.0	56.0	
84	Carbon Pars	2	2.0	4.0	
85	Galvanometer	2	19.0	38.0	
86	Hydrogen Sodium Carbonate,	2	4.0	8.0	
87	Hydrogen Oxide Liquid 6%	2	17.0	34.0	
88	Potassium iodide	2	25.0	50.0	
89	Zinc powder	2	11.0	22.0	
90	Hydrochloric acid	2	13.0	26.0	
91	Copper Solphate II-	2	6.0	12.0	
92	Iron II Sulfate 100 g	2	13.0	26.0	
93	Silver Nitrate	2	80.0	160.0	
94	Copper powder	2	28.0	56.0	
95	Silver Plate	2	28.0	56.0	
96	Hydroxide Sodium	2	3.0	6.0	
97	Copper Chloride	2	28.0	56.0	
98	Acetic Acid	2	28.0	56.0	
99	Phenolphthalin	2	5.0	10.0	
100	Burette	2	23.0	46.0	
101	Volumetric Flask	2	9.0	18.0	
102	Glass flask 100ml	2	6.0	12.0	
103	Zink Plate	2	3.0	6.0	
104	Copper Plate	2	3.0	6.0	
105	Sodium Sulfate Crystals solid 100 g	2	2.0	4.0	
106	Copper Nitrate II	2	23.0	46.0	
107	Iron Plate	2	3.0	6.0	
108	Eclipse model	2	114.0	228.0	
109	Mirrors	2	4.0	8.0	
110	Laser pointer	2	20.0	40.0	
111	Convex mirror	2	4.0	8.0	
112	Curve mirror	2	4.0	8.0	
113	Glass and plastic rectangle	2	11.0	22.0	
114	Curved lens	2	4.0	8.0	
115	Convex lens	2	4.0	8.0	
116	Aptimus artificial soil	2	23.0	46.0	
117	Gibberellic acid (powder)	2	23.0	46.0	
118	Onion Sample	2	5.0	10.0	
119	Plant section sample	2	5.0	10.0	
120	Leaf section sample	2	5.0	10.0	
				Total	7,021.9

Al Khawarizmy Girls High School

No.	Item Name	Number	Price/ Unit	Total
1	Glass Flask 250ml	5	7.0	35.0
2	Bunsen Burner	5	57.0	285.0
3	Electric Kettle	3	62.0	186.0
4	Cold Glass Surface	3	13.0	39.0
5	Even Balance	1	50.0	50.0
6	Measuring Cylinder	5	11.0	55.0
7	Glass Flask 1000ml	7	13.0	91.0
8	Thermometer	5	5.0	25.0
9	Lamp 2.5 V	10	1.0	10.0
10	Crocodile wires	10	2.0	20.0
11	Battery 1.5 V	10	1.0	10.0
12	Bar Magnet 5 cm	5	8.0	40.0
13	Plastic stand with needle	5	5.0	25.0
14	Wood piece	5	6.0	30.0
15	Iron Nail	5	1.0	5.0
16	Copper wire	5	2.0	10.0
17	Globe Model	2	108.0	216.0
18	Vaccum Vassel	3	183.0	549.0
19	Alarm or bell	3	29.0	87.0
20	Microscope	2	367.0	734.0
21	Cork	5	1.0	5.0
22	Electronic balance	1	114.0	114.0
23	Magnifying Glass	5	4.0	20.0
24	Iron powder	1	9.0	9.0
25	Filter paper	1	9.0	9.0
26	Funnel	10	4.0	40.0
27	Seperation funnel	5	23.0	115.0
28	Generator	2	78.0	156.0
29	Solarcell 2 V	2	13.0	26.0
30	Fan	3	5.0	15.0
31	Switch	5	2.0	10.0
32	Extension wires	10	2.0	20.0
33	Electroscope	7	27.0	189.0
34	Petri's Dish	5	1.0	5.0
35	Gloves	2	16.0	32.0
36	Plastic par	5	5.0	25.0
37	Wool	5	4.0	20.0
38	Lamp with a socket	10	2.0	20.0
39	Battery 9 V	5	3.0	15.0
40	Glass tube U shape	5	5.0	25.0
41	Metal stand	4	28.0	112.0
42	Rubber tube	4	7.0	28.0
43	Syringe (big)	5	2.0	10.0
44	Syringe (small)	5	1.0	5.0
45	Transparent rubbe tube	5	2.0	10.0
46	Test tubes plastic stand	5	11.0	55.0
47	Iron ball	7	11.0	77.0
48	Spring balance	5	8.0	40.0
49	Displacement Flask	6	11.0	66.0
50	Dropper	20	0.5	10.0

51	Test tubes	20	1.0	20.0
52	Tripod	6	13.0	78.0
53	Metal Net	10	3.0	30.0
54	Benedict's Solution	1	10.0	10.0
55	Iugol's solution	1	10.0	10.0
56	Copper Solfate Solution	1	4.0	4.0
57	Ethanol	1	15.0	15.0
58	Indopenol solution	1	11.0	11.0
59	Starch solution 2%	1	6.0	6.0
60	Iodin solution	1	10.0	10.0
61	Litmus paper	1	4.0	4.0
62	Bicarbonate Sodium	1	2.0	2.0
63	Dissection tools	1	28.0	28.0
64	Solar Cell Model	3	188.0	564.0
65	Scissor	1	9.0	9.0
66	Stop Watch	4	11.0	44.0
67	Blood cells slides	1	6.0	6.0
68	Iron Sulfate Solution II 100 ml	1	13.0	13.0
69	Ammeter	6	19.0	114.0
70	Voltimeter	6	19.0	114.0
71	Multimeter	6	19.0	114.0
72	Carbon Resistors	10	0.2	2.0
73	Lamp 12v-2w lamp 12v-4w	1	11.0	11.0
74	Periodic table poster	2	63.0	126.0
75	Sodium	1	28.0	28.0
76	Potassium	1	40.0	40.0
77	Calcium	1	28.0	28.0
78	Magnesium tape	1	18.0	18.0
79	Carbon Pars	1	2.0	2.0
80	Galvanometer	1	19.0	19.0
81	Zinc Powder	1	11.0	11.0
82	Hydrochloric acid	1	13.0	13.0
83	Copper Solphate II•	1	6.0	6.0
84	Iron II Sulfate 100 g	1	13.0	13.0
85	Silver Nitrate	1	80.0	80.0
86	Copper powder	1	28.0	28.0
87	Silver Plate	1	28.0	28.0
88	Glass Flask 100ml	1	6.0	6.0
89	Hydroxide Sodium	1	3.0	3.0
90	Copper Chloride	1	28.0	28.0
91	Phenolphthalin	1	5.0	5.0
92	Burette	1	23.0	23.0
93	Volumetric flask	1	9.0	9.0
94	Zink Plate	1	3.0	3.0
95	Copper Plate	1	3.0	3.0
96	Sodium Sulfate Crystals solid 100 g	1	2.0	2.0
97	Copper Nitrate II	1	23.0	23.0
98	Iron Plate	1	3.0	3.0
99	Eclipse model	3	114.0	342.0
100	Mirrors	1	4.0	4.0
101	Laser pointer	1	20.0	20.0
102	Convex mirror	1	4.0	4.0
103	Curve mirror	1	4.0	4.0
104	Glass and plastic rectangle	1	11.0	11.0
105	Gibberelic acid (powder)	1	23.0	23.0
106	Onion Sample	1	5.0	5.0
107	Plant section sample	1	5.0	5.0
108	Leaf section sample	1	5.0	5.0
			Total	5,975.0

Shoroqat Mixed Elementry School				
No.	Item Name	Number	Price/ Unit	Total
1	Glass Flask 250 ml	1	7.0	7.0
2	Bunsen bumer	1	57.0	57.0
3	Kettle	1	62.0	62.0
4	Cold Glass surface	1	13.0	13.0
5	Even Balance	1	50.0	50.0
6	Weights	1	28.0	28.0
7	Spring balance	1	8.0	8.0
8	Measuring Cylinder	1	11.0	11.0
9	Glass Beaker 1000ml	1	11.0	11.0
10	Iron ball and ring device	1	16.0	16.0
11	Themometer	1	5.0	5.0
12	Plastic bottle	1	6.0	6.0
13	Plastic Tube 1 m	1	3.0	3.0
14	Balloons	1	1.0	1.0
15	Lamp 2.5 V	1	1.0	1.0
16	Crocodiles Wires	1	2.0	2.0
17	Battery 1.5 V	1	1.0	1.0
18	Magnet	1	8.0	8.0
19	Plastic Stand with needle	1	5.0	5.0
20	Thread	1	1.0	1.0
21	Plastic beaker 250ml	1	4.0	4.0
22	Wood piece	1	6.0	6.0
23	Distilled water	1	4.0	4.0
24	Iron nail	1	1.0	1.0
25	Iron powder	1	9.0	9.0
26	Copper wire	1	2.0	2.0
27	Globe model	1	108.0	108.0
28	Tunning fork	1	9.0	9.0
29	Hummer	1	11.0	11.0
30	Vaccum Vassel	1	183.0	183.0
31	Alarm or bell	1	29.0	29.0
32	Microscope	1	367.0	367.0
33	Cork	1	1.0	1.0
34	Electronic Balance	1	114.0	114.0
35	Stone set	1	75.0	75.0
36	Magnifying Glass	1	4.0	4.0
37	Aluminium powder	1	28.0	28.0
38	Sugar	1	4.0	4.0
39	Rice	1	11.0	11.0
40	Sulpher powder	1	13.0	13.0
41	Filter paper	1	9.0	9.0
42	Funnel	1	4.0	4.0
43	Bottle	1	6.0	6.0
44	Olive oil	1	23.0	23.0
45	Seperation funnel	1	23.0	23.0
46	Salt	1	3.0	3.0
47	Magnesium tape	1	18.0	18.0
48	Generator	1	78.0	78.0
49	Solarcell 2 V	1	13.0	13.0
50	Fan	1	5.0	5.0
51	Switch	1	2.0	2.0
52	Extension wires	1	2.0	2.0
53	Electroscope	1	27.0	27.0
54	Sand	1	5.0	5.0
55	Rocks	1	34.0	34.0
56	Gypsum	1	5.0	5.0
57	Petri's dish	1	1.0	1.0
58	Dissection tools	1	28.0	28.0
59	Dissection plate	1	23.0	23.0
60	Gloves	1	16.0	16.0
61	Sheep heart	1	57.0	57.0
62	Plastic tube	1	3.0	3.0
63	Straws	1	3.0	3.0
64	Glue	1	4.0	4.0
65	Red color water	1	7.0	7.0
66	Plastic par	1	5.0	5.0
67	Wool	1	4.0	4.0
68	Lamp with a socket	1	2.0	2.0
69	Battery 9 V	1	3.0	3.0
70	Glass transparent tube U shape	1	5.0	5.0

71	Metal stand	1	28.0	28.0	
72	Rubber tube	1	7.0	7.0	
73	Syringe (big)	1	2.0	2.0	
74	Syringe (small)	1	1.0	1.0	
75	Transparent rubber tube	1	2.0	2.0	
76	Three glasses (Water, oil, Alcohol)	1	23.0	23.0	
77	Displacement Flask	1	11.0	11.0	
78	Test tube	1	1.0	1.0	
79	Dropper	1	0.5	0.5	
80	Tripod	1	13.0	13.0	
81	Metal net	1	3.0	3.0	
82	Volumetric flask	1	11.0	11.0	
83	Bendict's Solution	1	10.0	10.0	
84	Iugol's solution	1	10.0	10.0	
85	Copper Solfate Solution	1	4.0	4.0	
86	Ethanol	1	15.0	15.0	
87	Indopenol solution	1	11.0	11.0	
88	Starch solution 2%	1	6.0	6.0	
89	Iodin solution	1	10.0	10.0	
90	Litmus paper	1	4.0	4.0	
91	Bicarbonat Sodium	1	2.0	2.0	
92	Scissor	1	9.0	9.0	
93	Stop watch	1	11.0	11.0	
94	Blood Cells Slides	1	6.0	6.0	
95	Iron Sulfate Solution II 100 ml	1	13.0	13.0	
96	Ammeter	1	19.0	19.0	
97	Voltimeter	1	19.0	19.0	
98	Multimeter	1	19.0	19.0	
99	Carbon Resistors	1	0.2	0.2	
100	Lamp 12v-2w lamp 12v-4w	1	11.0	11.0	
101	Solar Cell Model	3	188.0	564.0	
102	Prism	1	8.0	8.0	
103	Periodic table poster	1	63.0	63.0	
104	Sodium,	1	28.0	28.0	
105	Potassium,	1	40.0	40.0	
106	Calcium	1	28.0	28.0	
107	Carbon Pars	1	2.0	2.0	
108	Galvanometer	1	19.0	19.0	
109	Hydrogen Sodium Carbonate,	1	28.0	28.0	
110	Hydrogen Oxide Liquid 6%	1	17.0	17.0	
111	Potassium iodide	1	25.0	25.0	
112	Zinc Powder	1	11.0	11.0	
113	Hydrochloric acid	1	13.0	13.0	
114	Copper Solphate II-	1	6.0	6.0	
115	Iron II Sulfate 100 g	1	13.0	13.0	
116	Silver Nitrate	1	80.0	80.0	
117	Copper powder	1	28.0	28.0	
118	Silver plate	1	28.0	28.0	
119	Glass Flask 100ml	1	6.0	6.0	
120	Hydroxide Sodium	1	3.0	3.0	
121	Copper Chloride	1	28.0	28.0	
122	Acetic Acid	1	28.0	28.0	
123	Sodium Carbonate	1	2.0	2.0	
124	Phenolphthalin	1	5.0	5.0	
125	Burette	1	23.0	23.0	
126	Volumetric flask	1	9.0	9.0	
127	Zink Plate	1	3.0	3.0	
128	Copper Plate	1	3.0	3.0	
129	Sodium Sulfate Crystals solid 100 g	1	2.0	2.0	
130	Copper Nitrate II	1	23.0	23.0	
131	Iron Piece	1	3.0	3.0	
132	Eclipse model	1	114.0	114.0	
133	Mirrors	1	4.0	4.0	
134	Laser pointer	1	20.0	20.0	
135	Convex mirror	1	4.0	4.0	
136	Curve mirror	1	4.0	4.0	
137	Glass and plastic rectangle	1	11.0	11.0	
138	Curved lens	1	4.0	4.0	
139	Convex lens	1	4.0	4.0	
140	Aptimus artificial soil	1	23.0	23.0	
141	Gibberellic acid (powder)	1	23.0	23.0	
142	Onion Sample	1	5.0	5.0	
143	Plant section sample	1	5.0	5.0	
144	Leaf section sample	1	5.0	5.0	
				Total	3,343.7

Showayka Mixed Elementry School				
No.	Item Name	Number	Price/ Unit	Total
1	Glass Beaker with scale 1000ml	2	11.0	22.0
2	Cold Glass Surface	2	13.0	26.0
3	Bunsen Burner	1	57.0	57.0
4	Plastic bottle	2	6.0	12.0
5	Plastic Tube 1 m	2	3.0	6.0
6	Magnet	2	8.0	16.0
7	Plastic stand with needle	2	5.0	10.0
8	Thread	2	1.0	2.0
9	Vaccum Vassel	2	183.0	366.0
10	Alarm or bell	2	29.0	58.0
11	Microscope	2	367.0	734.0
12	Cork	2	1.0	2.0
13	Electronic balance	2	114.0	228.0
14	Aluminium Powder	1	28.0	28.0
15	Iron powder	1	9.0	9.0
16	Sulpher powder	1	13.0	13.0
17	Funnel	3	4.0	12.0
18	Seperation funnel	2	23.0	46.0
19	Glass Flask 1000ml	4	13.0	52.0
20	Generator	1	78.0	78.0
21	Electroscope	1	27.0	27.0
22	Petri's dish	3	1.0	3.0
23	Plastic Beaker 250ml	2	4.0	8.0
24	Glass tube U shape	3	5.0	15.0
25	Metal stand	3	28.0	84.0
26	Rubber Tube	2	7.0	14.0
27	Syringe (big)	4	2.0	8.0
28	Syringe (small)	4	1.0	4.0
29	Transparent rubber tube	2	2.0	4.0
30	Iron ball	2	11.0	22.0
31	Spring balance	2	8.0	16.0
32	Measuring Cylinder	3	11.0	33.0
33	Displacement Flask	2	11.0	22.0
34	Test Tubes	6	1.0	6.0
35	Dropper	6	0.5	3.0
36	Tripod	3	13.0	39.0
37	Metal Net	4	3.0	12.0
38	Volumetric flask 50 ml	4	9.0	36.0
39	Volumetric Flask 100 ml	4	11.0	44.0
40	Dissection tools	2	28.0	56.0

41	Stop Watch	3	11.0	33.0
42	Blood cells slides	4	6.0	24.0
43	Ammeter	2	19.0	38.0
44	Voltimeter	2	19.0	38.0
45	Multimeter	2	19.0	38.0
46	Carbon Resistors	3	0.2	0.6
47	Lamp 12v-2w lamp 12v-4w	4	11.0	44.0
48	Solar System Model	1	188.0	188.0
49	Prism	2	8.0	16.0
50	Periodic table poster	2	63.0	126.0
51	Sodium	1	28.0	28.0
52	Potassium	1	40.0	40.0
53	Magnesium tape	1	18.0	18.0
54	Calcium	1	28.0	28.0
55	Zinc powder	1	11.0	11.0
56	Hydrochloric acid	1	13.0	13.0
57	Copper Chloride	1	28.0	28.0
58	Burette	1	23.0	23.0
59	Zinc plate	4	3.0	12.0
60	Copper plate	4	3.0	12.0
61	Copper Nitrate	1	23.0	23.0
62	Eclipse model	1	114.0	114.0
63	Laser pointer	3	20.0	60.0
64	Mirrors	4	4.0	16.0
65	Convex Mirror	4	4.0	16.0
66	Curved Mirror	4	4.0	16.0
67	Convex lens	4	4.0	16.0
68	Curve lens	4	4.0	16.0
69	Glass and plastic rectangle	1	11.0	11.0
70	Onion Sample	2	5.0	10.0
71	Plant section sample	2	5.0	10.0
72	Leaf section sample	2	5.0	10.0
Total				3,309.6

Zeif Elementary School				
No.	Item	Number	Price/ Unit	Total
1	Glass Flask 250ml	1	7.0	7.0
2	Bunsen Bumer	1	57.0	57.0
3	Kettle	1	62.0	62.0
4	Cold Glass surface	1	13.0	13.0
5	Even Balance	1	50.0	50.0
6	Weights	1	28.0	28.0
7	Spring balance	1	8.0	8.0
8	Measuring Cylinder	1	11.0	11.0
9	Glass Flask 1000ml	1	13.0	13.0
10	Iron ball and ring device	1	16.0	16.0
11	Thermometer	1	5.0	5.0
12	Plastic bottle	1	6.0	6.0
13	Plastic Tube 1 m	1	3.0	3.0
14	Balloons	1	1.0	1.0
15	Lamp 2.5 V	1	1.0	1.0
16	Crocodile wires	1	2.0	2.0
17	Coin	1	1.0	1.0
18	Magnet	1	8.0	8.0
19	Plastic stand with needle	1	5.0	5.0
20	Thread	1	1.0	1.0
21	Plastic Beaker 250ml	1	4.0	4.0
22	Wood piece	1	6.0	6.0
23	Distilled water	1	4.0	4.0
24	Iron nails	1	1.0	1.0
25	Iron powder	1	9.0	9.0
26	Copper wire	1	2.0	2.0
27	Globe model	1	108.0	108.0
28	Tunning fork	1	9.0	9.0
29	Hummer	1	11.0	11.0
30	Vaccum Vassel	1	183.0	183.0
31	Alarm or bell	1	29.0	29.0
32	Microscope	1	367.0	367.0
33	Cork	1	1.0	1.0
34	Electronic balance	1	114.0	114.0
35	Stones set	1	75.0	75.0
36	Magnifying Glass	1	4.0	4.0
37	Aluminum powder	1	28.0	28.0
38	Sugar	1	4.0	4.0
39	Rice	1	11.0	11.0
40	Filter paper	1	9.0	9.0
41	Funnel	1	4.0	4.0
42	Glass Beaker 250ml	1	5.0	5.0
43	Olive oil	1	23.0	23.0
44	Seperation funnel	1	23.0	23.0
45	Salt	1	3.0	3.0
46	Magnesium tape	1	18.0	18.0
47	Generator	1	78.0	78.0
48	Solarcell 2 V	1	13.0	13.0
49	Fan	1	5.0	5.0
50	Switch	1	2.0	2.0
51	Extension wires	1	2.0	2.0
52	Electroscope	1	27.0	27.0
53	sand	1	5.0	5.0
54	Small Rocks Set	1	34.0	34.0
55	Gypsum	1	5.0	5.0
56	Petri's dish	1	1.0	1.0
57	Dissection tools	1	28.0	28.0
58	Dissection plate	1	23.0	23.0
59	Gloves	1	16.0	16.0
60	Sheep heart	1	57.0	57.0
61	Straws	1	3.0	3.0
62	Glue	1	4.0	4.0
63	Red color water	1	7.0	7.0
64	Plastic par	1	5.0	5.0
65	Wool	1	4.0	4.0
66	Lamp with a socket	1	2.0	2.0
67	Battery 9 V	1	3.0	3.0
68	U shape glass tube	1	5.0	5.0
69	Metal stand	1	28.0	28.0
70	Rubber tube	1	7.0	7.0

71	Syringe (big)	1	2.0	2.0
72	Syringe (small)	1	1.0	1.0
73	Rubber transparent tube	1	2.0	2.0
74	Test tubes Plastic Stand	1	11.0	11.0
75	Three glasses (Water, oil, Alchohol)	1	23.0	23.0
76	Displacement Flask	1	11.0	11.0
77	Test tube	1	1.0	1.0
78	Dropper	1	0.5	0.5
79	Test Tube Plastic Stand	1	11.0	11.0
80	Tripod	1	13.0	13.0
81	Metal net	1	3.0	3.0
82	Volumetric flask	1	11.0	11.0
83	Benedict's Solution	1	10.0	10.0
84	Iugol's solution	1	10.0	10.0
85	Hydroxid Sodium	1	3.0	3.0
86	Copper Solfate Solution	1	4.0	4.0
87	Ethanol	1	15.0	15.0
88	Indopenol solution	1	11.0	11.0
89	Starch solution 2%	1	6.0	6.0
90	Iodin solution	1	10.0	10.0
91	Litmus paper	1	4.0	4.0
92	Bicarbonate Sodium	1	2.0	2.0
93	Scissor	1	9.0	9.0
94	Stop Watch	1	11.0	11.0
95	Blood Cells Slides	1	6.0	6.0
96	Iron Sulfate Solution II 100 ml	1	13.0	13.0
97	Ammeter	1	19.0	19.0
98	Voltimeter	1	19.0	19.0
99	Multimeter	1	19.0	19.0
100	Carbon Resistors	1	0.2	0.2
101	Lamp 12v-2w lamp 12v-4w	1	11.0	11.0
102	Solar Cell Model	1	188.0	188.0
103	Prism	1	8.0	8.0
104	Periodic table poster	1	63.0	63.0
105	Sodium,	1	28.0	28.0
106	Potassium,	1	40.0	40.0
107	Calcium,	1	28.0	28.0
108	Carbon Pars	1	2.0	2.0
109	Galvanometer	1	19.0	19.0
110	Sulpher powder	1	13.0	13.0
111	Hydrogen Oxide Liquid 6%	1	17.0	17.0
112	Potassium iodide	1	25.0	25.0
113	Zinc powder	1	11.0	11.0
114	Hydrochloric acid	1	13.0	13.0
115	Copper Solphate II+	1	6.0	6.0
116	Iron II Sulfate 100 g	1	13.0	13.0
117	Silver Nitrate	1	80.0	80.0
118	Copper	1	28.0	28.0
119	Silver plate	1	28.0	28.0
120	Copper Chloride	1	28.0	28.0
121	Acetic Acid	1	28.0	28.0
122	Sodium Carbonate	1	2.0	2.0
123	Phenolphthalin	1	5.0	5.0
124	Burette	1	23.0	23.0
125	Volumetric flask	1	9.0	9.0
126	Glass Flask 100ml	1	6.0	6.0
127	Zink Plate	1	3.0	3.0
128	Copper Plate	1	3.0	3.0
129	Sodium Sulfate Crystals solid 100 g	1	2.0	2.0
130	Copper Nitrate II	1	23.0	23.0
131	Iron Plate	1	3.0	3.0
132	Eclipse model	1	114.0	114.0
133	Mirrors	1	4.0	4.0
134	Laser pointer	1	20.0	20.0
135	Convex mirror	1	4.0	4.0
136	Curve mirror	1	4.0	4.0
137	Glass and plastic rectangle	1	11.0	11.0
138	Curved lens	1	4.0	4.0
139	Convex lens	1	4.0	4.0
140	Aptimus artificial soil	1	23.0	23.0
141	Gibberellic acid (powder)	1	23.0	23.0
142	Onion Sample	1	5.0	5.0
143	Plant section sample	1	5.0	5.0
144	Leaf section sample	1	5.0	5.0
Total				2,959.7

Al - Shaima' Primary Girls School (Gaza)

No	Experiment Tool	Number	Price/Unit	Total
1	Glass Flask 250 ml	10	7.0	70.0
2	Bunsen Burner with 190g Carriage	10	57.0	570.0
3	Electric Kettle	5	62.0	310.0
4	Cold Glass Surface 20x20 cm	10	13.0	130.0
5	Even Balance with 200 g masses	3	50.0	150.0
6	weights 200 g (already with the balance)	5	28.0	140.0
7	Spring Balance	10	8.0	80.0
8	Measuring Cylinder glass 100 ml	10	11.0	110.0
9	Glass Beaker with a scale 1000 ml	10	11.0	110.0
10	Glass Flask 1000 ml	10	13.0	130.0
11	Iron Ball and Iron ring device	5	16.0	80.0
12	Thermometer	20	5.0	100.0
13	lungs Demonstration Model	10	39.0	390.0
14	Lamp 2.5V	10	1.0	10.0
15	Crocodile wires 50 cm	10	2.0	20.0
16	Battery 1.5V AA	5	1.0	5.0
17	Coin	0	1.0	0.0
18	Bar Magnet 5 cm	10	8.0	80.0
19	Plastic Stand With Needle	10	6.0	60.0
20	Thread	0	1.0	0.0
21	Plastic Beaker 250 ml	10	4.0	40.0
22	Wood Piece	10	6.0	60.0
23	Distilled water 1 L	0	4.0	0.0
24	Iron Nail	10	1.0	10.0
25	Iron powder 50 g	10	9.0	90.0
26	Copper wire /1 meter	15	2.0	30.0
27	Plastic Jar 1.5 kg	10	3.0	30.0
28	Globe Model 32 cm plastic	5	108.0	540.0
29	Tuning Fork	20	9.0	180.0
30	Hummer wooden	20	11.0	220.0
31	Vacuum Vassel	5	183.0	915.0
32	Bell (Alarm)	15	29.0	435.0
33	Microscope	5	367.0	1835.0
34	Cork	20	1.0	20.0
35	Electronic Balance balance	5	114.0	570.0
36	Stone set	5	75.0	375.0
37	Magnifying Glass	20	4.0	80.0
38	Aluminium Powder 100 g	1	28.0	28.0
39	Sugar 1 kg	0	4.0	0.0
40	Rice	0	11.0	0.0
41	Sulphur powder 100 g	6	13.0	78.0
42	Filter Paper 9 cm	25	9.0	225.0
43	Funnel glass 5 cm	10	4.0	40.0
44	Plastic Bottle 1 L	5	6.0	30.0
45	Olive Oil 500 ml	1	23.0	23.0
46	Separation Funnel 125 ml	10	23.0	230.0
47	salt 1 kg	0	3.0	0.0
48	Magnesium tape 15 meter	0	18.0	0.0
49	Generator hand operated	5	78.0	390.0
50	Solar cell 2 V	10	13.0	130.0
51	Fan with Motor	10	5.0	50.0
52	Switch	10	2.0	20.0
53	Electroscope	7	27.0	189.0
54	Sand 1 kg	0	5.0	0.0
55	small rocks set	0	34.0	0.0
56	Gypsum 1 kg	10	5.0	50.0
57	Petri's Dish 90 mm plastic	25	1.0	25.0
58	Dissection tools set	7	28.0	196.0
59	Dissection plate 26*16*2 cm	7	23.0	161.0
60	Rubber Gloves box of 100	2	16.0	32.0
61	Sheep heart model	5	57.0	285.0
62	Plastic tube 1 meter	7	3.0	21.0
63	Balloon	10	1.0	10.0
64	Straw 50 pcs	10	3.0	30.0
65	Glue stick	10	4.0	40.0
66	red color water 1 liter	0	7.0	0.0
67	Plastic par	10	5.0	50.0
68	Wool ball	10	4.0	40.0
69	Extension wires / 1 meter	10	2.0	20.0
70	Lamp with a socket	10	2.0	20.0
71	Battery 9 V	15	3.0	45.0
72	U shape Glass tube	10	5.0	50.0
73	Metal stand	7	28.0	196.0
74	Rubber Tube	10	7.0	70.0
75	Syringe 20 ml	15	2.0	30.0
76	Syringe 10 ml	15	1.0	15.0
77	transparent rubber tube 1 meter	15	2.0	30.0
78	Test Tube Plastic Stand	10	11.0	110.0
79	Iron ball 3 cm	10	11.0	110.0
80	Three Glasses : (Water, Oil, Alcohol)	10	23.0	230.0
81	Displacement Flask 500 ml	15	11.0	165.0
82	Test Tubes 15*150 mm	20	1.0	20.0
83	Dropper 3 ml plastic	20	0.5	10.0
84	Glass Beaker 250 ml	15	5.0	75.0
85	Tripod stand	7	13.0	91.0
86	Metal net (wire Gauze)	7	3.0	21.0
87	Volumetric Flask 100 ml	15	11.0	165.0
88	Dissection Microscope	0	490.0	0.0
89	Electronic Microscope	0	630.0	0.0
90	Bendick's solution 100 ml	1	10.0	10.0
91	Lugol's solution 100 ml	1	10.0	10.0
92	sodium Hydroxide 100 g	1	3.0	3.0
93	Copper Sulfate Solution 100 ml	1	4.0	4.0
94	Ethanol 70% 1 liter	1	15.0	15.0
95	Indophenol Solution 100 ml	1	11.0	11.0
96	Starch solution 2% 100 ml	1	6.0	6.0
97	Iodine solution 100 ml	1	10.0	10.0
98	Litmas Papers	1	4.0	4.0
99	Sodium Bicarbonate 100 g	1	2.0	2.0
100	Scissors	1	9.0	9.0
101	Stop watch	1	11.0	11.0
102	blood cells slides	1	6.0	6.0
103	Iron Sulfate Solution 100 ml	1	13.0	13.0
104	Ammeter	1	19.0	19.0
105	Volimeter	1	19.0	19.0
106	Multimeter	1	19.0	19.0
107	Carbon resistances	1	0.2	0.2
108	Lamp 12v-2w Lamp 12v-4w	1	11.0	11.0
109	Solar System model	1	188.0	188.0
110	Prism	1	8.0	8.0
111	Periodic table poster	1	63.0	63.0
112	Sodium metal 25 g	1	28.0	28.0
113	Potassium Metal 2 g	1	40.0	40.0
114	Calcium Metal 25g	1	28.0	28.0
115	Carbon Pars 8 cm	1	2.0	2.0
116	Galvanometer	1	19.0	19.0
117	Hydrogen Peroxide solution 6% 1 Liter	1	17.0	17.0
118	Potassium Iodide 50g	1	25.0	25.0
119	Zinc powder 100 g	1	11.0	11.0
120	hydrochloric acid 32%	1	13.0	13.0
121	Copper II sulfate 100 g	2	6.0	12.0
122	Iron II Sulfate 100 g	1	13.0	13.0
123	Silver Nitrate 10 g	1	80.0	80.0
124	copper powder 50 g	1	28.0	28.0
125	Silver plate	1	28.0	28.0
126	Copper Chloride 100 g	1	28.0	28.0
127	Acetic acid 99% 1 L	1	28.0	28.0
128	Sodium carbonate 100 g	1	2.0	2.0
129	Phenolphthalein 100 ml	1	5.0	5.0
130	Glass Burette 50 ml	1	23.0	23.0
131	Volumetric Flask 50 ml	1	9.0	9.0
132	glass Flask 100 ml	1	6.0	6.0
133	Zinc Plate	1	3.0	3.0
134	Copper Plate	1	3.0	3.0
135	Sodium Sulfate Crystals solid 100 g	1	2.0	2.0
136	Copper Nitrate (II) 50 g	1	23.0	23.0
137	Iron plate	1	3.0	3.0
138	Eclipse Model	1	114.0	114.0
139	Mirrors 10 cm	1	4.0	4.0
140	Laser Pointers pen	1	20.0	20.0
141	Convex mirror 5 cm	1	4.0	4.0
142	Curved mirror 5 cm	1	4.0	4.0
143	Glass or plastic rectangle block	1	11.0	11.0
144	Concave lens	1	4.0	4.0
145	Convex lenses	1	4.0	4.0
146	Artificial Soil (vermiculite)	1	23.0	23.0
147	Gibberellic acid (Powder 2.5g / bag)	1	23.0	23.0
148	Onion sample Slide	1	5.0	5.0
149	Plant root sample Slide	1	5.0	5.0
150	leaf sample Slides	1	5.0	5.0
151	carbon resistor 100 ohm	0	0.2	0.0
152	carbon resistor 200 ohm	0	0.2	0.0
153	carbon resistor 300 ohm	0	0.2	0.0
154	carbon resistor 1 k ohm	0	0.2	0.0
155	carbon resistor 2 k ohm	0	0.2	0.0
156	Glucose 100 g	0	3.0	0.0
157	Sodium Hydrogen Carbonate 100 g	0	4.0	0.0
158	Sample slides for alga	0	5.0	0.0
159	Sample slides for Bacteria	0	5.0	0.0
160	Sample slides for Protozoa	0	5.0	0.0
			Total	12,967.2

Taha Hussien Primary Boys School (Rafah)

No	Experiment Tool	Number	Price/Unit	Total
1	Glass Flask 250 ml	20	7.0	140.0
2	Bunsen Burner with 190g Carriage	5	57.0	285.0
3	Electric Kettle	5	62.0	310.0
4	Cold Glass Surface 20x20 cm	20	13.0	260.0
5	Even Balance with 200 g masses	10	50.0	500.0
6	weights 200 g (already with the balance)	10	28.0	280.0
7	Spring Balance	10	8.0	80.0
8	Measuring Cylinder glass 100 ml	30	11.0	330.0
9	Glass Beaker with a scale 1000 ml	30	11.0	330.0
10	Glass Flask 1000 ml	30	13.0	390.0
11	Iron Ball and Iron ring device	20	16.0	320.0
12	Thermometer	30	5.0	150.0
13	Lungs Demonstration Model	0	39.0	0.0
14	Lamp 2.5V	5	1.0	5.0
15	Crocodile wires 50 cm	50	2.0	100.0
16	Battery 1.5V AA	3	1.0	3.0
17	Coin	0	1.0	0.0
18	Bar Magnet 5 cm	20	8.0	160.0
19	Plastic Stand With Needle	10	6.0	60.0
20	Thread	5	1.0	5.0
21	Plastic Beaker 250 ml	10	4.0	40.0
22	Wood Piece	10	6.0	60.0
23	Distilled water 1 L	0	4.0	0.0
24	Iron Nail	5	1.0	5.0
25	Iron powder 50 g	2	9.0	18.0
26	Copper wire / 1 meter	5	2.0	10.0
27	Plastic Jar 1.5 kg	25	3.0	75.0
28	Globe Model 32 cm plastic	5	108.0	540.0
29	Tuning Fork	8	9.0	72.0
30	Hummer wooden	15	11.0	165.0
31	Vacuum Vessel	3	183.0	549.0
32	Bell (Alarm)	10	29.0	290.0
33	Microscope	5	367.0	1835.0
34	Cork	5	1.0	5.0
35	Electronic Balance balance	4	114.0	456.0
36	Stone set	0	75.0	0.0
37	Magnifying Glass	20	4.0	80.0
38	Aluminium Powder 100 g	2	28.0	56.0
39	Sugar 1 kg	0	4.0	0.0
40	Rice	0	11.0	0.0
41	Sulphur powder 100 g	5	13.0	65.0
42	Filter Paper 9 cm	10	9.0	90.0
43	Funnel glass 5 cm	10	4.0	40.0
44	Plastic Bottle 1 L	10	6.0	60.0
45	Olive Oil 500 ml	2	23.0	46.0
46	Separation Funnel 125 ml	8	23.0	184.0
47	salt 1 kg	0	3.0	0.0
48	Magnesium tape 15 meter	5	18.0	90.0
49	Generator hand operated	5	78.0	390.0
50	Solar cell 2 V	15	13.0	195.0
51	Fan with Motor	15	5.0	75.0
52	Switch	20	2.0	40.0
53	Electroscope	10	27.0	270.0
54	Sand 1 kg	0	5.0	0.0
55	small rocks set	0	34.0	0.0
56	Gypsum 1 kg	5	5.0	25.0
57	Petri's Dish 90 mm plastic	25	1.0	25.0
58	Dissection tools set	10	28.0	280.0
59	Dissection plate 26*16*2 cm	10	23.0	230.0
60	Rubber Gloves box of 100	5	16.0	80.0
61	Sheep heart model	0	57.0	0.0
62	Plastic tube 1 meter	20	3.0	60.0
63	Balloon	10	1.0	10.0
64	Straw 50 pcs	5	3.0	15.0
65	Glue stick	20	4.0	80.0
66	red color water 1 liter	0	7.0	0.0
67	Plastic par	15	5.0	75.0
68	Wool ball	20	4.0	80.0
69	Extension wires / 1 meter	10	2.0	20.0
70	Lamp with a socket	15	2.0	30.0
71	Battery 9 V	20	3.0	60.0
72	U shape Glass tube	15	5.0	75.0
73	Metal stand	20	28.0	560.0
74	Rubber Tube	5	7.0	35.0
75	Syringe 20 ml	2	2.0	4.0
76	Syringe 10 ml	2	1.0	2.0
77	transparent rubber tube 1 meter	5	2.0	10.0
78	Test Tube Plastic Stand	10	11.0	110.0
79	Iron ball 3 cm	25	11.0	275.0
80	Three Glasses : (Water, Oil, Alcohol)	20	23.0	460.0

81	Displacement Flask 500 ml	15	11.0	165.0
82	Test Tubes 15*150 mm	5	1.0	5.0
83	Dropper 3 ml plastic	5	0.5	2.5
84	Glass Beaker 250 ml	20	5.0	100.0
85	Tripod stand	10	13.0	130.0
86	Metal net (wire Gauze)	20	3.0	60.0
87	Volumetric Flask 100 ml	0	11.0	0.0
88	Dissection Microscope	0	490.0	0.0
89	Electronic Microscope	0	630.0	0.0
90	Benedict's solution 100 ml	2	10.0	20.0
91	Lugol's solution 100 ml	2	10.0	20.0
92	sodium Hydroxide 100 g	2	3.0	6.0
93	Copper Sulfate Solution 100 ml	2	4.0	8.0
94	Ethanol 70% 1 liter	5	15.0	75.0
95	Indophenol Solution 100 ml	3	11.0	33.0
96	Starch solution 2% 100 ml	5	6.0	30.0
97	Iodine solution 100 ml	5	10.0	50.0
98	Litmus Papers	5	4.0	20.0
99	Sodium Bicarbonate 100 g	5	2.0	10.0
100	Scissors	15	9.0	135.0
101	Stop watch	10	11.0	110.0
102	blood cells slides	3	6.0	18.0
103	Iron Sulfate Solution 100 ml	2	13.0	26.0
104	Ammeter	10	19.0	190.0
105	Voltmeter	10	19.0	190.0
106	Multimeter	10	19.0	190.0
107	Carbon resistances	50	0.2	10.0
108	Lamp 12v-2w Lamp 12v-4w	5	11.0	55.0
109	Solar System model	4	188.0	752.0
110	Priem	15	8.0	120.0
111	Periodic table poster	1	63.0	63.0
112	Sodium metal 25 g	0	28.0	0.0
113	Potassium Metal 2 g	0	40.0	0.0
114	Calcium Metal 25g	0	28.0	0.0
115	Carbon Pans 8 cm	25	2.0	50.0
116	Galvanometer	0	19.0	0.0
117	Hydrogen Peroxide solution 6% 1 Liter	5	17.0	85.0
118	Potassium Iodide 50g	5	25.0	125.0
119	Zinc powder 100 g	2	11.0	22.0
120	hydrochloric acid 32%	5	13.0	65.0
121	Copper II sulfate 100 g	3	6.0	18.0
122	Iron II Sulfate 100 g	3	13.0	39.0
123	Silver Nitrate 10 g	3	80.0	240.0
124	copper powder 50 g	0	28.0	0.0
125	Silver plate	0	28.0	0.0
126	Copper Chloride 100 g	0	28.0	0.0
127	Acetic acid 99% 1 L	0	28.0	0.0
128	Sodium carbonate 100 g	0	2.0	0.0
129	Phenolphthalein 100 ml	0	5.0	0.0
130	Glass Burette 50 ml	0	23.0	0.0
131	Volumetric Flask 50 ml	0	9.0	0.0
132	glass Flask 100 ml	0	6.0	0.0
133	Zinc Plate	0	3.0	0.0
134	Copper Plate	0	3.0	0.0
135	Sodium Sulfate Crystals solid 100 g	0	2.0	0.0
136	Copper Nitrate (III) 50 g	0	23.0	0.0
137	Iron plate	0	3.0	0.0
138	Eclipse Model	0	114.0	0.0
139	Mirrors 10 cm	0	4.0	0.0
140	Laser Pointers pen	0	20.0	0.0
141	Convex mirror 5 cm	0	4.0	0.0
142	Curved mirror 5 cm	0	4.0	0.0
143	Glass or plastic rectangle block	0	11.0	0.0
144	Concave lens	0	4.0	0.0
145	Convex lenses	0	4.0	0.0
146	Artificial Soil (vermiculite)	0	23.0	0.0
147	Gibberellic acid (Powder 2.5g / bag)	0	23.0	0.0
148	Onion sample Slide	0	5.0	0.0
149	Plant root sample Slide	0	5.0	0.0
150	leaf sample Slides	0	5.0	0.0
151	carbon resistor 100 ohm	0	0.2	0.0
152	carbon resistor 200 ohm	0	0.2	0.0
153	carbon resistor 300 ohm	0	0.2	0.0
154	carbon resistor 1 k ohm	0	0.2	0.0
155	carbon resistor 2 k ohm	0	0.2	0.0
156	Glucose 100 g	0	3.0	0.0
157	Sodium Hydrogen Carbonate 100 g	5	4.0	20.0
158	Sample slides for alga	0	5.0	0.0
159	Sample slides for Bacteria	0	5.0	0.0
160	Sample slides for Protozoa	0	5.0	0.0
Total				15,367.5

Kamel Al Agha Primary Boys School (Khanyounes)				
No	Experiment Tool	Number	Price/Unit	Total
1	Glass Flask 250 ml	8	7.0	56.0
2	Bunsen Burner with 190g Carriage	10	57.0	570.0
3	Electric Kettle	0	62.0	0.0
4	Cold Glass Surface 20x20 cm	0	13.0	0.0
5	Even Balance with 200 g masses	8	50.0	400.0
6	weights 200 g (already with the balance)	8	28.0	224.0
7	Spring Balance	6	8.0	48.0
8	Measuring Cylinder glass 100 ml	6	11.0	66.0
9	Glass Beaker with a scale 1000 ml	6	11.0	66.0
10	Glass Flask 1000 ml	6	13.0	78.0
11	Iron Ball and Iron ring device	8	16.0	128.0
12	Thermometer	12	5.0	60.0
13	Jugs Demonstration Model	24	39.0	936.0
14	Lamp 2.5V	10	1.0	10.0
15	Crocodile wires 50 cm	40	2.0	80.0
16	Battery 1.5V AA	5	1.0	5.0
17	Coin	0	1.0	0.0
18	Bar Magnet 5 cm	10	8.0	80.0
19	Plastic Stand With Needle	8	6.0	48.0
20	Thread	0	1.0	0.0
21	Plastic Beaker 250 ml	8	4.0	32.0
22	Wood Piece	0	6.0	0.0
23	Distilled water 1 L.	0	4.0	0.0
24	Iron Nail	0	1.0	0.0
25	Iron powder 50 g	3	9.0	27.0
26	Copper wire / 1 meter	5	2.0	10.0
27	Plastic Jar 1.5 kg	0	3.0	0.0
28	Globe Model 32 cm plastic	8	108.0	864.0
29	Tuning Fork	8	9.0	72.0
30	Hummer wooden	8	11.0	88.0
31	Vacuum Vessel	8	183.0	1464.0
32	Bell (Alarm)	8	29.0	232.0
33	Microscope	8	367.0	2936.0
34	Cork	0	1.0	0.0
35	Electronic Balance balance	8	114.0	912.0
36	Stone set	0	75.0	0.0
37	Magnifying Glass	8	4.0	32.0
38	Aluminium Powder 100 g	3	28.0	84.0
39	Sugar 1 kg	0	4.0	0.0
40	Rice	0	11.0	0.0
41	Sulphur powder 100 g	2	13.0	26.0
42	Filter Paper 9 cm	5	9.0	45.0
43	Funnel glass 5 cm	12	4.0	48.0
44	Plastic Bottle 1 L.	0	6.0	0.0
45	Olive Oil 500 ml	0	23.0	0.0
46	Separation Funnel 125 ml	8	23.0	184.0
47	salt 1 kg	0	3.0	0.0
48	Magnesium tape 15 meter	5	18.0	90.0
49	Generator hand operated	8	78.0	624.0
50	Solar cell 2 V	0	13.0	0.0
51	Fan with Motor	8	5.0	40.0
52	Switch	10	2.0	20.0
53	Electroscope	8	27.0	216.0
54	Sand 1 kg	0	5.0	0.0
55	small rocks set	0	34.0	0.0
56	Gypsum 1 kg	0	5.0	0.0
57	Petri's Dish 90 mm plastic	12	1.0	12.0
58	Dissection tools set	10	28.0	280.0
59	Dissection plate 26*16*2 cm	8	23.0	184.0
60	Rubber Gloves box of 100	5	16.0	80.0
61	Sheep heart model	0	57.0	0.0
62	Plastic tube 1 meter	0	3.0	0.0
63	Balloon	0	1.0	0.0
64	Straw 50 pcs	0	3.0	0.0
65	Glue stick	0	4.0	0.0
66	red color water 1 liter	0	7.0	0.0
67	Plastic par	12	5.0	60.0
68	Wool ball	0	4.0	0.0
69	Extension wires / 1 meter	0	2.0	0.0
70	Lamp with a socket	0	2.0	0.0
71	Battery 9 V	0	3.0	0.0
72	U shape Glass tube	12	5.0	60.0
73	Metal stand	8	28.0	224.0
74	Rubber Tube	0	7.0	0.0
75	Syringe 20 ml	1	2.0	2.0
76	Syringe 10 ml	1	1.0	1.0
77	transparent rubber tube 1 meter	3	2.0	6.0
78	Test Tube Plastic Stand	10	11.0	110.0
79	Iron ball 3 cm	8	11.0	88.0
80	Three Glasses : (Water, Oil, Alcohol)	0	23.0	0.0

81	Displacement Flask 500 ml	12	11.0	132.0	
82	Test Tubes 15*150 mm	2	1.0	2.0	
83	Dropper 3 ml plastic	2	0.5	1.0	
84	Glass Beaker 250 ml	0	5.0	0.0	
85	Tripod stand	8	13.0	104.0	
86	Metal net (wire Gauze)	12	3.0	36.0	
87	Volumetric Flask 100 ml	0	11.0	0.0	
88	Dissection Microscope	0	490.0	0.0	
89	Electronic Microscope	0	630.0	0.0	
90	Benedict's solution 100 ml	0	10.0	0.0	
91	Lugol's solution 100 ml	0	10.0	0.0	
92	sodium Hydroxide 100 g	0	3.0	0.0	
93	Copper Sulfate Solution 100 ml	0	4.0	0.0	
94	Ethanol 70% 1 liter	0	15.0	0.0	
95	Indophenol Solution 100 ml	0	11.0	0.0	
96	Starch solution 2% 100 ml	0	6.0	0.0	
97	Iodine solution 100 ml	0	10.0	0.0	
98	Litmas Papers	0	4.0	0.0	
99	Sodium Bicarbonate 100 g	0	2.0	0.0	
100	Scissors	0	9.0	0.0	
101	Stop watch	0	11.0	0.0	
102	blood cells slides	0	6.0	0.0	
103	Iron Sulfate Solution 100 ml	0	13.0	0.0	
104	Ammeter	0	19.0	0.0	
105	Voltmeter	0	19.0	0.0	
106	Multimeter	0	19.0	0.0	
107	Carbon resistances	0	0.2	0.0	
108	Lamp 12v-2w Lamp 12v-4w	0	11.0	0.0	
109	Solar System model	0	188.0	0.0	
110	Prism	0	8.0	0.0	
111	Periodic table poster	0	63.0	0.0	
112	Sodium metal 25 g	0	28.0	0.0	
113	Potassium Metal 2 g	0	40.0	0.0	
114	Calcium Metal 25g	0	28.0	0.0	
115	Carbon Pars 8 cm	0	2.0	0.0	
116	Galvanometer	0	19.0	0.0	
117	Hydrogen Peroxide solution 6% 1 Liter	0	17.0	0.0	
118	Potassium Iodide 50g	0	25.0	0.0	
119	Zinc powder 100 g	0	11.0	0.0	
120	hydrochloric acid 32%	0	13.0	0.0	
121	Copper II sulfate 100 g	0	6.0	0.0	
122	Iron II Sulfate 100 g	0	13.0	0.0	
123	Silver Nitrate 10 g	0	80.0	0.0	
124	copper powder 50 g	3	28.0	84.0	
125	Silver plate	0	28.0	0.0	
126	Copper Chloride 100 g	0	28.0	0.0	
127	Acetic acid 99% 1 L.	0	28.0	0.0	
128	Sodium carbonate 100 g	0	2.0	0.0	
129	Phenolphthalein 100 ml	0	5.0	0.0	
130	Glass Burette 50 ml	0	23.0	0.0	
131	Volumetric Flask 50 ml	0	9.0	0.0	
132	glass Flask 100 ml	0	6.0	0.0	
133	Zinc Plate	0	3.0	0.0	
134	Copper Plate	0	3.0	0.0	
135	Sodium Sulfate Crystals solid 100 g	0	2.0	0.0	
136	Copper Nitrate (II) 50 g	0	23.0	0.0	
137	Iron plate	0	3.0	0.0	
138	Eclipse Model	0	114.0	0.0	
139	Mirrors 10 cm	0	4.0	0.0	
140	Laser Pointers pen	0	20.0	0.0	
141	Covex mirror 5 cm	0	4.0	0.0	
142	Curved mirror 5 cm	0	4.0	0.0	
143	Glass or plastic rectangle block	0	11.0	0.0	
144	Concave lens	0	4.0	0.0	
145	Convex lenses	0	4.0	0.0	
146	Artificial Soil (vermiculite)	0	23.0	0.0	
147	Gibberellic acid (Powder 2.5g / bag)	0	23.0	0.0	
148	Onion sample Slide	0	5.0	0.0	
149	Plant root sample Slide	0	5.0	0.0	
150	leaf sample Slides	0	5.0	0.0	
151	carbon resistor 100 ohm	0	0.2	0.0	
152	carbon resistor 200 ohm	0	0.2	0.0	
153	carbon resistor 300 ohm	0	0.2	0.0	
154	carbon resistor 1 k ohm	0	0.2	0.0	
155	carbon resistor 2 k ohm	0	0.2	0.0	
156	Glucose 100 g	0	3.0	0.0	
157	Sodium Hydrogen Carbonate 100 g	0	4.0	0.0	
158	Sample slides for alga	0	5.0	0.0	
159	Sample slides for Bacteria	0	5.0	0.0	
160	Sample slides for Protozoa	0	5.0	0.0	
				Total	12,367.0

Bilal Bin Rabah Primary School (Al Westa)

No	Experiment Tool	Number	Price/Unit	Total
1	Glass Flask 250 ml	15	7.0	105.0
2	Bunsen Burner with 190g Cardidge	0	57.0	0.0
3	Electric Kettle	8	62.0	496.0
4	Cold Glass Surface 20x20 cm	10	13.0	130.0
5	Even Balance with 200 g masses	5	50.0	250.0
6	weights 200 g (already with the balance)	10	28.0	280.0
7	Spring Balance	10	8.0	80.0
8	Measuring Cylinder glass 100 ml	10	11.0	110.0
9	Glass Beaker with a scale 1000 ml	10	11.0	110.0
10	Glass Flask 1000 ml	10	13.0	130.0
11	Iron Ball and Iron ring device	0	16.0	0.0
12	Thermometer	10	5.0	50.0
13	Lungs Demonstration Model	0	39.0	0.0
14	Lamp 2.5V	15	1.0	15.0
15	Crocodile wires 50 cm	30	2.0	60.0
16	Battery 1.5V AA	10	1.0	10.0
17	Coin	0	1.0	0.0
18	Bar Magnet 5 cm	10	8.0	80.0
19	Plastic Stand With Needle	10	6.0	60.0
20	Thread	0	1.0	0.0
21	Plastic Beaker 250 ml	0	4.0	0.0
22	Wood Piece	0	6.0	0.0
23	Distilled water 1 L	10	4.0	40.0
24	Iron Nail	0	1.0	0.0
25	Iron powder 50 g	1	9.0	9.0
26	Copper wire / 1 meter	3	2.0	6.0
27	Plastic Jar 1.5 kg	0	3.0	0.0
28	Globe Model 32 cm plastic	4	108.0	432.0
29	Tuning Fork	10	9.0	90.0
30	Hammer wooden	10	11.0	110.0
31	Vacuum Vassel	5	183.0	915.0
32	Bell (Alarm)	5	29.0	145.0
33	Microscope	8	367.0	2936.0
34	Cork	10	1.0	10.0
35	Electronic Balance balance	5	114.0	570.0
36	Stone set	0	75.0	0.0
37	Magnifying Glass	10	4.0	40.0
38	Aluminium Powder 100 g	1	28.0	28.0
39	Sugar 1 kg	0	4.0	0.0
40	Rice	0	11.0	0.0
41	Sulphur powder 100 g	1	13.0	13.0
42	Filter Paper 9 cm	5	9.0	45.0
43	Funnel glass 5 cm	10	4.0	40.0
44	Plastic Bottle 1 L	0	6.0	0.0
45	Olive Oil 500 ml	0	23.0	0.0
46	Separation Funnel 125 ml	10	23.0	230.0
47	salt 1 kg	0	3.0	0.0
48	Magnesium tape 15 meter	5	18.0	90.0
49	Generator hand operated	5	78.0	390.0
50	Solar cell 2 V	10	13.0	130.0
51	Fan with Motor	10	5.0	50.0
52	Switch	10	2.0	20.0
53	Electroscope	10	27.0	270.0
54	Sand 1 kg	0	5.0	0.0
55	small rocks set	0	34.0	0.0
56	Gypsum 1 kg	1	5.0	5.0
57	Petri's Dish 90 mm plastic	0	1.0	0.0
58	Dissection tools set	10	28.0	280.0
59	Dissection plate 26*16*2 cm	10	23.0	230.0
60	Rubber Gloves box of 100	5	16.0	80.0
61	Sheep heart model	0	57.0	0.0
62	Plastic tube 1 meter	0	3.0	0.0
63	Balloon	0	1.0	0.0
64	Straw 50 pcs	0	3.0	0.0
65	Glue stick	0	4.0	0.0
66	red color water 1 liter	0	7.0	0.0
67	Plastic par	5	5.0	25.0
68	Wool ball	0	4.0	0.0
69	Extension wires / 1 meter	0	2.0	0.0
70	Lamp with a socket	10	2.0	20.0
71	Battery 9 V	10	3.0	30.0
72	U shape Glass tube	5	5.0	25.0
73	Metal stand	5	28.0	140.0
74	Rubber Tube	0	7.0	0.0
75	Syringe 20 ml	5	2.0	10.0
76	Syringe 10 ml	5	1.0	5.0
77	transparent rubber tube 1 meter	25	2.0	50.0
78	Test Tube Plastic Stand	0	11.0	0.0
79	Iron ball 3 cm	5	11.0	55.0
80	Three Glasses : (Water, Oil, Alkohol)	0	23.0	0.0
81	Displacement Flask 500 ml	10	11.0	110.0
82	Test Tubes 15*150 mm	20	1.0	20.0
83	Dropper 3 ml plastic	10	0.5	5.0
84	Glass Beaker 250 ml	0	5.0	0.0
85	Tripod stand	10	13.0	130.0
86	Metal net (wire Gauze)	0	3.0	0.0
87	Volumetric Flask 100 ml	2	11.0	22.0
88	Dissection Microscope	0	490.0	0.0
89	Electronic Microscope	0	630.0	0.0
90	Benedict's solution 100 ml	1	10.0	10.0
91	Lugol's solution 100 ml	1	10.0	10.0
92	sodium Hydroxide 100 g	5	3.0	15.0
93	Copper Sulfate Solution 100 ml	5	4.0	20.0
94	Ethanol 70% 1 liter	5	15.0	75.0
95	Indophenol Solution 100 ml	3	11.0	33.0
96	Starch solution 2% 100 ml	3	6.0	18.0
97	Iodine solution 100 ml	3	10.0	30.0
98	Litmus Papers	5	4.0	20.0
99	Sodium Bicarbonate 100 g	0	2.0	0.0
100	Scissors	10	9.0	90.0
101	Stop watch	10	11.0	110.0
102	blood cells slides	20	6.0	120.0
103	Iron Sulfate Solution 100 ml	3	13.0	39.0
104	Ammeter	5	19.0	95.0
105	Vohimeter	5	19.0	95.0
106	Multimeter	5	19.0	95.0
107	Carbon resistances	10	0.2	2.0
108	Lamp 12v-2w Lamp 12v-4w	40	11.0	440.0
109	Solar System model	7	188.0	1316.0
110	Prism	10	8.0	80.0
111	Periodic table poster	2	63.0	126.0
112	Sodium metal 25 g	1	28.0	28.0
113	Potassium Metal 2 g	1	40.0	40.0
114	Calcium Metal 25g	0	28.0	0.0
115	Carbon Pars 8 cm	10	2.0	20.0
116	Galvanometer	0	19.0	0.0
117	Hydrogen Peroxide solution 6% 1 Liter	2	17.0	34.0
118	Potassium Iodide 50g	0	25.0	0.0
119	Zinc powder 100 g	10	11.0	110.0
120	hydrochloric acid 32%	5	13.0	65.0
121	Copper II sulfate 100 g	3	6.0	18.0
122	Iron II Sulfate 100 g	0	13.0	0.0
123	Silver Nitrate 10 g	0	80.0	0.0
124	copper powder 50 g	0	28.0	0.0
125	Silver plate	0	28.0	0.0
126	Copper Chloride 100 g	0	28.0	0.0
127	Acetic acid 99% 1 L	3	28.0	84.0
128	Sodium carbonate 100 g	1	2.0	2.0
129	Phenolphthalein 100 ml	5	5.0	25.0
130	Glass Burette 50 ml	10	23.0	230.0
131	Volumetric Flask 50 ml	10	9.0	90.0
132	glass Flask 100 ml	0	6.0	0.0
133	Zinc Plate	0	3.0	0.0
134	Copper Plate	0	3.0	0.0
135	Sodium Sulfate Crystals solid 100 g	0	2.0	0.0
136	Copper Nitrate (II) 50 g	0	23.0	0.0
137	Iron plate	0	3.0	0.0
138	Eclipse Model	0	114.0	0.0
139	Mirrors 10 cm	20	4.0	80.0
140	Laser Pointers pen	10	20.0	200.0
141	Convex mirror 5 cm	20	4.0	80.0
142	Curved mirror 5 cm	20	4.0	80.0
143	Glass or plastic rectangle block	20	11.0	220.0
144	Concave lens	20	4.0	80.0
145	Convex lenses	20	4.0	80.0
146	Artificial Soil (vermiculite)	0	23.0	0.0
147	Gibberellic acid (Powder 2.5g / bag)	1	23.0	23.0
148	Onion sample Slide	10	5.0	50.0
149	Plant root sample Slide	10	5.0	50.0
150	leaf sample Slides	10	5.0	50.0
151	carbon resistor 100 ohm	10	0.2	2.0
152	carbon resistor 200 ohm	5	0.2	1.0
153	carbon resistor 300 ohm	10	0.2	2.0
154	carbon resistor 1 k ohm	10	0.2	2.0
155	carbon resistor 2 k ohm	10	0.2	2.0
156	Glucose 100 g	0	3.0	0.0
157	Sodium Hydrogen Carbonate 100 g	1	4.0	4.0
158	Sample slides for alga	20	5.0	100.0
159	Sample slides for Bacteria	20	5.0	100.0
160	Sample slides for Protozoa	20	5.0	100.0
			Total	14,708.0

