ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

OECD Programme for International Student Assessment

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NATIONAL PROJECT MANAGER'S MANUAL

Learning for Living

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1.   INTRODUCTION

1.1   Overview of the Organisation for Economic Co-operation and Development (OECD) Programme for International Student Assessment (PISA)

Note to NPM

The following text comes from the Web site (www.pisa.oecd.org) and is provided for your use in developing brochures, manuals, and other informational materials.

1.1.1   What is OECD/PISA?

An international assessment of the skills and knowledge of 15 year olds. Developed jointly by OECD Member countries, the Programme for International Student Assessment (PISA) aims to assess how far students approaching the end of compulsory education have acquired some of the knowledge and skills that are essential for full participation in society.

A collaboration between governments. PISA is a collaborative process. It brings together scientific expertise from participating countries and is steered jointly by their governments, through the OECD, on the basis of shared, policy-driven interests. Countries are working together to produce a method of assessing students that is valid across countries, that is strong at measuring relevant skills and that is based on authentic life situations.

A regular monitoring device. The first PISA assessment will take place in 2000. Thereafter assessments will occur every three years. Three "domains": reading literacy, mathematical literacy and scientific literacy, form the core of each cycle—but two thirds of testing time in each cycle will be devoted to a "major" domain, assessed in depth. Major domains are reading literacy in 2000, mathematical literacy in 2003 and scientific literacy in 2006.

A large-scale international survey. Samples of between 4,5000 and 10,000 students will be assessed in each country. A sample of students in each country will complete a variety of pencil and paper tasks. They will also complete a questionnaire about their background and attitudes.

1.1.2 What Makes PISA Unique?

Its primary focus is on public policy issues. Governments want to answer such questions as: "Are our schools preparing children for full participation in society?"; "What educational structures and practices maximise the opportunities of students from disadvantaged backgrounds?"; "How much influence does the quality of school resources have on student outcomes?" PISA is designed to add to the understanding of these issues, in particular by providing a consistently reported set of results across a large number of countries.

Underlying PISA is a dynamic model of *lifelong learning* in which new knowledge and skills necessary for successful adaptation to a changing world are continuously acquired throughout life. Students cannot learn in school everything they will need to know in adult life. To be effective lifelong learners, they need a solid foundation in key domains such as reading literacy, mathematics and science. They must also be able to organise and regulate their own learning, to learn independently and in groups, and to overcome difficulties in the learning process. This requires them to be aware of their own thinking processes and learning strategies and methods. To assess these aspects, PISA will not only assess the knowledge and skills of students but also ask students to report on their own, self-regulated learning, their motivational preferences and their preferences for different types of learning situations.

It provides a predictable tool for monitoring over time. The commitment to cover each assessment domain, in detail every nine years, and with updates every three, will make it possible for countries to monitor, regularly and predictably, their progress in meeting key learning objectives.

It tests competencies for real-life situations. Previous international assessments have concentrated on "school" knowledge. The new OECD assessments aim at measuring how well students perform beyond the school curriculum in the domains assessed.

1.1.3   What is Being Assessed?

Student knowledge and skills. PISA will assess some of the knowledge and skills that enable students to participate fully in society and the economy and to become lifelong learners. Some elements, such as the mastery of key scientific concepts, are likely to be part of the school curriculum, but the PISA assessments will go beyond mastery of a defined body of knowledge of the type included in many school subjects. They will look at students' ability to reflect actively on their knowledge and experience and to address issues that will be relevant to their own future lives.

Multiple aspects of educational outcomes. PISA 2000 will assess three "domains": reading literacy, mathematical literacy and scientific literacy. The term "literacy" is chosen to reflect the breadth of the knowledge, skills and competencies being assessed. The assessment domains are defined in terms of: the content or structure of knowledge that students need to acquire in each domain; the processes that need to be performed; and the contexts in which knowledge and skills are applied. For each domain there will be a continuous scale on which the performance levels of individuals and the distributions of performances of populations can be represented by scores. There will not be a single cut-off between "literate" and "illiterate" but, instead, student performance will be defined through a series of successive levels of proficiency.

Broader attitudes and abilities. Competencies that cross curriculum boundaries will have a growing importance in PISA as it develops over time. PISA 2000 will analyse *student motivation* and other aspects of *student attitudes*, under the heading "self-concept". In 2003, PISA will also specifically assess students' ability to solve problems.

Reading literacy requires students to perform a range of tasks with different kinds of text. The tasks range from retrieving specific information to demonstrating a broad understanding and interpreting text and reflecting on its content and features. The texts that are used will include not just standard prose passages but also various types of documents such as lists, forms, graphs, and diagrams.

Mathematical literacy entails the use of mathematical competencies at several levels, ranging from performance of standard mathematical operations to mathematical thinking and insight. It also requires the knowledge and application of a range of mathematical content that is drawn from areas such as chance, change and growth, space and shape, quantitative reasoning, uncertainty and dependency relationships. This includes specific areas of the mathematics curriculum, such as algebra, numbers and geometry.

Scientific literacy involves the use of key scientific concepts in order to understand and help make decisions about the natural world. It also involves being able to recognise scientific questions, use evidence, draw scientific conclusions and communicate these conclusions. Scientific concepts relevant to the students' world both now and in the near future will be used. These include concepts to do with science in life and health, earth and the environment, and technology.

1.1.4   What will Come Out of PISA?

A range of publications will report PISA results, starting in 2001. A first international report will present the overall results, while national governments will develop their own reporting methods, putting results in the context of their own education systems and. The OECD will also publish a series of analytical reports examining the implication of PISA results for policy. Finally, a rich array of data from the survey will be made available to others who wish to conduct their own analyses. Results will be summarised on the PISA website (http://www.pisa.oecd.org/).

PISA results will provide a baseline profile of the knowledge and skills of students. In each domain, students' achievement levels will be reported on a continuum describing their capacity to perform

specific tasks. Breakdowns will also be possible for sub-groups defined by student characteristics - such as achievement by gender or by socio-economic group.

Analyses will seek to identify key demographic, social, economic and educational determinants of student and school performance. PISA will provide an extensive basis for policy-oriented analysis of the assessment results. For example, PISA will:

- Relate student performance to the context of instruction;
- Analyse the relationships between student performance and school factors such as the quality of the school's human and material resources or public and private control, funding and decision-making mechanisms;
- Analyse differences in achievement patterns within countries, including information on the proportion of variation in student performance between, rather than within, schools as well as the extent to which schools influence the relationship between students' performance and the economic, social and cultural capital of their families;
- Compare aspects of students' lives such as their attitudes to learning and their life in school and in their family environment.

Every three years, a new set of findings and analysis will provide information on how student characteristics are changing. By comparing the direction and pace of change in different countries, policy makers will be able to put local developments in the context of global change to meet the challenges of the new century.

1.1.5   How will the Assessments be Carried Out?

A range of assessment items. PISA 2000 assessments will be in printed form, and students will write their answers. Students will be required to read a number of written passages (sometimes combined with diagrams) and answer questions about them. Some questions will be multiple-choice while others will require students to construct their own responses. The objective of much of the assessment material will be to determine whether students can reflect and think actively about the domain, rather than simply repeat knowledge that they have learned.

Development of items valid across countries. One of the most important features of PISA is that it will test genuinely useful skills and knowledge in ways that are valid across many different countries.

During 1999 a large number of test items were tried out in all participating countries. The results of the trials have been used to select items that contribute to indicators of useful skills and knowledge and that are valid for making comparisons of students in different countries.

An equivalent of nearly seven hours of test time. The assessment of individual students will last two hours but, because different students will be assessed with different combinations of material, the items included will add up to nearly seven hours of assessment material. This will ensure a wide coverage of the domains.

Background information will also be gathered. Each student will spend about 20 minutes, and each school principal about 30 minutes, responding to a questionnaire. These questionnaires will provide important contextual information to assist in the interpretation and analysis of the results.

The assessments are carried out in students' own schools.

1.1.6 The Context of PISA in the OECD

The Organisation for Economic Co-operation and Development (OECD) is a global organisation, permitting its Member governments to study and formulate best policies in all economic and social spheres. The issues that the 29 Member countries deal with reflect the current primary concerns of their leaders and citizens. Among them are:

- The creation of employment, economic growth and rising living standards through fiscal, monetary and structural economic policies;
- Managing competition among nations in an era of globalisation of production and of continuing opening of borders to trade and investment;
- Improving the efficiency of government and the quality of public-sector spending and taxation;
- The enhancement of the human capital of nations through education and training.

The OECD's education programme has for the past ten years been working with Member countries to improve international indicators of educational performance. Every year, a wide range of indicators is published in OECD's *Education at a Glance*. These provide comparative information on the human and

financial resources invested in education, on how education and learning systems operate and evolve, and on the returns to educational investment.

The absence of regular and reliable measures of educational outcomes across countries, especially measures of skills, remains the most significant gap in the indicators. In the past few years the OECD has set out to help directly to improve outcome measures, by working with Member countries to organise internationally comparable surveys focusing on the competencies that are needed in modern life.

The first of these, the International Adult Literacy Survey, looked at the extent to which people of working age are able to use reading skills to perform everyday tasks. This approach is now being widened to look beyond literacy to assess adult skills such as problem solving, teamwork and use of information and communication technology, in the International Life Skills Survey, to be carried out in 2002. With PISA, for the first time, skills for life are being assessed among school students. Results from all of these initiatives will inform policy development in education and training.

1.1.7   PISA Project Consortium

PISA will be implemented through an international consortium which is led by the Australian Council for Educational Research (ACER). The consortium also includes: The Netherlands National Institute for Educational Measurement (CITO), Educational Testing Service (ETS) and Westat from the United States of America, and the National Institute for Educational Research (NIER) from Japan. The PISA 2000 consortium has extensive experience in designing and implementing assessment systems both in national and international contexts and brings together world-class scientific expertise from 30 countries.

1.1.8   Further Information

- **Measuring Student Knowledge and Skills—A New Framework for Assessment** provides a detailed description of PISA and each of its measurement domains. Available from:
    - OECD Publications, 2 rue André-Pacal 75775 Paris Cedex 16
    - Tel: (33-1) 4910 4235, Fax: (33-1) 4910 4276, email: sales.oecd.org
    - Online orders: oecd-bookshop.att.fr

price FF 150, US$ 25, DM 45, £ 15, Y 3200

- Regularly updated information on PISA can be found at www.pisa.oecd.org
- For further information about PISA please contact:
  Andreas Schleicher, OECD/DEELSA Statistics and Indicators Division
  2 rue André-Pascal 75775 Paris Cedex 16 Tel: (33-1) 4524 9366, Fax: (33-1) 4524 9098 email: Andreas.Schleicher@OECD.org

1.2 Schedule of PISA Activities and Project Milestones

Date	Milestone
Project Milestones	
Date	***Milestone***
Feb~~Jan~~. 1998	Project Commences
Mar~~Feb~~. 1998	Functional Expert Groups Convene
May 1998	First NPM Meeting
Jun. 1998	Frameworks Finalised
Oct. 1998	Field Trial Sampling Plan Complete
Oct. 1998	NPMs Endorse Field Trial Instruments
Dec. 1998	Analysis Plans Finalised
1999	
Feb. ~~Mar.~~ 1999	Field Trial Training Sessions
Apr.-Jun. 1999	Field Trial
Jun.-Oct~~Aug~~. 1999	Field Trial Reports to Participants
Aug. 1999	Main Study Sampling Plan Complete
Aug. 1999	Field Trial Review Report
Nov. 1999	Expert Groups and Consortium produce final instruments
Nov~~Dec~~. 1999	NPMs Endorse Main Study Instruments
2000	
Feb. 2000	Main Study Training Sessions
Mar.-Jun. 2000	Main Study (Northern)
Aug.-Sep. 2000	Main Study (Southern)
Jul~~n~~.-Oct. 2000	Main Study Reports to Participants
Dec. 2000	Expert Groups and Consortium propose item treatment
Dec. 2000	NPMs Endorse Item Treatment
Dec. 2000	NPMs Endorse Draft Indicator Plans
2001	
Feb. 2001	International Scaling and Questionnaire Analysis Complete
Apr. 2001	Proficiency Scales Completed
May 2001	NPMs Endorse Initial Indicators
Jun. 2001	Release of First Indicators
Dec. 2001	Technical Report, Cycle Review Report, Cycle One Complete

1.3   The National Project Manager's Manual

1.3.1   Purpose of the Manual

The National Project Manager (NPM) for each country is responsible for the implementation of the project within their country. This NPM's Manual has been prepared by the members of the Consortium to provide the detailed information required by NPMs and other National Centre staff members to carry out these responsibilities.

Materials and procedures can always be improved for future cycles. Feedback from NPMs participating in the field trial was very important to this process. The members of the consortium thank the NPMs for their comments and welcome further suggestions. If any of the information provided in this manual is unclear or if there are questions that are not addressed, please contact the PISA International Project Centre as follows:

Ray Adams   Telephone: 61 (3) 9277 5604
PISA International Project Director   FAX: 61 (3) 9277 5500
ACER   email: ADAMS@ACER.EDU.AU or
                                           PISA@ACER.EDU.AU

1.3.2   Organisation of the Manual

This manual contains the following chapters:

- **Chapter 1** contains introductory information.
- **Chapter 2** summarises field operations roles and responsibilities, with a focus on the responsibilities of NPMs and National Centres.
- **Chapter 3** explains procedures for selecting the school sample.
- **Chapter 4** contains the instructions for translating test instruments and materials.
- **Chapter 5** describes procedures for sampling~~electing~~ students~~ samples~~ from within participating schools.
- **Chapter 6** includes instructions for the assembly of assessment booklets and questionnaires.
- **Chapter 7** provides an overview of coding and data entry.
- **Chapter 8** describes the documentation that the International Project Centre expects to receive from National Centres after the main study has been completed.

1.4   Acknowledgements

The PISA manuals were developed by members of the Consortium and were based on other international manuals as well as manuals from national studies with which consortium members are familiar. These PISA manuals were first used during the field trial. After the field trial, NPMs made comments and suggestions for improvements in their field trial reports. All such comments and suggestions were carefully considered by Consortium staff in revising the manuals for the main study, and we wish to acknowledge the NPMs for their thoughtful review.

In addition, a small group of NPMs deserves special mention. These NPMs were asked to review the final drafts of the main study manuals under a very tight timeline. Each of them contributed enormously to the revision process. Their comments were insightful and greatly improve the final product. Therefore, the Consortium would like to acknowledge the special contributions of: Judith Cosgrove, Baljit Gill, Marit Kjarnsli, Marc Lachance, Svein Lie, Steve May, and Dianne Pennock.

2. FIELD OPERATIONS, ROLES, AND RESPONSIBILITIES

2.1 Overview

It is assumed that NPMs will organise PISA field operations according to a model that has been used in other international studies. This model has three components: the NPM and National Centre at the national level; a School Co-ordinator responsible for all project-related activities within a particular school; and Test Administrators responsible for the conduct of the actual test sessions within one or more participating schools.

This model results from the requirement that the Test Administrator not be a teacher of the students being assessed and preferably not a staff member at any of the participating schools. If the Test Administrator is not located within the school, someone within the school, the School Co-ordinator, usually is needed to work with school staff and students in preparing for the testing.

Exhibit 2-1, the Field Operations Chart, identifies the roles and responsibilities of these three components. As shown in the chart, staff of the National Centre, including the NPM, are central to the successful conduct of the study. The School Co-ordinator, as the title implies, co-ordinates school-related activities with the National Centre and Test Administrator. The Test Administrator's primary responsibility is to administer the test fairly, impartially and uniformly in accordance with international standards.

It is recognised that countries may differ in the way they organise tasks for their field operations. Depending on this organisation, the activities assigned to one component in the chart may, in fact, be carried out by another component in a particular country. The intent of the chart is to identify all the activities required to conduct PISA successfully and to provide one suggested model for how activities might be allocated, not to specify who must carry out each activity.

The responsibilities of the NPM are described in detail in this manual and in the PISASchool Sampling

Manual. The activities of the School Co-ordinator and Test Administrator are described in their respective

manuals.

Exhibit 2-1. Field Operations Roles and Responsibilities

NATIONAL PROJECT MANAGER (NPM)	SCHOOL CO-ORDINATOR (SC)	TEST ADMINISTRATOR (TA)
Responsible for implementation of the project within the country.	Responsible for co-ordinating all PISA-related activities in the school.	Responsible for conducting PISA assessment in one or more sampled schools.
Select school sample and obtain school co-operation.		
Establish a date and time for test in co-ordination with SC.	Establish a date and time for test in co-ordination with NPM.	Receive training and thoroughly review the TA Manual and scripts.
Hire and train TAs.	Review the SC manual.	Receive test materials from NPM and ensure their security.
Translate and adapt test instruments, manuals, and other materials.	Prepare a Student or Class Listing Form (complete list of all students or classes eligible for testing); send it to NPM.	Co-operate fully with SC. Call 1 to 2 weeks before the test day to confirm plans.
Send schools instructions for preparing lists of eligible students.	Receive the Student Tracking Form (list of sampled students) from NPM, and update it.	Complete final arrangements on assessment day.
Select student sample and send Student Tracking Forms (lists of sampled students) to selected schools and TAs.	Receive, distribute, and collect the School Questionnaire; deliver to TA.	Conduct test sessions, adhering strictly to PISA procedures.
Oversee printing of test booklets and questionnaires.	Inform school staff, students, and parents; secure parental permission if required.	Conduct a Follow-up Session, if needed.
Maintain contact with International Project Centre School Quality Monitors.	Inform the NPM and TA of any assessment date or time changes.	Complete the Student Tracking Form.
Co-ordinate activities of TAs and School Quality Monitors.	Identify students who cannot participate in PISA.	Complete the Session Report Form.
Oversee packing and shipping of materials.	Assist the TA with room arrangements on the test day.	Receive the School Questionnaire from the SC, send with the test material.
Oversee receipt of materials from schools, marking, and data entry.	Ensure that students attend the test session (and any Follow-up Session).	Prepare material for shipping; send to NPM.
Send completed materials to the PISA International Project Centre.	Arrange for a Follow-up Session, if needed.	
Prepare activities report of main survey.		
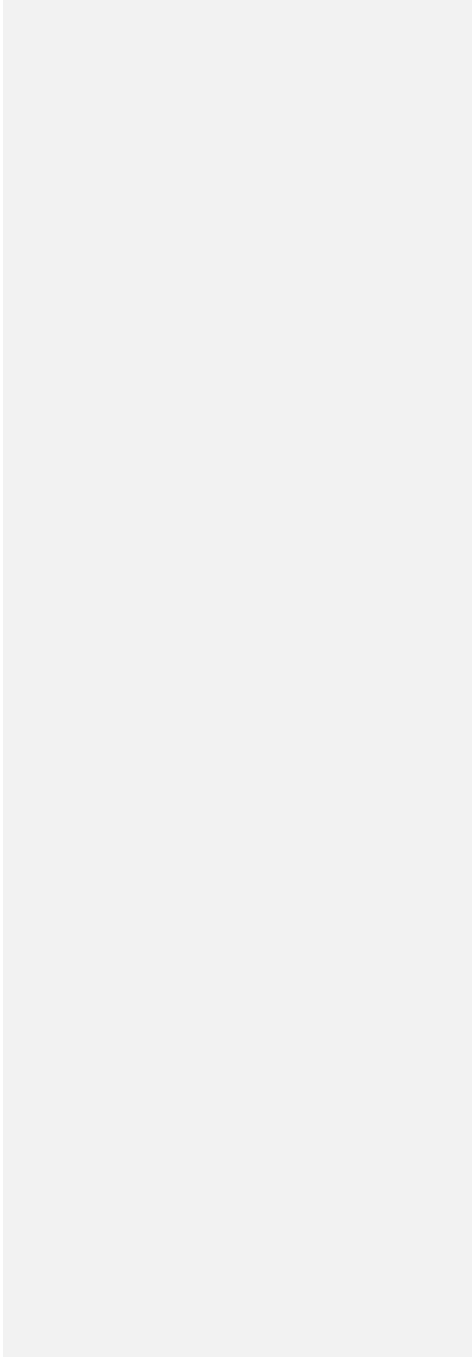
Note to NPM

Do not hesitate to contact the International Study Centre if you have any questions about how to apply the procedures described in this manual in your country.

2.2 Role of the NPM and the National Centre

The NPM has overall responsibility for the within-country implementation of PISA following international standards and procedures. As such, the NPM has a wide range of responsibilities, including but not limited to the field operations activities described in this manual. It is assumed that the NPM will have staff at the National Centre to assist with these responsibilities.

The rest of this section provides detailed information on each of the NPM and National Centre responsibilities listed in the table.

2.2.1 Select School Sample

NPMs are responsible for the selection of the sample of schools to participate in the field test. Procedures or selecting the school sample and for documenting this selection are described in detail in the PISASchool Sampling Manual. Chapter 3 contains an overview of these procedures.

2.2.2 Translate and Adapt Test Instruments, Manuals, and Materials

NPMs must arrange for the adaptation and translation of the assessment booklets, questionnaires and manuals into their testing language(s). Translated materials should be submitted to the International Project Centre for review and approval before the testing takes place. Chapter 4 of this manual describes the translation verification and approval process and the forms that should be completed by National Centres. It also contains instructions regarding adapting the manuals to reflect national differences in the project organisation.

2.2.3   Obtain School Co-operation

It is critical to the credibility of the PISA project that school participation rates be as high as possible. Countries not meeting study guidelines will be flagged or possibly eliminated from international reports.

Procedures for securing school co-operation will vary from country to country. In some countries, participation is not a problem. All selected schools are expected to participate and do so. In other countries, it is very difficult to get schools to participate. Reasons for these difficulties vary from concerns about too much testing and loss of instructional time to the burden on students, teachers, and school staff.

The following suggestions may help to assure school co-operation:

- **Develop informational materials that address the particular concerns of the educational system within the country.** Although international materials provide useful information and examples, each National Centre needs to develop a strategy for addressing the special needs and concerns of its own system.
- **Develop a strategy and follow protocol to notify appropriate authorities.** In many systems, there is an established hierarchy of authority that should be contacted in a defined order. Letters, informational materials, telephone calls and personal visits are all useful ways for contacting the appropriate authorities. Some of these approaches may be more effective than others with different levels of authority. Therefore, it is important to develop a plan or strategy that defines how contacts will be made and what information will be provided to each of the different levels.
- **Secure permission where required.** In some systems, it is not enough to notify the appropriate authorities; permission must be obtained. This would include permission from one governmental level to contact another and permission from a governing board to contact individual schools. Obtaining permission can be time-consuming. It is important to begin the process of securing co-operation early enough to permit the necessary permissions to be obtained.
- **Decide whether incentives will be offered.** In other studies, countries have tried a variety of incentives, including the following: cash payments, instructional materials, study reports, certificates of appreciation, posters and banners. NPMs should decide whether incentives can or should be offered in their countries.
- **Identify a School Co-ordinator within each participating school.** An important part of securing the co-operation of the selected school is to identify someone within the school who will act as the School Co-ordinator. As the liaison between the school and the project, the School Co-ordinator is very important to the success of the project. In some studies, even if no incentives are offered to the schools, the School Co-ordinators are paid a small honorarium in appreciation for their time and effort.
- **Establish the testing schedule in consultation with the School Co-ordinator.** The School Co-ordinators know the schools and their schedules. The NPM should work with each School Co-ordinator to set a testing date that is convenient for the school and also for the Test Administrator.
- **Share approaches that have worked with other NPMs.** Although not a requirement, sharing information about approaches that have worked is an important part of participating in PISA. The

International Project Centre encourages all NPMs to submit information to the web site or to Consortium staff. Example letters, informational materials, and general descriptions of successful approaches will be of interest to Consortium staff and other NPMs as plans for year 2000 are refined.

2.2.4   Send Schools Instructions for Preparing a List of Eligible Students

It is very important that the student sample represent current enrollments. Students should be selected from lists that are accurate and complete. This means that the list should not be prepared too far in advance of the testing and that all age <grade> eligible students should be listed.

Chapter 5 of this manual, which is devoted to student sample selection, contains the instructions for preparing the list of eligible students as well as the procedures that should be followed to select the student samples.

It is suggested that the instructions for preparing the lists be sent to the School Co-ordinator responsible for preparing the list about 2 months before testing is to begin in the country. It is further suggested that the individuals who prepare the lists be instructed to send the lists to the NPM at least 6 weeks before testing is to begin. Allowing some time to retrieve late lists, this will permit the NPM to select the student samples and send the lists of the selected students back to the schools at least 2 weeks prior to testing. This schedule may be affected by school vacations and holidays. NPMs should be aware of the impact of these events and modify the schedule accordingly.

Although it is assumed that the lists of students will contain names, it is not critical to the sampling process as long the lists contain a unique student identifier. A student identification number, for example, is an acceptable way to identify the student.

The procedures described in Chapter 5 specify that all students be listed, including students who will be excluded from testing because of a disability or limited proficiency in the language(s) in which the test is being offered. **It is very important that exclusions be minimal and that all students be given the opportunity to take part in PISA unless they are incapable of doing so**.

2.2.5   Select Student Samples and Notify Schools

Once NPMs have received the lists of eligible students, the student sample should be selected for each school. Chapter 5 describes two approaches to selecting the student sample. The first is to use the PISA student sampling software prepared by the Consortium. The second is to select a random start number and then calculate the sampling interval following the instructions found in Chapter 5.

Once the student sample has been selected, a Student Tracking Form should be prepared for each school. The Student Tracking Form is the central administration document for the study. When a Student Tracking Form is sent to a school, it serves as the complete list of the student sample. Once booklets have been assigned to students, the Student Tracking Form becomes the link between the students, the Assessment Booklets and Student Questionnaires that they receive. After the testing, the results of the session are entered on the Student Tracking Form and summarised. The Student Tracking Form is sent back to the National Centre with the test instruments and is used to make sure that all materials are accounted for correctly.

2.2.6   Oversee Assembly and Printing of Test Booklets and Questionnaires

The approved translated documents should be assembled according to the instructions found in Chapter 6. A set of the printed instruments should be sent to the International Project Centre before the beginning of testing.

2.2.7 Hire and Train Test Administrators

The International Project Centre has established the following criteria for Test Administrators:

> It is required that the Test Administrator not be the reading, mathematics or science instructor of any students in the sessions he or she will administer.
>
> It is recommended that the Test Administrator not be a member of the staff of any school where he or she will administer PISA.
>
> It is preferred that the Test Administrator not be a member of the staff of any school in the PISA sample.

These criteria were established for a variety of reasons including the following:

- To minimise burden on the participating schools;
- To establish the credibility of PISA as valid and unbiased; and
- To encourage uniformity in the administration of testing sessions.

Although it is preferable that the test administrators not be staff members of any schools in the PISA sample, it is recognised that this is not always possible. It is permissible for a staff member from one school to be the Test Administrator in another school, for example. Similarly, although it is recommended that Test Administrators not belong to the staff of any school where they will administer PISA, again it is recognised that this is not always possible. Therefore, it is permissible for a staff member from within the school to be the Test Administrator as long as this person is not a reading, science or mathematics instructor of the sampled students.

In this latter case, where the Test Administrator comes from within the school, the roles and responsibilities of the Test Administrator and School Co-ordinator could be combined. If the roles are combined, then the manuals describing their activities could be combined as well.

Although PISA does not require that Test Administrators meet specific academic or professional requirements, they should be familiar with schools and how they operate and with standardised testing procedures. In some countries Test Administrators will have to be fully qualified teachers.

Before the beginning of PISA testing in each country, National Centres should train the Test Administrators. In late February 2000, Consortium staff will train National Centre staff on main survey field procedures, including the training of Test Administrators.

2.2.8 Co-ordinate Activities of Test Administrators and School Quality Monitors

The Consortium will employ School Quality Monitors who will visit a sample of the participating schools. The purposes of these visits are to: (1) make sure that PISA procedures are being followed correctly and (2) to learn about ways to improve PISA administration in the future.

School Quality Monitors will be recommended by the NPMs and hired by the Consortium. Like the Test Administrators, the School Quality Monitors should be familiar with schools and standardised testing. The School Quality Monitors will be trained by Consortium staff as part of National Centre quality monitoring.

The school quality monitoring site visits are to be unannounced visits. This means that the schedule for testing cannot change unless the NPM, Test Administrator and School Quality Monitor are fully informed. Although changes should not be made in the testing schedule without cause, it is recognised that changes will need to be made occasionally.

It is important that there be a central repository for information about the testing schedule. It is suggested that the National Centre should be the central location for this information, and School Co-ordinators, Test Administrators and School Quality Monitors should consult with the National Centre frequently to confirm schedules.

2.2.9 Oversee Packing and Shipping of All Materials

National Centres will package and ship assessment materials. In order to protect test security, it is strongly recommended that the test booklets and student background questionnaires be sent to the Test Administrators rather than to the schools. If there are compelling reasons for shipping directly to the participating schools, the NPM must ensure that test security is not compromised. To do so, the secure

instruments may be packaged in bundles that are secured with strapping tape or sealed in plastic so that it will be obvious to the School Quality Monitor if the package has been opened inappropriately.

National Centres may choose to package sets of materials for students; that is, they may pre-assemble envelopes containing the Assessment Booklet and the Student Background Questionnaire to be used by each student. Sealing the envelopes will secure the materials. Chapter 6 describes procedures for packing and shipping PISA materials.

All students should have a ruler to use during the assessment. These may be provided by the National Centre, the school, or the students. If students will bring their own rulers, the Test Administrator should have extras available.

If students routinely use calculators to take tests, they should be allowed to use them for PISA and the Test Administrators should have extras available.

Note to NPM

Determine your country's policy on calculator use. Determine whether rulers and calculators will be provided by the National Centre, the schools, or the students.

Modify the SC and TA manuals to describe your country's policy on calculator use and the provision of rulers and calculators.

2.2.10   Oversee Receipt of Materials from Schools, Coding and Data Entry

All test materials should be accounted for and kept secure. Therefore, it is very important that strict receipt-control procedures be followed.

Chapter 7 describes the procedures for organising materials for coding and data entry. Coding and data entry will be among the topics at the late February training session. The staff of the National Centre responsible for these tasks should attend this part of the training session.

2.2.11 Send Completed Materials to the PISA International Project Centre

The materials that the International Project Centre expects to receive are listed in Chapter 8.

2.2.12 Prepare and Submit Report

NPMs are asked to prepare a report summarising their experiences with the PISA 2000 main study. An outline for this report is included in Chapter 8. The International Project Centre is particularly interested in what worked well and what did not, so that changes can be made for subsequent cycles of PISA.

2.3 Checklist of NPM Activities

Exhibit 2-2 is an activity checklist that is provided for the convenience of NPMs. This checklist may be modified to reflect each country's schedule of activities.

NPMs may wish to use this checklist to assist in monitoring study progress within their country. The IPC will supply due dates for material to be submitted to it. NPMs may wish to add their own due dates to this checklist to assist in ensuring that the main due dates are met.

NPMs should be aware of the impact of other factors on PISA activities. For example, the dates for school holidays should be taken into account, particularly for such activities as establishing test dates and selecting student samples.

NPMs will note that some activities will need to be done in a particular order and some activities can occur concurrently. The actual scheduling of these activities in a country will depend on resource availability and the dates for testing. As a guide, activities related to translation, adaptation, assembly, and printing of test material can occur at the same time as activities related to obtaining school co-operation and identifying the student sample. Hiring and training test administrators may also occur at the same time as other activities.

Exhibit 2-2. Activity checklist

	Activity	Reference[1]	Submit to IPC	Due Date
☐	Select School Sample	PISA~~School~~ Sampling Manual		
☐	Determine School and Student Sample Sizes			
☐	Select Schools			
☐	Submit School Sampling Report		✓	
☐	Obtain School Co-operation	Section 2.2.3		
☐	Identify School Co-ordinator			
☐	Establish Testing Date			
☐	Translate and Adapt Test Instruments and Manuals			
☐	Revise Manuals to Reflect National Plan			
☐	Distribute Materials to be Translated			
☐	Identify Target Language(s)			
☐	Organise Double Translation, National Verification and International Verification			
☐	Recruit Translators			
☐	Train Translators and Verifiers			
☐	Provide Technical and Administrative Support During Translation-Verification			
☐	Prepare Test Instruments			
☐	Comply with Translation Guidelines			
☐	Submit Translation Verification Form		✓	
☐	Submit Translated Materials with Adaptation Form		✓	
☐	Select Student Samples	Chapter 5		
☐	Send Schools Instructions for Preparing a List of Eligible Students	Section 5.1		
☐	Receive Lists and Select Samples	Section 5.2		

[1] Unless otherwise stated, references are to this NPM Manual.

Exhibit 2-2. Activity checklist (continued)

Activity	Reference[2]	Submit to IPC	Due Date
☐ Prepare Student Tracking Form	Section 5.3		
☐ Prepare Instructions for Excluding Students	Section 5.4		
☐ Send Schools the List of Selected Students (Student Tracking Form), School Questionnaire and Instructions for Excluding Students	Section 5.5		
☐ Hire and Train Test Administrators	Section 2.2.7		
☐ Co-ordinate the Activities of Test Administrators and School Quality Monitors	Section 2.2.8		
☐ Oversee Assembly and Printing of Test Booklets and Questionnaires	Chapter 6		
☐ Assemble Booklets and Questionnaires			
☐ Send Assessment Instruments to IPC			
☐ Print PISA Materials		✓	
☐ Oversee Packing and Shipping of All Materials	Chapter 6		
☐ Oversee Receipt of Materials From Schools	Chapter 7		
☐ Oversee Marking and Data Entry	Chapter 7		
☐ Recruit Markers			
☐ Organise Marking			
☐ Process Booklets			
☐ Cross-National Exchange of Materials			
☐ Code Questionnaires			
☐ Install Data Entry Software			
☐ Submit Data Files	Chapter 7	✓	
☐ Document Marking, Data Entry and Quality Control	Chapter 7	✓	
☐ Send Completed Materials to the PISA IPC	Chapter 7	✓	
☐ Prepare and Submit Report	Chapter 8	✓	

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[2] Unless otherwise stated, references are to this NPM Manual.

3. SELECTION OF SCHOOL SAMPLE

3.1 Sampling in PISA

PISA is a survey of 15-year-old students in each participating country.[3] To provide valid estimates of student achievement and characteristics, the sample of students must be selected using established and professionally recognised principles of scientific sampling, in a way that represents the full population of 15-year-old students. Thus the use of appropriate sampling procedures to identify the students who will participate in PISA is very important.

Because PISA is a survey of students, and as the sampled students must be given an assessment under standard conditions in every PISA country, it is clear that the sample of students should be selected by first selecting a sample of schools and then by selecting a sample of students within those schools. Thus, the need for careful, rigorous, standardised and documented sampling applies both to the selection of schools, and students within schools.

The successful conduct of a sampling plan for PISA can be viewed as having six key components:

1. The definition of the student population to be surveyed.
2. The development of a list of schools (more broadly, educational institutions) in which eligible students are, or most likely are, enrolled.
3. The selection of the sample of schools from this list.
4. The development of a list of eligible students within each sampled school.
5. The selection of the sample of students from within each sampled school.
6. The documentation of the sampling process and the calculation of indicators of the effectiveness of the sampling and survey operations.

The PISA ~~School~~ Sampling Manual describes procedures for achieving points 1, 2, 3, and, to some extent, point 6. Points 4 and 5 are discussed in detail in Chapter 5 of this ~~PISA~~ National Project Manager's Manual, and in the documentation for the student sampling and student tracking components of KeyQuest~~software~~.

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[3] The specific definition of the population of 15-year-old students depends on the time of testing within each country.

3.2   The Responsibilities of NPMs and the Consortium in Sampling Schools

NPMs are responsible for the following tasks:

- Establishing the age definition, based on birth date, and the time of testing, according to PISA rules, so as to ensure that the correct student population is surveyed and to ensure that the assessment can be completed in the designed time period.
- Determining the geographic, school, and student level exclusions that will apply in their country in PISA, ensuring that these exclusions are kept to a minimum and documenting the nature and quantity of these exclusions.
- Obtaining, and where necessary enhancing, a list of schools and other educational institutions in the country that will contain the population of enrolled students that are to be covered by PISA. This list is referred to as the sampling frame.
- Identifying suitable stratification variables for the schools on the sampling frame and ensuring that these variables are present and essentially correct for all schools.
- Determining the sample sizes of schools and students that are needed, to satisfy international PISA requirements and also additional national requirements.
- Selecting the sample of schools using appropriate scientific sample procedures and documenting the sampling process, OR sending the sampling frame and sample size requirements to Westat, who will select the sample.
- Maintaining accurate records as to which sampled schools participate in PISA, the reason for nonparticipation for each school that does not participate and the use of replacement schools in the sample.

The PISA Consortium, and Westat in particular, are responsible for the following tasks:

- Checking that each country has identified an appropriate age definition and time of testing.
- Checking that the exclusions in each country are clearly defined, necessary and minimal.
- Assisting each country in determining the sample size and stratification that will meet both PISA and national objectives.
- Verifying that the NPM has selected the school sample correctly OR selecting the school sample and returning it to the NPM, with documentation.
- Developing school and student sampling weights to permit valid inferences to be made from the sample to the population.
- Developing measures of school and student response and exclusion, and coverage of the target population, to assist in evaluating the comparability and quality of the achievement and other data from each country.

The Sampling Manual provides the mechanism by which the Consortium informs NPMs what they need to do to carry out their responsibilities. The sampling forms that are included with the manual provide a mechanism (or at least a template) for NPMs to forward information to Westat so that Westat can carry out its responsibilities for monitoring and quality assurance, and sample selection and weighting.

4. TRANSLATION OF TEST INSTRUMENTS AND SURVEY MATERIAL

4.1 New Target Languages

A general principle in PISA is that students should be tested in the language of instruction used by the school that they attend. Therefore, the NPM should develop as many versions of the test instruments as there are languages of instruction used in the schools included in his national sample. If, in your country, the school sample for the Main Test includes schools that use an language of instruction for which no national version was developed for the Field Trial, you will need to produce one for the Main Test. This may be achieved by implementing national adaptations in one the existing PISA versions (English, French or one of the 25 languages used in the PISA participating countries). If not available, the NPM will have to produce a national version in the new target language. In doing this, s/he will follow the *Instructions for the Translation of the PISA Materials* included in Chapter 4 of the NPM Field Trial Manual. We shall not repeat those instructions here. For reminder, we shall merely summarise the major aspects of the standard procedure:

- It is required to produce a double translation of the instruments in order to comply with the PISA standards.
- The consortium has developed two parallel source versions of the test material, one in English and the other in French. It is recommended that the countries use the English source version for one of the translations into the national language; and the French source version for the other.
- A third translator will then reconcile the two independent translations and "merge" them into a single target version. S/he will also be requested to document all national adaptations, which s/he deemed necessary, on the appropriate *National Adaptation Forms*.
- The target version and the accompanying *National Adaptation Forms* will be submitted for approval to the National Committee.
- Once the improvements suggested by the experts of the National Committee are implemented, the revised target version and the related set of *National Adaptation Forms* should be submitted to the consortium for verification by a team of translators appointed and trained for this purpose.
- The verified version of the instruments will be returned to the NPM with the verifier's comments and suggestions. Possible disagreements on suggested edits would be submitted to the verification co-ordinator, who would seek advice from the test developers.
- Once the target version is revised, the NPM may need to submit the materials again to the National Committee for endorsement, depending on local requirements.

4.2   Existing National Versions

However, almost all target versions in national language needed for the PISA/2000 Main Test have already

been developed for the Field Trial.   Thus, the NPM's role will mainly be to carry out ALL revisions and

implement all edits required with a view to obtaining full equivalence between his/her national version(s) and

the source versions of the final PISA test material. In particular:

- Only part of the material developed for the Field Trial will be used for the Main Test. Those units and items, which were not selected for PISA/2000, will have to be withdrawn from the existing material and secured for possible use in future cycles.
- The source versions of the selected units and items will be reviewed by the consortium on the basis of the Field Trial analyses and supplied to the NPMs in both French and English. In turn, the national versions must be reviewed in order to echo all changes implemented in the source version.
- The NPMs have been provided by the consortium with the item analyses done on their national Field Trial data sets and with information about the items that appeared to have psychometric problems in their country. They should carefully review all these items, and when errors or translation bugs can be identified as the source the bad item functioning, they should make sure that all the edits needed are done in the material.
- In addition, should any residual typo or other problem have been detected in the test material after the Field Trial, the NPMs should enter the appropriate edits.
- All changes implemented in the Main Test's national version *vs.* the version used for the Field Trial must be fully documented on *National Revision Forms* (see Exhibit 4-1), except those changes that merely reflect amendments made on the source versions.

The revised national version(s) and the related *National Revision Forms* must be sent again to the

consortium for verification.

Once the corrections suggested by the international verifier have been implemented in the national version,

the NPM may need to submit the materials again to the National Committee for endorsement, depending on

local requirements.

In this chapter, you will find:

- A revision and verification timeline;
- A description of the source material, which will be forwarded to the National Centres;
- Advice for the identification and correction of ill-functioning items in the national versions;
- Specific notes on the revision of the Science and Maths test material, the background Questionnaires, the School Co-ordinator's and Test Administrator's Manuals and the optional CCC & IT questionnaires;
- A copy of the *National Revision Form*;

- Instructions concerning the verification procedure and a *Preferred Verification Schedule* form, which should be returned to your verification co-ordinator in order to inform him/her on your assessment timeline and to indicate the moment when you would like that the verification process takes place.

4.3 Timeline for Developing the Source Versions and National Versions of the PISA Instruments for the Main Test

Early November 1999: The NPMs receive English versions of the items selected by the FEG and the test developers after reviewing the material on the basis of the Field Trial's results, the remarks received from the participating countries and the report issued by the Cultural Review Panel (CRP). The NPMs submit this selection to their National Committee.

November 22-26: NPM Meeting in Melbourne. Discussion of the material proposed for use in the Main Test. The NPMs inform the consortium of the schedule they have adopted for the revision of the national version(s) of the test material and their preferred dates for the verification procedure.

Late December: The consortium provides the NPMs with both the English and French final source versions of the material to be used in the Main Test, the list of revisions implemented in those source versions, and information on those items in their national version(s), for which the Field Trial analyses highlighted bugs that may need revision.

January 2000: Training of the international verification team. Revision of the national versions. Beginning of the verification process.

February: NPM Training Session in Brussels.

March: Beginning of the Main Test in some of the participating countries.

4.4 Description of the Source Material to be Distributed to National Centres

It must be pointed out that the English version of the test materials that were circulated to the NPMs in early November did NOT yet include all revisions deemed necessary by the FEG and the test developers.

In particular, only part of the revisions to be made in the marking instructions were entered. Therefore, when revising their national version(s) the NPMs should only consider the final source versions that will be circulated by late December as the reference versions.

Two different formats of this material will be made available:

- *A set of clusters of stimuli and items, which will be combined in the test booklets in a rotated design*. Each cluster will contain one or several stimuli and related items. Typically, each cluster will appear in about three out of nine booklets. Changes implemented subsequent to the Field Trial will appear in "Track Changes" mode. It is strongly recommended that the NPMs use these documents as a reference for any further translation, adaptation or revision of their national version(s). They should make sure that all corrections required in the clusters be carefully implemented BEFORE assembling the clusters into booklets, in order to avoid the risk of overlooking an edit on a given item when the item occurs for the second or third time, in a different booklet. Besides, it requested that the NPMs submit their national material for verification in this cluster format.
- *Copies of the various booklets, as needed for administration in the Main Test*, including the general instructions for the students, the title pages of the different sections and the clusters that make up each booklet. It is strongly recommended that the NPMs use these layouts as reference models to assemble the test booklets, verify the page setup, check the rendering of illustrations and graphics etc. When the NPMs send their Marking Guides for verification, they are requested to enclose one copy of the final national version of each booklet in the shipment.

A comprehensive list of all changes brought to the source versions after the Field Trial will be attached to that material. The NPM should refer to that list when checking point by point whether EVERY change needed has indeed been implemented in his/her national version(s).

The source versions of the *Marking Guides* will also be supplied to National Centres as "clusters" (which contain coding instructions for responses to the open-ended questions of the relevant item cluster) and as copies of the assembled manuals. Similarly, all changes brought to the version that must be used for the Main Test will appear in "Track Changes" mode.

As far as possible, we recommend that the NPMs refrain from revising their national version of the Marking Guides before their final version of the test booklets is available (i.e., after the booklets have undergone the international verification and after reviewing and implementing possible edits suggested by the verifier). Should the NPM do otherwise because of time constraints, it will be most important to double-

check whether all changes brought to the test booklets are duly reflected in the Marking Guides, so as to avoid introducing inconsistencies (particularly with regard to alterations directly or indirectly affecting references to line numbers, quotes from the stimulus, item stems etc.).

4.5   Advice for the Identification and Correction of flaws in the National Versions

Changes implemented in the source versions (that must be echoed in the national versions) are not the only alterations, which the NPMs will have to carry out in the version(s) of the test material that will be used in their country. In addition, they are asked to carefully review those items for which specific flaws were identified in their country's Field Trial data analysis, and to revise the translation or adaptation in all cases when errors or inaccurate wording may have given rise to the flaw.

In particular, it is recommended to verify:

- Items showing an item/country interaction (i.e. items that proved to be significantly easier or harder in your country than expected~~they were for students *with a similar proficiency* in other participating countries~~). The list has been~~will be~~ supplied by the International Project Centre.
- Items showing too high fit (higher than 1.20 or 1.30).
- Items where the keyed answer(s) show a low point biserial correlation (negative rpbis, or positive rpbis less than .15).
- Items with positive rpbis for incorrect answers (eventually higher than for the correct answer).

Note that the fact that an item proved to be extremely difficult (or extremely easy) for your country's students DOES NOT, *per se*, indicate that the item was flawed, unless the very high (or very low) rate of correct responses can be attributed to one of the problems listed above. In other words, it is NOT justified to alter an item on the *sole* basis of its difficulty.

Therefore, apart from the revisions done to the source versions themselves, we recommend that NPMs ~~to only~~ implement specific changes in the national versions only in those cases~~,~~ where the item's bad functioning is clearly due to some error or lack of equivalence between the target and the source version:

Example 1. A significant piece of information was omitted or added when translating a stimulus or an item.

In R122 Just Art, Question 2 (*Which one of these is the most likely charge for post and handling of the order?*), the words *likely* and *of the order* no longer occurred in one of the national versions, so that the item became *Which one of these is the most common charge for post and handling?* As a result, the students in that country chose distracter C ($ 5.00) rather than the key D (*More than $ 5.00*), much more often than in other countries.

One of the earlier versions of the R092 Movie Ticket stimulus contained the sentence: *Only valid at the Focus Cinemas listed on the back*. However, the word only should no longer have occurred in the updated version used for the Field Trial. A few countries overlooked that change, which made Question 1 (*What is the name of the cinemas where you can use this voucher?*) easier for their students than in other countries.

Example 2. A poor or deficient reproduction of an illustration, a graph or a table (and its keys or captions) made an item difficult to answer.

In many countries, some of the symbols used on the map that served as a stimulus for R117 Antarctica vanished or were distorted in the process of printing the booklets, which severely affected Question 1 (*Complete the key below to identify the symbols used on the map*). As a result, this question had to be dropped from the international analyses.

In some countries, the headers of the columns of the Iran Air timetable in R076 Flight Table shifted out of line, which affected the level of difficulty of questions related to the comprehension of that table.

Example 3. The item had a differential functioning because the national version contained a literal match with a passage in the stimulus, which did not occur in the source version (or the other way round).

This type of error caused a bad functioning of Question 1 in R071 Bessie in those countries that used the French source version, which was faulty here. The word *célèbre* in the French version of the stem (*Copiez la phrase indiquant pourquoi Bessie Coleman est devenue célèbre*) literally matches a word in

the stimulus (*elle... devint célèbre sous le nom de "Bessie l'intrépide"*), whereas the English source version contains a synonym (text: *she ... became* known *as "brave Bessie";* item: *Write out the sentence that tells what Bessie Coleman is most* famous *for*). In this specific case, the French version makes the item harder, since the 'matching' sentence is NOT the correct answer.

The same type of error (but with opposite effects) made the French source version easier than the English one for Question 2 in R239 Allergies. Again, the French version shows a literal match between the item stem (*Comment hérite-t-on de la mutation génétique liée aux allergies?*) and the stimulus (*...la mutation se situe sur un chromosome hérité de la mère de la personne allergique*). In the English version, there is a synonym (Item stem: *How is the mutated gene that is linked to allergies* inherited? / stimulus: *the mutation is located on a chromosome* derived *from an allergy sufferer's mother*).

Example 4. The functioning of several items used for the Field Trial strongly depended on the vocabulary used in the national versions. More often than not, such items displayed a somewhat unstable behaviour, which can probably be explained by the fact that shades of meaning can be very difficult to render from one language to the other.

This applies to Question 2 in R111 Exchange (English: *The tone of the article is: A. humorous; B. cautious; C. stern; D. encouraging; E. pushy*. French: *Le ton de l'article est: A. humoristique; B. prudent; C. strict ; D. encourageant; E. hautain.*).

Similar problems occurred in Question 2 in R085 Ian (English: *The writer's attitude to Ian is: A. hostile and critical; B. distant and objective; C. condescending and pitying; D warm and sympathetic. French: l'attitude de l'auteur à l'égard de Ian est: A. hostile et critique; B. distante et objective; C. condescendante et compatissante; D chaleureuse et empreinte de sympathie.*).

Several countries also encountered translation problems with the word *wise* (R119 Gift, Question 2: *Do you think the woman's action in this part of the story was wise?*).

4.6   Other Recommended Edits

It goes without saying that any residual error spotted in a national version (omissions, typos, grammatical mistake or syntax error, improper vocabulary etc.) must be corrected during the process of finalising the material to be used in the Main Test.

We suggest that special attention be paid to the following points, which were often mentioned by the verifiers when they checked the material before the Field Trial:

- Make sure that typographic presentation and layout of the whole of the material are as close to the source versions' as they can get.
- Check the rendering and resolution of illustrations and graphic material;
- Double-check whether the references to line numbers remains correct, particularly after implementing changes in the stimulus, which may affect line numbering for the entire passage;
- Make sure that the phraseology remains consistent between the stem of multiple-choice items and the possible answers listed. More specifically, when the stem of an item is rewritten, the point is to verify whether the new formulation tallies with all four or five responses suggested, particularly with regard to grammar;
- Please harmonise what should normally be standard (e.g. directions given to the students, explanations on how to respond to a given type of question, or presentation of those items for which an example response is provided etc.).
- Please check systematically the items where the stem was an incomplete sentence in the source versions. Items of this kind were reported by the Cultural Review Panel as being subject to frequent translation flaws in languages where the sentence order differs from English (or French).

Note, however, that all edits should be very carefully considered, and that too extensive rewording of the items should be avoided, to prevent introducing new problems when correcting old flaws. Human error always occurs: out of ten edits implemented, an average of one or two are likely to give rise to new bugs. The best advice is to correct no more than what definitely must be corrected, and to avoid unnecessary attempts to "improve" items that functioned well in the Field Trial.

4.7   Specific Remarks

4.7.1   Science and Mathematics Test Material

The source version of the Science and Mathematics test material to be used in the Main Test contains more translation notes and directions for adaptation than it did for the Field Trial. It will be necessary to review

the new directions issued and to make sure that all of them are carefully implemented during the revision process.

4.7.2 Questionnaires

The Student and School Questionnaires were extensively revised and amended. Most of the questions will need to be translated and/or adapted afresh.

When revising both questionnaires, an important point is to correctly adapt those terms and expressions, which refer to school situations that may vary across countries. In order to help your translators, all terms and expressions that require adaptation in many countries (sometimes in every country) appear in the source version between <clamps>, with references to explanation and translation notes attached.

When implementing such adaptations, please bear in mind that the formulation selected for the national version(s) should both be easy to understand by the respondent and enable a response-coding scheme that remains consistent across countries.

Example 1. The term <grade> must be replaced with the current term used in your country to refer to the grade attended (e.g. in France, grade 1 = *CP1*, grade 6 = *sixième*, grade 9 = *troisième*. The equivalent form 1, 6th form and 9th form are called differently in the UK, in Ireland or in New Zealand. In Germany, although there are slight differences across Länders, grade 1, 6, 9 = *Jahrgangsstufe 1, 6, 9*).

Example 2. The international categories <ISCED 1>, <ISCED 2> etc. should be replaced with the designations by which the countries refer to the study levels covered by those categories. Please conform to the international classification conventions adopted by your country (and described in detail in the OECD brochure *Classifying Educational Programmes Manual for ISCED-97 Implementation in OECD Countries*, 1999 Edition, OECD).

More specifically, some countries may need to reword a question or supplement it with a brief explanation in order to obtain the information desired at international level:

Example 3. If Science is divided up into separate subject matters in your country, you may have to reword Question 25 in the Student Questionnaire: *In the last full week you were in school, how many class periods did you spend in <science> subjects ?*, by specifying, for instance: *... in Physics, Biology, Chemistry?*

It may also occur that the NPM wishes to incorporate additional items into the School or Student Questionnaire for the purpose of national analyses. Should this be the case, please bear in mind that:

- All additional questions that you may want to implement as national options must be submitted to ~~prior approval by~~ the International Project Centre for prior approval;
- The timing of the Student Questionnaire session will have to be modified accordingly, depending on the time the students will need to respond to those additional items.

~~**Example 4**. In countries where grade retention is used, it may be useful to collect from students who repeated a grade additional information about which grade(s) was/were repeated.~~

~~**Example 5**. In tracked school systems, it may be important to add items making it possible to describe the student's school paths (did s/he stay in the same track all along, or did s/he switch over? If yes, at what moment and what track did s/he follow previously?).~~

4.7.3 Manuals

New versions of the *School Co-ordinator's Manual* and *Test Administrator's Manual* should be developed in the national language(s)—or else the existing versions should be revised, based on the changes implemented in the new source versions—and submitted for verification at the same time as the rest of the material.

A number of national adaptations must be made on those manuals, to make sure that instructions given to the SC and TA are consistent with decisions made by the NPM (for instance concerning the operational schedule). Frames titled "To NPM" (or remarks in square brackets, printed in bold) draw your attention on those passages from the source version, in which it is recommended that the NPM make an adaptation.

NPMs have more flexibility with the manuals than with the Assessment Booklets and the Questionnaires. The Assessment Booklets and the Questionnaires must be true to the wording and content of the source documents and they must look like the source documents as much as possible. This is not true for the Manuals. Not only may the content be modified to reflect each country's organisation, the format of the manuals may be changed to a more familiar format.

Because NPMs need to adapt the manuals to reflect the situation in their own countries, it is very important that the International Study Centre review all manuals before they are made final. The list below identifies many procedures and states whether they can be modified or not. NPMs are encouraged to contact the International Study Centre if they have any questions about other proposed modifications.

PROCEDURES THAT CANNOT BE CHANGED:

- Basic demographic information collected for each student (grade, birth date, sex);
- The timing of the sections of the Assessment Booklet;
- The text of the script (after materials have been distributed) and the Booklet directions;
- The security of the items, and the importance of maintaining that security;
- The prohibition against the Test Administrator being a reading, mathematics or science teacher of students in the assessment;
- The requirement that a trained person administer the session; and
- Participation status codes and how response rates for determining the need for follow-up sessions are calculated.

PROCEDURES THAT MAY BE CHANGED:

- Separation of responsibilities between the School Co-ordinator and the Test Administrator – these positions may be combined or responsibilities interchanged;
- Definitions of students to be excluded from the assessment – it is very important that exclusions be kept to a minimum. The wording may be changed, but the concepts should not be. The international study centre will review carefully how countries modify the exclusion categories;
- Procedures for notifying teachers, students, and parents about the assessment;
- How the Assessment Booklets and Student Questionnaires are packaged and shipped from the National Centre;
- Length of break between parts of the Assessment Booklet and between the Assessment Booklet session and the Student Questionnaire session;
- The *requirement* that a follow-up session be held if more than 5 students (or more than 15% of the cluster size being used) are absent. NPMs may "suggest" that this be done "if at all possible" or they may delete the requirement. The goal is to increase student participation. Follow-up sessions are one way to increase student participation, but if NPMs think they will hurt participation, they should modify these procedures; and

- The format and content of the Student Tracking Form. Grade, birth date and sex are required. Other information may be added to the form for national purposes. To protect confidentiality, student names are not needed as long as there is a way to uniquely identify each student.

4.7.4 CCC and IT Questionnaires

The Questionnaires on Student Self-Perception (CCC) and Computer Familiarity (IT) are two international PISA options. The International Project Centre is not responsible for the development of those instruments: it is merely in charge of their implementation in the Main Test. For any substantive problem related to bugs encountered in national versions or to the revision of the CCC and IT questionnaires, please contact the following persons:

CCC Material: Dr Marieke Van der Wal, CCC Co-ordination Centre,
Dept of Sociology, University of Groningen,
Grote Rozenstraat 31, 9712 TG Groningen, The Netherlands.
Tel. ++ 31 50 363 62 83   Fax: ++ 31 50 363 62 26
E-Mail : m.van.der.wal@ppsw.rug.nl

IT Material : Dr Claudia Tamassia
OECD/DEELSA Statistics and Indicators Division
2 rue André-Pascal 75775 Paris Cedex 16. FRANCE
Tel. ++ 33 1 4524 9366   Fax: ++ 33 1 4524 9098
E-Mail : claudia.tamassia@oecd.org

The Main Test source versions of CCC and IT will be dispatched by the International Project Centre together with the other PISA instruments. The Centre will also assure the verification of the national versions and the field operations relevant to those options.

4.8 Documenting the edits implemented in the material

It is required to report EVERY alteration of the material in the test booklets, and in the CCC and IT components of the questionnaire (except those changes that reflect revisions implemented in the source versions by the test developers and that were echoed in the national versions) oin the *National Revision Form* below (Exhibit 4-1). Alterations to the main part of the Student Questionnaire and to the School

Questionnaire must be reported on the *Adaptation and Modification Form* (supplied separately from this Manual).

Please use as many *National Revision Forms* as there are item clusters (or booklets). If no change was needed for a given item cluster, please fill inout a form for it and mention "No modifications".

Use separate forms for the Student Questionnaire and the School Questionnaire. If you incorporated additional items as national options, please list these on separate *National Revision Forms,* and clearly specify that these items were national options.

Copies of all *National Revision Forms* and *Adaptation and Modification Forms* must be enclosed with the material that you will submit for verification. As wellBesides, we suggest that you use the same forms each time you request the International Project Centre's advice on the acceptability of a correction you may wish to implement. Copies of all *National Revision Forms* and *Adaptation and Modification Forms* must be submitted to the International Project Centre.

To speed up the process and to enable verifiers to request advice from the test developers when in doubt, please fill out in English (or in French) the column in the form in which you are requested to briefly motivate the revision ('Justification' column). Similarly, we would greatly appreciate if you could provide us with a translation into English or French of those items, which you may wish to add to the Questionnaires as national options.

4.9 Verification Process

4.9.1 Where

Two teams of verifiers—appointed by the International Project Centre—will be in charge of the verification of national versions:

- The verification will be done at ACER, and co-ordinated by Margaret Wu, for the following countries :

Australia	Ireland	United Kingdom
China	Japan	USA
Korea	New Zealand	

Contact address :

Margaret Wu
Australian Council for Educational Research
19, Prospect Hill Road, Private Bag 55,
Camberwell, Victoria 3124, AUSTRALIA
Fax : ++ 61 3 9277 5500 E-mail : wu@acer.edu.au

- For all other countries, the verification will be co-ordinated by Aletta Grisay and Steve Dept.

    Contact address :

    STEVE DEPT TRANSLATION SERVICES
    26 Rue du Ghête,
    B-1490 Court-Saint-Etienne, BELGIUM.
    Phone: ++ (32 10) 614 308   Fax : ++ (3210) 61 78 56
    E-mail : steve.dept@euronet.be and agrisay@attglobal.net

4.9.2   When

As soon as the NPMs have set their operations' schedule for the Main Test and their national assessment timeline, they are requested to fill out the *Preferred Verification Schedule* form below (Exhibit 4.2) and forward it to their verification co-ordinator. In order to enable the co-ordinators to organise the verifiers' work under suitable conditions, they will need to receive the *Preferred Verification Schedule* before December 31, 1999.

In your plans for translation & verification activities, you should take into consideration that, as a general rule,

- The verifiers will need approximately 15 working days for the verification of the test material and the Questionnaires, 3 working days for the SC and TA Manuals and 10 working days for the Marking Guides;
- They will be asked to be available for verification work during the period from mid January until end of February , and
- We would appreciate if at least part of your national material could be sent for verification by January 15, so that it can be used as sample material in the training sessions for international verifiers that will be held at that moment in Brussels and in Melbourne.

Do not hesitate to contact your verification co-ordinator to arrange for any problem in the submission schedule. Both for you and for the verifier, it might be safer not to wait until the whole material is ready, but to send part of it first to speed up the process, then the remaining in a second or third bundle.

In case your anticipated schedule has to be changed or delayed, please inform as soon as possible your co-ordinator, so that he/she can adjust the verifiers' timeline.

4.9.3 Which Material

The material to be submitted includes:

- The SC and TA manuals;
- The School and Student Questionnaires;
- The cognitive tests;
- The marking instructions;
- The CCC and IT instruments (if used in your country).
- All *National Revision Ff orms* (~~and~~or *~~National~~ Adaptation and Modification Ff orms*) related to the above material.

Please note that the verifiers will be instructed to check both the translation of the material and the layout of the final booklets as they will be used in the Main Study.

We strongly recommend that you send first for verification the clusters or blocks of items that will be rotated into the booklets, and that you send the assembled booklets and the marking guides in a second step, to make sure that all possible edits done to the stimuli and items have been included before preparing the final coding material.

4.9.4 How to Send It

The verification can only be done on hard copies for the languages that require special fonts (e.g. Korean, Japanese).

For other languages, the revised *clusters~~blocks~~ of items* can be sent as electronic files. The verifier can either enter his suggested edits in "track change" mode and return the edited file, or send back to the NPM

hard copies with hand-written suggestions. Please contact your verification co-ordinator to arrange on the format that you would prefer to use.

However, the assembled booklets must always be sent for verification as hard copies. This is because the verifier will need to check not only the content, but also the layout and graphics in the booklets, and there is some risk that these aspects are altered when the files are transferred, converted or printed.

Make sure that whenever material is sent in hard copy, you send also a short Email message to your verification co-ordinator, indicating the date, the content, the number of pages under way, as well as the references of the carrier shipment. This will allow the co-ordinator to track any missing piece.

Most of the verifiers will receive the material from the co-ordinator, but in cases where we contracted a verifier who is living in your country, it might be more efficient that a copy of the test material is sent to him/her directly, as this will obviously save some time. Contact your co-ordinator for more details on this.

4.9.5   How to have the material sent back

Please do not forget to let us know where you want us to send the verified material back. Make sure that all your shipments mention the name and address of the person who will be in charge to receive the verifier's feedback.

4.9.6   Providing copies of your final national version(s) to the International Centre

Please make sure that when your national version(s) of the material are finalised and endorsed by your National Committee for use in the Main Study, a copy of all test booklets, questionnaires, marking guides and manuals is sent to the International Centre to be recorded in the PISA archives.

Exhibit 4-1 National Revisions Form

OECD/PISA
Main Test 2000

Booklet or item cluster title:..
Country: ....
Target language: ....

Person in charge: ....
Date: ....

Page of the SOURCE document	Title of the unit and/or item number	Source version	Field Trial version in target language	Proposed revision	Justification (in English or French, please):

Exhibit 4.2. **Preferred Verification Schedule**
OECD/PISA2000 Main Test

Please complete this form and return before December 31 to your Verification co-ordinator:
Margaret Wu: Fax: ++ 61 3 9277 5500   E-mail : wu@acer.edu.au
Steve Dept: Fax: ++ 32 10 614 603   Email: steve.dept@euronet.be

Contact information

Country:_____ **NPM**:   _____

The person in charge for translation and revision of the material in our country is /will be:

   Name:_____

   Telephone*: _____

   Fax*: _____

   E-mail address: _____

- *Please also state country code*

- *If more than one instruction language is tested in your country, and different persons are in charge for different languages, please provide the contact information for each person.*

Deadlines information

Our Main Test dates will be from   _____ until _____

Our material should be given for printing on (date)   :_____

We need the feedback from the verifier(s) on (date)   : _____
The first material to be verified will be sent by (date)   : _____
The last material to be verified will be sent by (date)   : _____

Language(s) of test information

Please confirm which test language(s) will be used in the Main Test in your country

Language(s) _____

Other remarks (if any):

5.   SELECTION OF STUDENT SAMPLE

5.1   Send Schools Instructions for Preparing a List of Eligible Students

This chapter of the manual is devoted to student sample selection. It contains the instructions for preparing the list of eligible students as well as the procedures that should be followed to select the student samples.

The national centre must receive a list of all eligible students in each school. These lists may be prepared at the national, regional, or local level, whichever has the most accurate information. The lists may be prepared as data files, as computer-generated listings or by hand. It is suggested that the lists be received 1-2 months before testing to give the NPM time to select the sample and return information about the student sample to the school at least 2 weeks prior to the assessment. This schedule may be affected by school holidays or other events. NPMs should modify the schedule accordingly.

It is very important that the student sample be selected from lists that are accurate and complete. This means that student lists should not be prepared too far in advance of the testing and that all eligible students should be listed.

Some countries have decided to include grade eligible students in their sample. Section 5.2.2 describes instructions for preparing lists and selecting samples of grade as well as age eligible students. If you are including grade-eligible students in the sample, go to Section 5.2.2.

Preparing a List of Age <Grade>-Eligible Students

Exhibit 5-1 is an example "Student Listing Form" with instructions to schools about how to prepare their lists of eligible students. NPMs may use this form or develop their own instructions. Please note the following:

- Eligible students are defined as all students born in 1984 (or the appropriate 12-month age span agreed upon for your country) <and in the ___ grade>.
- The list should include all age <grade>-eligible students who might not be tested due to a disability or limited language proficiency.

Exhibit 5-1. Example of Student Listing Form

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STUDENT LISTING FORM

STUDENT LISTING FORM	Page __ of __

School ID: _____   Country Name: _____

School Name: _____   List Prepared By: _____

Address: _____   Telephone #: _____

_____   Date List Prepared: _____

_____   Total # Students Listed: _____

DIRECTIONS: PLEASE COMPLETE COLUMNS A, B, C, AND D, FOR EVERY STUDENT <BORN IN 1984>.

Include students who may be excluded from other testing programs, such as some students with disabilities or limited language proficiency. Detailed instructions and information about providing computer-generated lists are on the other side of this page.

For Sampling Only		(A) Student's Name			(B)	(C) Sex	(D) Birth Date
Selected Student (Enter "S")	Line #	(First	Middle Initial	Last)	Grade	(M / F)	(mm/yy)

Exhibit 5-1. Example of Student Listing Form (continued)

<div style="border:1px solid">

OECD/PISA MAIN STUDY

A.   Instructions for Preparing a List of Eligible Students

1.   Please prepare a list of **ALL students <born in 1984. . . (and in __ grade) NPM must insert eligibility criteria>** using the most current enrollment records available.

2.   Include on the list students who typically may be excluded from other testing programs (such as some students with disabilities or limited language proficiency).

3.   Write the name for each eligible student. Please also specify current grade, sex, and birth date for each student.

4.   If confidentiality is a concern in listing student names, then a unique student identifier may be substituted. Because some students may have the same or similar names, it is important to include a birth date for each student.

5.   The list may be computer-generated or prepared manually using the PISA Student Listing Form. A Student Listing Form is on the reverse side of these instructions. You may copy this form or request copies from your National Project Manager.

6.   If you use the Student Listing Form on the reverse side of this page, do **not** write in the "For Sampling Only" columns.

7.   Send the list to the National Project Manager (NPM) to arrive no later than **<NPM insert DATE>**. Please address to the NPM as follows: **<NPM insert name and mailing address>**

B.   Suggestions for Preparing Computer-generated Lists

   ■ Write the <u>school name and address</u> on list.

   ■ <u>Number</u> the students.

   ■ <u>Double-space</u> the list.

   ■ Allow left-hand <u>margin of at least two inches</u>.

   ■ Include <u>the date</u> the printout was prepared.

   ■ Define any <u>special codes</u> used.

   ■ Include <u>preparer's</u> name and telephone number.

C.   Suggestions for Sending Data Files

<NPM to insert instructions, if appropriate>

</div>

- Any exclusion from the assessment of students who cannot be tested must be done **after** the student sample is selected.
- It is recommended that schools be asked to retain a copy of the list in case the NPM must call the school with questions.
- If a computer list is prepared, it should be up-to-date at the time of sampling rather than a list prepared at the beginning of the school year.

While it is assumed that the lists of students will contain names, it is not critical to the sampling process as long as the lists contain a unique student identifier. A student identification number, for example, is an acceptable way to identify each student.

5.2 Select Student Sample

Once NPMs have received the list of eligible students, the student sample should be selected and the list of selected students (the Student Tracking Form) returned to the school. NPMs may use the PISA Sampling Software (described in the ~~Student Sample and~~ Data Entry Manual) or the steps in this chapter.

5.2.1 Sampling 15-Year-Old Students

Note to NPM

Do not use these sampling steps if it is planned, as a national option, that the sample will also include students from a particular grade. In that case, go directly to Section 5.2.2.

Step 1. Verify Each Student List

As the student lists are received from the schools, check each list to confirm that the birth date for each student is actually 1984 (or within the agreed-upon time span). The NPM should contact the school regarding any questions or discrepancies. Students <**not** born in 1984 – insert eligibility criteria> should be deleted from the list (after confirming with the school). Also, any duplicates (students listed more than once) should be removed from the list before sampling. Draw a line through the name of any student who should be removed from the list (or delete the student's record from the data file if the list was provided electronically).

Step 2. Number Students on the List

Use the "line #" column on the Student Listing Form (or the margin if other list) to number the students on the list for each school. Number all eligible students and assign the numbers consecutively across all pages of the list. Check that the numbering is correct and that no numbers have been repeated or skipped. If errors are found in the numbering, corrections should be made before the student sample is selected.

Step 3. Compute Sampling Interval and Random Start

After confirming that the numbering of the students on the list is correct, record the total number of students who are age 15 (≤born in 1984≥) in Box A on the Student Tracking Form (see Exhibit 5-2). The total number of 15-year-old students should be the same as the last line number on the list. Enter this **same number** in Box B.

Enter the desired sample size of 15-year-old students (usually 35) in Box C on the Student Tracking Form. Generally, this sample size will be the same for each school.

Then, choose a random number from the table provided in Exhibit 5-34, and record this random number as a four-digit decimal (for example, 3279 would be recorded as 0.3279) in Box D on the Student Tracking Form. A different random number must be selected for each school.

Compute a sampling interval by dividing the total number of students who are age 15 (Box A) by the number in Box C, the planned student sample size for each school. Record the interval [Box A divided by Box C] in Box E at the top of the Student Tracking Form. If the interval is less than 1.0000, record a 1 in Box E.

Compute a random start point by multiplying the random number (expressed as a decimal) by the sampling interval and adding one. That is, multiply Box D by Box E and add one, as follows: [(0.____ x Box E) + 1], and record the result in Box F. The **integer** portion of this value is the line number of the first student to be selected. Write this line number in the first row of Column 2 (line number).

Exhibit 5-2. PISA STUDENT TRACKING FORM

Formatted

Country Name:_____   **Stratum IDNumber:** _____

School Name: _____   **School ID:** _____

SAMPLING INFORMATION					
(A) # Students Age 15 _____	(B) # Students Listed for Sampling _____	(C) Sample Size _____	(D) Random Number 0._____	(E) Sampling Interval _____	(F) First Line # Selected [(Box D X Box E) + 1] _____

(1) ID #	(2) Line # (Sample)	(3) Student Name	(4) Grade	(5) Gender (M/F/ M)	(6) Birth Date (MM-YY)	(7) Excluded Code	(8) Booklet Number	Participation Status					
								(9) Original Session			(10) Followup Session		
								P1	P2	SQ	P1	P2	SQ
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													

EXCLUSION CODES (Col. 7)
1 = Functionally disabled
2 = Educable mentally retarded
3 = Limited test language proficiency
4 ~~4~~ = Other_____

PARTICIPATION CODES (Cols~~.~~ 9&10)
0 = Absent
1 = Present for entire session
2 = Present for part of session~~8 = Not applicable, i.e., excluded, no longer in school, not age eligible~~
3 = Student or parent refusal
8 = Not applicable, i.e., excluded, no longer in school, not age eligible

Exhibit 5-3.   **Random Number Table for Use in Selecting Student Samples**
RANDOM NUMBER TABLE

Instructions: Locate a random starting point in the table – close your eyes, point a pencil anywhere on the table, circle this random number – it is your starting point. After using this first random number, draw a line through it (and do not use it again). Then use the next random number and so on consecutively down the column. At the end of a column, continue with the next column, and at the end of the page continue with the first column. Use as many random numbers as needed, in this fashion, but stopping at the original starting point.

6975	5239	0762	5846	2431	0543	4956	8787	9651	2605
7185	4019	7332	2820	4853	8636	9505	6575	0365	6648
4510	1658	5615	2194	1901	4975	1895	4383	0415	3771
7752	0105	4769	2994	7445	0781	4960	4253	9451	6518
4834	4043	6591	3646	8918	4603	1970	9145	7615	3905
8866	6036	9755	4508	9061	2080	3406	9856	1298	6281
6622	4612	2030	7299	8414	8822	5176	9443	6054	6462
9094	8973	3335	2183	5192	1630	0959	8143	9182	8012
5618	6445	2983	0375	2540	2735	4901	5515	4787	7058
2705	2693	1944	8074	2015	3261	5529	7193	5401	9531
1797	4334	3293	2632	3770	1675	9363	7795	3331	8995
9448	5174	5869	0448	8613	4400	6938	5161	8691	2838
3461	1304	9682	8577	4449	1896	8328	1698	7138	1141
7092	5007	5596	8522	2580	4495	4728	8948	4434	2438
5533	4294	0939	4050	1225	6414	5895	0148	7053	5935
7852	8988	5951	4919	7404	2426	4450	2358	3082	4561
8313	8456	9892	0981	6736	8021	6226	5573	1664	9489
1158	2241	9861	7588	2669	5480	9160	4267	1690	7278
9338	7226	0025	8844	8181	5565	2418	9394	0837	3106
7711	1336	3251	8902	8425	5766	3262	5848	3545	7073
2656	1863	3884	6516	6922	1808	1896	8853	0964	3089
7980	9370	2850	3818	7281	8352	9637	0618	2430	6525
1409	7865	5908	4296	1888	2792	4014	1667	1295	0814
7657	6630	5000	1493	5459	5869	0315	8134	9587	2184
2863	5450	1329	8787	8795	4604	2615	0075	1433	7707
3988	2042	2906	8995	0818	9288	1650	0803	8319	2533
4551	2815	8941	4893	8612	4844	0042	3890	7068	8512
5772	4732	2829	3931	9540	6256	5420	2179	9448	5489
9150	1435	3817	8975	4276	9569	0175	6663	0045	5549
5764	7914	8280	1337	3779	8197	9105	5985	1054	2866
5895	0044	5021	3846	7599	0398	5212	9509	0134	4656
6857	1174	8085	6503	5355	3027	1708	3626	7059	0167
2538	2669	3746	3270	1214	9983	8434	1344	1160	3292
9983	1387	1410	8891	2523	8705	9190	2986	7654	5142
5061	9529	2922	2199	8310	6954	8090	5371	0672	6281
9999	4226	2815	8817	5606	5190	0495	7867	9968	5951
9078	5936	2393	7875	6871	3163	9203	2863	5693	9973
4823	2291	8925	6306	1717	0320	2549	3107	5488	0303
1232	1384	5698	9313	3501	3238	7227	0220	6118	7655
7694	6484	0279	8528	7214	1750	0577	8418	0698	5403
9207	6903	9703	2028	3460	0778	3795	0698	3974	8522
1886	2080	3719	3602	3896	1214	9862	1969	6782	9237
6963	4197	6405	8683	7573	0842	9306	2596	7404	9999
1797	2315	5434	0787	3809	9129	4511	0708	2181	9119
6534	5578	4158	6256	3721	7515	3905	1905	7153	3552
2325	4238	8861	6098	8837	7690	0497	8848	6601	1553
6598	4628	1023	9747	4860	3437	7414	7609	9938	8335
4592	5016	4434	7133	7218	4602	1690	7914	8819	3600
1765	8822	5278	2324	3715	0431	7780	4955	9683	8998
6139	3275	7731	3351	5306	0323	5387	3901	4151	2922
3911	8334	5465	6647	8773	7456	9954	5141	3573	5570
6840	0366	6962	3462	1724	6661	7221	6074	9262	3461
5572	8838	8132	9398	0737	7125	7388	7686	9814	1760
2337	5303	3720	3917	7238	9925	7940	7818	1676	9780
3138	6014	4909	1143	7551	3380	2713	7649	2784	0175

Step 4. Determine Line Numbers and Select Students

Add the sampling interval (Box E) repeatedly to the value in Box F (maintaining the decimals) to determine the line numbers of the students to be sampled. Write the integer portion of these line numbers in Column 2. Continue calculating and recording line numbers until the largest line number is equal to or larger than the total number of students listed for sampling (Box B). As further documentation of the sample, write an "S" in front of the line number on the student list for each student selected in the sample.

To list the sampled students on the Student Tracking Form, go to Section 5.3.

5.2.2   Sampling Age/Grade Eligible Students

Note to NPM

> **Use these sampling steps if it is planned, as a national option, that the sampling will also include students from a particular grade.**

Some countries have indicated that they would like to choose student samples which would include students who are age 15 **and/or** enrolled in a specific grade (e.g., grade 10). Thus, a larger overall sample, including 15-year-old students **and** students in the designated grade who may or may not be age 15, will be selected. The necessary steps in selecting these larger samples are described in this section.

Each sampled school will need to prepare a list of "age- and grade-eligible" students and send the completed list to the NPM 1 to 2 months before the assessments are to begin. For these larger samples, the list of eligible students should be prepared as two components: all students in the designated grade (e.g., grade 10), sorted by birth date; and all other 15-year-old students (using the appropriate 12-month age span agreed upon for your country) who are currently enrolled in other grades.

The lists should also include students who might not be tested due to a disability or limited language proficiency. Any exclusion from the assessment of students who cannot be tested must be done **after** the

student sample is selected. It is recommended that schools be asked to retain a copy of the list in case the NPM calls the school with questions.

Step 1. Verify Each Student List

As the student lists are received from the schools, the NPM should double-check each list to confirm that each student listed actually meets the eligibility criteria for age and/or grade specified by the NPM. The NPM should also review the lists and check for duplicates to be sure that no student is listed more than once. The NPM should contact the school regarding any questions or discrepancies.

Students **not** meeting the NPM-specified eligibility criteria should be deleted from the list (after confirming with the school). Also, any duplicates (students listed more than once) should be removed from the list before sampling. Draw a line through the name of any student who should be removed from the list (or delete the student's record from the data file if the list was provided electronically).

Step 2. Number the Students on the List

Use the "line #" column on the Student Listing Form (or the margin if a computer list) to the left of each student's name to number the students on the list(s) for each school. If there are several lists for a school (for example, one of grade-eligible students and one of age-eligible students), the list(s) should be treated as one list and numbered consecutively across all pages of the list(s). Check that the numbering is correct and that no numbers have been repeated or skipped. If errors are found in the numbering, corrections should be made before the student sample is selected.

Step 3. Compute Sampling Interval and Random Start

After confirming that the numbering of the listed students is correct, count the age-eligible students (age 15, or born in 1984, in most countries) and record in Box A on the Student Tracking Form (see Appendix 4). The **total number** of students listed for sampling should be entered in Box B, and this will be the same as the largest line number on the Student List.

Enter the desired sample size (usually 35) in Box C on the Student Tracking Form. It is important to use the desired sample size of **15-year-olds** to compute the sampling interval. This interval will be applied to the larger student list to generate a larger sample.

Then, choose a random number from the table provided in Exhibit 5-3 and record this random number as a four-digit decimal (for example, 3279 would be recorded as 0.3279) in Box D on the Student Tracking Form. A different random number must be selected for each school.

Compute a sampling interval by dividing the total number of **students who are age 15** (Box A) by the number in Box C, the desired student sample size of 15-year-olds for each school. Record the interval [Box A divided by Box C] in Box E at the top of the Student Tracking Form. If the interval is less than 1.0000, record a 1 in Box E.

Compute a random start point by multiplying the random number (expressed as a decimal) by the sampling interval and adding one. That is, multiply Box D by Box E and add one, as follows: [(0._____ x Box E) + 1], and record the result in Box F. The **integer** portion of this value is the line number of the first student to be selected. Write this line number in the first row of Column 2 (line number).

Step 4. Determine Line Numbers and Select Students

Add the sampling interval (Box E) repeatedly to the value in Box F (maintaining the decimals) to determine the line numbers of the students to be sampled. Write the integer portion of these line number in Column 2. Continue until the largest line number is equal to or larger than the total number of students listed for sampling (Box B). On the Student Listing Form, document the sample by writing an "S" in front of the line number for each student selected in the sample. The total number of students sampled will be at least as large as (probably somewhat larger than) the number in Box C (the desired age 15 sample size) and will include some age-eligible (about equal to the number in Box C) and some grade-eligible students.

5.3   Prepare the Student Tracking Form

Once the student sample has been selected, a Student Tracking Form should be prepared for each school. The Student Tracking Form is the central administration document for the study. When a Student Tracking Form is sent to a school, it serves as the complete list of the student sample. Once booklets have been assigned to students, the Student Tracking Form becomes the link between the students, the test booklets, and background questionnaires that they receive. After the testing, the results of the session are entered on the Student Tracking Form and summarised. The Student Tracking Form is sent back to the National Centre with the test instruments and is used to make sure that all materials are accounted for correctly. Copies also will be sent to the International Study Centre to document that all procedures were carried out correctly.

To fill in the Student Tracking Form:

- Prepare the header of the Tracking Form with the country name, the school name, and the school ID.
- Be sure that boxes A through F have been completed. These boxes provide documentation for the student sampling process.
- List the names of the selected students in column (3) of the Student Tracking Form. Recall that the line number for each selected student, from the Listing Form, has already been entered in column (2). The sequential student number in column (1) is the student's new "ID" number which will become part of a unique number used to identify the selected students throughout the assessment process.

The Student Tracking Form, which consists of two pages, is designed to accommodate student samples of up to 35 students, which is the standard PISA design. If the student sample is larger than 35, use more than one Student Tracking Form, and on the additional forms, renumber the preprinted ID numbers in column (1) as necessary to correspond to the additional students. For example, column (1) of the second form would begin with 36, 37, 38, etc.

- For each sampled student, enter the student's grade, date of birth, and sex on the Student Tracking Form. **[NPMs may modify the form to include other demographic variables.]**
- Leave the "Excluded" column blank for each student. This column will be used by the school to designate any students who cannot be tested due to a disability or limited language proficiency.

- If booklet numbers are to be assigned to students at the National Centre, enter the booklet number assigned to each student in column 8.[4]
- Participation status on the Student Tracking Form should be left blank at the time of student sampling. This item will be entered at the school when the assessment is administered.

An example Student Tracking Form after sampling has been completed is shown as Exhibit 5-4. Note particularly the participation codes in column 10, which relate to the follow-up testing conducted at the example school. Susan Boss did the tests but not the questionnaire in the main assessment. She can be allowed to complete the questionnaire in the follow-up session, but should not go to the assessment session until other students have finished the cognitive parts. Melinda Clark and Vanessa Ishkandar were initially absent, but did the follow-up tests and questionnaire during the follow-up administration. Arthur Morris was also absent initially, and was absent again from the follow-up assessment. Nick Cross did not complete part 2 of the cognitive test, but should not be allowed to finish it in a follow-up session.

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[4] Booklet numbers may be assigned either by the National Centre before materials are shipped to the schools or by the Test Administrator prior to the assessment, unless the Test Administrators isare a member of the schools staff. In these cases, booklets should be assigned at the National Centre. NPMsS will decide how their country will assign and package materials (see Chapter 6).

Exhibit 5-4.   PISA STUDENT TRACKING FORM

Country Name: Australia _____   **Stratum ID~~Number~~:   15**_____

School Name: Cooee High School _____   **School ID: 302** _____

SAMPLING INFORMATION					
(A) ial # Students Age 15	(B) # Students Listed for Sampling	(C) Sample Size	(D) Random Number	(E) Sampling Interval	(F) First Line # Selected [(Box D X Box E) + 1]
—205——	——205——	——35——	0.9548——	5.8571——	6.5924———

(1) ID #	(2) Line # (Sample)	(3) Student Name	(4) Grade	(5) Gender (~~M/~~F/ M)	(6) Birth Date (MM-YY)	(7) Excluded Code	(8) Booklet Number	Participation Status					
								(9) Original Session			(10) Follow-up Session		
								P1	P2	SQ	P1	P2	SQ
1	6	BELLENGER Anita	10	F	02/84		5	1	1	1			
2	12	BLANCH Sarah	10	F	11/84		6	1	1	1			
3	18	BOSS Susan	10	F	11/84		7	1	1	0			1
4	24	CHYLEWSKI Irina	10	F	09/84	3	8	8	8	8			
5	30	CLARK Melinda	11	F	03/84		9	0	0	0	1	1	1
6	35	CROSS Nick	10	M	08/84		1	1	2	1			
7	41	DAVIDSON Johnathan	11	M	02/84		2	1	1	1			
8	47	DULHUNTLY Emma	10	F	06/84		3	3	3	3			
9	53	ELSTON Matthew	10	M	05/84		4	1	1	1			
10	59	GLEESON Paul	9	M	01/84	1	5	8	8	8			
11	65	HARPER Mike	10	M	07/84		6	1	1	1			
12	71	ISHKANDAR Vanessa	10	F	04/84		7	0	0	0	1	1	1
13	77	KARGIOTIS Con	10	M	04/84		8	1	1	1			
14	83	McKAY Peter	11	M	10/84		9	1	1	1			

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| 15 | 89 | MORRIS Arthur | 10 | M | 05/84 | | 1 | 0 | 0 | 0 | 0 | 0 | 0 |

EXCLUSION CODES (Col. 7)

1 = Functionally disabled   4 = Other
2 = Educable mentally retarded
3 = Limited test language proficiency

PARTICIPATION CODES (Cols. 9&10)

0 = Absent   3 = Student or parent refusal
1 = Present for entire session   88 = Not applicable, i.e., excluded,
2 = Present for part of session   no longer in school, not age eligible

5.4 Prepare Instructions for Excluding Students

PISA is a timed assessment administered to groups of students in the instructional language(s) of each country. The intent of the study is to be as **inclusive** as possible. However, some students with limited proficiency in the language(s) of the test or those who have a severe physical, mental, or emotional disability may not be able to participate under these conditions. Therefore, PISA has developed instructions for all schools to use when there is doubt about whether a selected student should be assessed.

NPMs should use the guidelines below to develop instructions for their country. It is important to provide precise instructions for School Co-Ordinators and Test Administrators as to how to handle exclusions of students within the school. The national operational definitions for within-school exclusions should be documented and submitted to the International Project Centre (IPC) for review before testing takes place. They also need to be documented in the NPM report.

INSTRUCTIONS FOR EXCLUDING STUDENTS

The following guidelines define general categories for the exclusion of students within schools. These guidelines need to be carefully implemented within the context of each educational system. The numbers to the left are codes to be entered in column 7 of the Student Tracking Form to identify excluded students.

1 = Functionally disabled students. These are students who are permanently physically disabled in such a way that they cannot perform in the PISA testing situation. Functionally disabled students who can respond to the test should be included in the testing.

2 = Educable mentally retarded students. These are students who are considered in the professional opinion of the school principal or by other qualified staff to be educable mentally retarded or who have been psychologically tested as such. This includes students who are emotionally or mentally unable to follow even the general instructions of the test. However, students should not be excluded solely because of poor academic performance or disciplinary problems.

3 = Students with limited proficiency in the test language. These are students who are unable to read or speak the language of the test and would be unable to overcome the language barrier in the test situation. Typically, a student who has received less than 1 year of instruction in the language of the test should be excluded, but this definition may need to be adapted in different countries.

4 = Other.

It is important that these criteria be followed strictly for the study to be comparable within and across countries. When in doubt, include the student.

5.5 Send Student Tracking Form to the School Co-ordinator and Test Administrator

The School Co-ordinator needs to know which students have been sampled so he/she can notify the students, teachers, (and parents). The School Co-ordinator also will need to update the information on the Student Tracking Form and identify students to be excluded. Therefore, the Student Tracking Form and Guidelines for Excluding Students should be sent to the School Co-ordinator about 2 weeks before the assessment session.

Before sending the Student Tracking Form to the School Co-ordinator, it is recommended that a copy be made and kept at the National Centre.

It is also recommended that the NPM send a copy of the Student Tracking Form to the Test Administrator with the assessment booklets and questionnaires. This is in case the school's copy is misplaced on assessment day. The Test Administrator and School Co-ordinator manuals assume that each will have a copy.

6   ASSEMBLE, PACKAGE AND SHIP ASSESSMENT MATERIALS

All of the Main Survey final version test and questionnaire items have been made available to NPMs in several ways. All test units and questionnaire items were emailed at or just before the end of 1999 to enable translation to begin, and all test units, allocated to their clusters and booklets, were sent on CD-ROM during January 2000. Hard copies of the booklets were also sent, together with the CD-ROM. In addition, all final version test and questionnaire items are available from the secure pages of the PISA web site. The site contains English and French master versions of the test and questionnaire items and also English master versions of the instrument booklets.

6.1   Allocate Test and Questionnaire Items to Instruments

The master instrument copies show how the final booklets should be formatted. In this section we describe how the items, units and clusters are allocated to the test and questionnaire instruments.

6.1.1   Test Assembly

Each of the units in the item pool has been allocated to one test cluster. There are 9 Reading clusters (R_1 - R_9), 4 Mathematics clusters (M_1 - M_4) and 4 Science clusters (S_1 - S_4). The Reading clusters are each 30-minute clusters and the Mathematics and Science clusters are each 15-minute clusters. In Reading, clusters R_2 and R_8 contain IALS material.

The clusters are allocated in a rotated design to nine test booklets, as shown in Exhibit 6-1. In the table, R_1 refers to Reading cluster 1, and so on.

In the Main Survey (unlike the Field Trial) there is only one 30 minute student questionnaire, plus additional IT Familiarity and CCC material for countries participating in these international options.

Exhibit 6-1. Test Booklet Design* for the Main Survey

Booklet	30 mins	30 mins	30 mins	30 mins
1	R_1	R_2	R_4	M_1/M_2
2	R_2	R_3	R_5	S_1/S_2
3	R_3	R_4	R_6	M_3/M_4
4	R_4	R_5	R_7	S_3/S_4
5	R_5	R_6	R_1	M_2/M_3
6	R_6	R_7	R_2	S_2/S_3
7	R_7	R_1	R_3	R_8
8	M_4/M_2	S_1/S_3	R_8	R_9
9	S_4/S_2	M_1/M_3	R_9	R_8

* The design shows the allocation of clusters to booklets;
   R_1 indicates Reading cluster 1, and so on.

The allocation of the units to clusters is as shown on the following pages in Exhibit 6-2 for Reading, Exhibit 6-3 for Mathematics and Exhibit 6-4 for Science.

Exhibit 6-2. Allocation of Reading Items to Clusters

	Unit name	Unit and item ID	Item number within cluster
CLUSTER 1	Employment	R219Q01A to R219Q01E	1
		R219Q02	2
	Graffiti	R081Q01	3
		R081Q02	4
		R081Q05	5
		R081Q06A	6
		R081Q06B	7
	Rhino	R101Q01	8
		R101Q02	9
		R101Q03	10
		R101Q04	11
		R101Q05	12
		R101Q08	13
	Beach	R070Q07	14
		R070Q03	15
		R070Q04	16
		R070Q02	17
CLUSTER 2	Movie Reviews	R245Q01	1
		R245Q02	2
	Nuclear	R225Q01	3
		R225Q02	4
		R225Q03	5
		R225Q04	6
	Bicycle	R238Q01	7
		R238Q02	8
	Personnel	R234Q01	9
		R234Q02	10
	Warranty Hotpoint	R241Q01	11
		R241Q02	12

End of Cluster 2; Exhibit 6-2 continues on next page

Exhibit 6-2 *(continued)*

	Unit name	Unit and item ID	Item number within cluster
CLUSTER 3	Library	R091Q05	1
		R091Q06	2
		R091Q07A	3
		R091Q07B	4
	Gift	R119Q09A and R119Q09B	5
		R119Q01	6
		R119Q07	7
		R119Q06	8
		R119Q08	9
		R119Q04	10
		R119Q05	11
CLUSTER 4	Optician	R227Q01	1
		R227Q02	2
		R227Q03	3
		R227Q04	4
		R227Q06	5
	If	R086Q05	6
		R086Q07	7
		R086Q04	8
	Shirts	R102Q01	9
		R102Q04A	10
		R102Q05	11
		R102Q06	12
		R102Q07	13
	Exchange	R111Q01	14
		R111Q02B	15
		R111Q04	16
		R111Q06A	17
		R111Q06B	18

End of Cluster 4; Exhibit 6-2 continues on next page

Exhibit 6-2 *(continued)*

	Unit name	Unit and item ID	Item number within cluster
CLUSTER 5	News Agencies	R093Q03	1
		R093Q04	2
	Drugged Spiders	R055Q01	3
		R055Q02	4
		R055Q03	5
		R055Q05	6
	Just Art	R122Q01A to R122Q01C	7
		R122Q02	8
		R122Q03	9
	Aesop	R067Q01	10
		R067Q04	11
		R067Q05	12
	Iran Air	R076Q03	13
		R076Q04	14
		R076Q05	15
CLUSTER 6	Macondo	R061Q01	1
		R061Q03	2
		R061Q04	3
		R061Q05	4
	Household Work	R083Q01	5
		R083Q02	6
		R083Q03	7
		R083Q04	8
		R083Q06	9
	Police	R100Q04	10
		R100Q05	11
		R100Q06	12
		R100Q07	13
	Telephone	R104Q01	14
		R104Q02	15
		R104Q06	16

	R104Q05	17

End of Cluster 6; Exhibit 6-2 continues on next page

Exhibit 6-2 *(continued)*

	Unit name	Unit and item ID	Item number within cluster
CLUSTER 7	Guide	R228Q01	1
		R228Q02	2
		R228Q04	3
	Plan International	R099Q02	4
		R099Q04A	5
		R099Q04B	6
		R099Q03	7
	Student Opinions	R120Q01	8
		R120Q03	9
		R120Q06	10
		R120Q07	11
	South Pole	R220Q01	12
		R220Q02B	13
		R220Q04	14
		R220Q05	15
		R220Q06	16
CLUSTER 8	Runners	R110Q01	1
		R110Q04	2
		R110Q05	3
		R110Q06	4
	Hiring Interview	R237Q01	5
		R237Q03	6
	New Rules	R236Q01	7
		R236Q02	8
	Contact Employer	R246Q01	9
		R246Q02	10
	Allergies/Explorers	R239Q01	11
		R239Q02	12

End of Cluster 8; Exhibit 6-2 continues on next page

Exhibit 6-2 *(continued)*

	Unit name	Unit and item ID	Item number within cluster
CLUSTER 9	Flu	R077Q02	1
		R077Q03	2
		R077Q04	3
		R077Q05	4
		R077Q06	5
	Amanda and the Duchess	R216Q01	6
		R216Q02	7
		R216Q03A to R216Q03C	8
		R216Q04	9
		R216Q06	10
	Labour	R088Q01	11
		R088Q03	12
		R088Q04	13
		R088Q05	14
		R088Q07	15
	Lake Chad	R040Q02	16
		R040Q03A	17
		R040Q03B	18
		R040Q04	19
		R040Q06	20

Exhibit 6-3. Allocation of Mathematics Items to Clusters

	Unit name	Unit and item ID	Item number within cluster
CLUSTER 1	Cube Painting	M144Q01	1
		M144Q02	2
		M144Q03	3
		M144Q04	4
	Farms	M037Q01	5
		M037Q02	6
	Walking	M124Q01	7
		M124Q03	8
CLUSTER 2	Apples	M136Q01	1
		M136Q02	2
		M136Q03	3
	Continent Area	M148Q01	4
		M148Q02	5
	Growing Up	M150Q01	6
		M150Q03	7
		M150Q02	8
CLUSTER 3	A View With A Room	M033Q01	1
	Bricks	M034Q01	2
	Population Pyramids	M155Q02	3
		M155Q01	4
		M155Q03	5
		M155Q04	6
	Containers	M192Q01	7
	Cubes	M145Q01	8
CLUSTER 4	Speed Of Racing Car	M159Q01	1
		M159Q02	2
		M159Q03	3
		M159Q05	4
	Carpenter	M266Q01	5
	Pipelines	M273Q01	6

	Robberies	M179Q01	7
	Triangles	M161Q01	8

Exhibit 6-4. Allocation of Science Items to Clusters

	Unit name	Unit and item ID	Item number within cluster
CLUSTER 1	Research	S133Q01	1
		S133Q03	2
		S133Q04	3
	Spoons	S256Q01	4
	Greenhouse	S114Q03	5
		S114Q04	6
		S114Q05	7
	Clothes	S213Q01	8
		S213Q02	9
CLUSTER 2	Earth's Temperature	S269Q01	1
		S269Q03	2
		S269Q04	3
	Cloning	S128Q01	4
		S128Q02	5
		S128Q03	6
	Good Vibrations	S131Q02	7
		S131Q04	8
CLUSTER 3	Semmelweis' Diary	S195Q02	1
		S195Q04	2
		S195Q05	3
		S195Q06	4
	South Rainea	S252Q01	5
		S252Q02	6
		S252Q03	7
	Tidal Power	S209Q01	8
		S209Q02	9
CLUSTER 4	Ozone	S253Q01	1
		S253Q02	2
		S253Q05	3
		S270Q03	4

Daylight	S129Q01	5
	S129Q02	6
Algae	S268Q01	7
	S268Q02	8
	S268Q06	9

In formatting translated or adapted test booklets, it is essential for countries to follow as far as possible the layout in the English master instrument copies, including allocation of items to pages. The consortium recognises that it often happens that a translated document is longer that the original, and this has been allowed for as far as possible in the pagination of the master instruments. Changes must be avoided in the page set-up of the test booklets — which would oblige the student, for example, to turn a page to read the questions, whereas in the source version text and questions appear side by side. If necessary, use a slightly smaller or bigger font than the one in the original, if this enables you to keep the same page set-up as that of the source version.

6.1.2   Questionnaire Assembly

There is only one form of the Student Questionnaire. Unless approval has been given by the IPC to do otherwise, all Student Questionnaire items should be included.

Countries may however be using the material provided as international options (IT Familiarity and CCCs). They may also have additional questionnaire material that they wish to include as a national option.

6.1.2.1   International Options

In most circumstances it will be preferable to place the material for the international option(s) in the same booklet as the rest of the Student Questionnaire. If both the IT Familiarity and CCC options are being used, the IT module should be inserted immediately after the questionnaire items and the CCC module should follow the IT module.

It is recommended that the whole booklet be presented as three sections (or two if only one of IT and CCC is being used), and that items be numbered sequentially *within* sections (that is, start the numbering of IT

items from 1, and also start the numbering of CCC items from 1). In this way, the insertion of items as national options (see below) will not disturb the numbering of the international option items.

The IT and CCC modules may be assembled into one or two separate booklets if this is more suitable for the administration procedures in your country. If you do this, please adjust the administration instructions in the TA Manual accordingly, and ensure that the main Student Questionnaire is administered *before* the IT and CCC modules. (Note, however, that the recommended procedure internationally is to have the questionnaire, IT and CCC items in a single booklet to minimise the scope for error in matching students' responses from the various instruments.)

The format of the questionnaire and of the IT and CCC modules should follow as far as possible the formatting of the English sample versions that you have been provided.

6.1.2.2   National Options

Some countries have additional questions they wish to ask their students as national options. As a general rule, items that are national options must be placed at the end of the questionnaire. If only a small number of additional items is to be used, the items may be inserted before the IT/CCC component(s). As a guideline, if you wish to use more than two pages of additional questions for a national option, and all instruments are being administered in a single session, the additional national material should be placed *after* the international modules, at the very end of the booklet.

6.1.3   Obtaining Approval

All modifications to the questionnaires, including proposed national options, must be documented on the Adaptation and Modifications Forms provided separately. All proposed modifications must be submitted for approval as soon as possible to the IPC on PISA@acer.edu.au. Additional details of this process have been provided with the Adaptation and Modifications Forms.

After you have formatted the test booklets and questionnaires, they must be sent to your verification co-ordinator for final approval (*see Chapter 4: International Translation and Adaptation Verification).*

6.2   Print, Package and Ship PISA Materials

6.2.1   Overview

There are two primary concerns to be considered by NPMs in making plans for printing, packaging and shipping PISA materials. These two concerns are:

- ■   That the test items be secure at all times, and
- ■   That the test booklet and questionnaire assigned to a particular student are the ones that the student uses in the testing session.

There is no one way that materials should be printed and prepared for shipment and distribution. In this section, we suggest several different ways to prepare materials, recognising that each has advantages and disadvantages with regard to cost, burden, and efficiency. NPMs should choose the way that works best in their own countries, considering how they intend to implement PISA within their own educational systems.

In making this determination, NPMs will want to consider the following:

1.   Where will the assignment of materials to individual students take place?

2.   From where will the materials be shipped and how secure is this place?

3.   To where will the materials be shipped and how secure is this place?

4.   Will test administrators be National Centre staff or staff of the selected schools?

5.   Will the Student Questionnaire usually be administered in the same session as the test items or in a separate session?

6.   Which is the greater concern: the cost of materials or personnel costs to assemble and label the printed materials?

7.   Are there any constraints arising from the marking or data processing procedures that need to be considered?

The master instrument copies show that each of the nine test booklets contains four 30-minute clusters, which are administered in two one hour parts. During each 1 hour part, students proceed at their own pace from one cluster to the other, but they may not move from the first hour part into the second hour part until told to do so. Thus the beginning and end of each part should be clearly indicated. It is recommended that a dark stripe be printed across the top (or down the outside edge) of each page in the second part of the booklet, so that TAs can easily see which part of the booklet the students have open on their desks.

6.2.2 Printing PISA Materials

NPMs will need to decide whether to print the Student Questionnaire/test booklet combination together or separately. If they are printed together, then the assignment of materials to students is simplified since only one assessment booklet needs to be assigned to a particular student. If they are printed separately, then two assessment booklets should be assigned to each student, and care should be taken to make sure that the students receive the correctly identified booklets so that these can be matched without error for data entry. If it is expected that the questionnaire will often be administered in a separate session, then it is recommended that the test booklets and questionnaire be printed separately to help protect the security of the test items.

6.2.3 Packaging and Shipping PISA Materials

Another decision that NPMs will need to make is how to package the assessment materials in order to protect the security of the test items. Sealing each of the two one hour parts of the test booklet (making sure that the directions are not sealed!) helps not only to protect the security of the test items, but also to keep students from moving from the first part into the second part prematurely. It should be noted however, that countries planning to use optical scanning equipment should make sure that the seals will not interfere with this equipment.

To further protect item security, the test booklets for a school could be packaged in a secure bundle – either sealed in plastic or some other form of packaging. If the packaging is transparent and has not been

wrapped too tightly, TAs will be able to check easily in advance if the correct number of booklets is in the package, without opening it. Similarly, the booklets could be sealed in envelopes, one for each student in the assessment. The "best" approach for a country will depend on the factors cited above.

The simplest way to assign booklets to students is to make use of the feature that is now built into KeyQuest for this purpose. Provided that the information needed for the Student Tracking Form has been imported into KeyQuest, KeyQuest will automatically assign booklet numbers to students when it generates the Tracking Forms. (This and other features of KeyQuest are described in the Data Entry Manual.)

If booklets have to be assigned to students manually, the most secure approach is for National Centre staff to undertake this task. National Centre staff would record the students' names or line numbers from the Student Tracking Forms onto the booklet covers and/or envelopes (for example, by using pre-printed labels), thus creating a package of pre-assigned test materials for each school. If booklets are to be assigned by the TA, the National Centre must specify the order in which the booklets are to be distributed in each school, such as by pre-specifying booklet numbers on the Student Tracking Forms.

If the assignment of booklets to students is being done manually, it is important that a rotation scheme be followed so that Test Booklet 1 is not always assigned to the first student listed on the Student Tracking Form, etc. This is easy to accomplish by taking the booklets sequentially when preparing the booklets for each school. The first student in the first school will be assigned Booklet 1, the second, Booklet 2, etc. Since there are nine test booklets and the expected student sample size is 35, the last student in the first school will be assigned Booklet 8. At the second school, the first student will be assigned Booklet 9, the second, Booklet 1, etc. In this way, the booklets are rotated so that all booklets are used more or less equally.

Three scenarios are described below as illustrative of acceptable approaches to packaging and shipping the assessment materials. Any questions should be directed to the International Project Centre.

Country A plans to ship all assessment materials to the schools and to use school staff (not teachers of the students in the assessment) to conduct the testing sessions. The National Centre will print the test booklets and Student Questionnaire separately. The National Centre plans to assign materials to students before packaging for shipment to the schools. They will assign each student listed on the Student Tracking Form a test booklet and a Student Questionnaire, label these materials and then seal them in envelopes also labelled with the students' names and identification numbers.

Country B also plans to ship materials directly to the schools but will use test administrators who are employed by the National Centre. Because of concerns about when the administration of the questionnaires will take place, Country B intends to print and package the test booklets and questionnaires in separately bound bundles. The order of the booklets in each bundle will be pre-recorded on the Student Tracking Form. To protect student confidentiality after the assessment has been completed, Country B will provide envelopes labelled with the students' names and identification numbers for students to put their assessment booklets into and seal once the assessment is over.

Country C plans to use test administrators employed by the National Centre and will ship the materials to these test administrators. Since the Student Questionnaire will be administered during the same session as the test items, Country C will print everything in one booklet. To help the test administrator monitor that students are working in the appropriate section of the booklet, each page of the second part of the test booklets will be printed with a black bar across the top of the page. Bundles of 35 booklets will be sealed in plastic, so that the number of booklets can be checked without opening the packages (the plastic sealing will not be tight shrink-wrapping, which makes counting difficult). The test administrators will open the bundle assigned to a school immediately prior to the session and will label the booklets with the students' names and ID numbers from the Student Tracking Form, according to the assignment of booklets pre-recorded on the Tracking Form by National Centre staff.

NOTE: If a school's package of assessment materials is being sent directly to the school, you will need to inform the School Co-ordinator of this arrangement and stress to him/her that the package must be kept secure at all times and must not be opened until the test administrator arrives at the school on the day of the assessment. A fax form for the School Co-ordinator to send back to you to confirm that the package has arrived should be provided with the School Co-ordinator Manual.

Regardless of the approach to be used for packaging and shipping, for each session to be conducted the following materials should be sent either to the test administrator or to the school:

- Test booklets and student questionnaires for the number of students expected to be assessed

- Student Tracking Form

- 2 copies of the Session Report Form

- Packing Form

- Return shipment materials

- Additional materials, e.g. rulers and calculators, as decided for local circumstances

- Additional School and Student Questionnaires. A bundle of extra booklets (one of each of the booklet types)

6.3   Receipt of Materials back at the National Centre

NPMs will need to develop procedures for logging in completed test materials returned either by TAs or direct from schools, or both. These procedures should be developed before the testing begins, so that the Centre is well prepared to handle returned materials as soon as they begin to arrive.

Procedures are expected to vary from country to country, but at a minimum it is recommended that a data base of schools be prepared and updated regularly to monitor shipping and receipt of materials to and from schools, and the progress of materials through the various processing steps at the National Centre. The information required for Sampling Form 12 would be a starting point for the data base.

Steps to follow in preparing the booklets for marking are given in Chapter 7. It is recommended that the data base of schools at the National Centre be used to keep a record of actual tallies of booklets received

from each school, to show the numbers of tests and questionnaires completed and the numbers of booklets and questionnaires received that were not used. If any test booklet cannot be accounted for, every effort must be made to recover it.

7. DATA MARKING AND ENTRY

This section of the manual provides details on the PISA multiple marking procedures, including multiple marking, and an overview of the data entry and questionnaire coding. Complete information on coding reading, mathematics and science is provided in the PISA Marking Guides. Complete details on data entry and management are provided included in the PISA Data Entry Manual.

7.1 Overview of Marking[5] Requirements

The marking process includes different steps, which need to be implemented as described below. NPMs have to:

♦ Recruit and train markers (see section 7.2);

♦ Order booklets (see section 7.4);

♦ Select booklets for Multiple Marking (see section 7.4);

♦ Single mark booklet according to the international design (see section 7.6);

♦ Multiple mark the sub-sample of booklets once the single marking is completed (see section 7-7);

♦ Submit a sub-sample of booklets for the cross-country validity study;

In the PISA tests there are five types of items, which are shown in Exhibit 7-1 with their marking requirements for the main survey.

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[5] Note to NPMs: Please substitute the appropriate term for 'mark' (meaning 'to evaluate student work and assign a "mark" for it') if this term is not used in this way in your country.

Exhibit 7-1. PISA item types and marking requirements

Item type	Nature of item	Marking needed
multiple choice	Standard 'choose one' from a set of given answers	None (response entered directly into computer)
complex multiple choice	Series of true/false or yes/no choices—one answer to be chosen for each element in the series	None (responses entered directly into computer)
closed constructed response	Short verbal or numerical response, correct answer clear-cut	None for some items (responses directly entered into computer); One marker for some items (to assign a right/ wrong code for data entry)
short response	Short verbal or numerical response, but a variety of possible correct answers	One markers, to assign codes with reference to the Marking Guide. A sub-sample of booklets multiple marked.
open constructed (extended) response	Longer verbal response, (e.g. 'explain your answer') or requirement to show work in solving mathematics or science problem	One markers, to assign codes with reference to the Marking Guide A sub-sample of booklets multiple marked.

Multiple markers will be used in the main survey for the items in the last two categories in a sub-sample of the booklets in each country, so that the likely extent of between-marker (within country) variance can be estimated (as in the field trial). All the remaining booklets will need to be marked by one marker only. NPMs will have to submit to the consortium a sub-sample of 50 booklets, to check that the Marking Guides are applied consistently across countries. For this purpose, NPMs will keep all booklets in a secure place and ordered by student identification until they are informed that they are allowed to destroy the booklet.

Multiple marking (which means being marked by four separate markers) of all short response and open constructed response items in the main survey will be required as follows:

- Every country will be required to set aside a sample of 900 booklets for multiple marking (100 of each of the 9 test booklets), regardless of the country's total sample size;

- The SE Booklet does not required to be multiple marked;

- The multiple marking will be done at the end of the marking period, after markers have had the chance to become familiar with and confident in using the Marking Guides.

Detailed procedures for carrying out the multiple marking follow in Section 7.7.

7.2   Recruit Markers

NPMs will need to recruit people to carry out the marking and multiple marking of the test booklets. In some countries pools of experienced markers from other projects may be able to be called on. In others, suitable people will need to be found. It will be an advantage if markers from the field trial who performed the marking satisfactorily can also be used for the main survey marking. All people who will mark the main survey test booklets must undergo the specific PISA training, regardless of whether they have had related experience on other projects or of whether they undertook the PISA field trial marking.

Markers for Reading are required in multiples of eight, that is, 8, 16, 24 or 32, in order to carry out the multiple marking design. Because the marking will take place over several weeks, it is recommended that at least two back-up markers be trained. The number of markers used will depend on the number of students tested and how quickly the marking is able to start after (or during) the testing. *Sixteen* is the recommended number (plus back-ups), but the consortium recognises that situations vary from country to country. It is difficult to maintain consistently high marking standards with large numbers of markers, but 8, or even 16, markers may not be enough in terms of the timeline for submitting data, depending on the overall student sample size. These factors will need to be balanced out, as it is very important for the project that countries submit their data on time that is, **within 12 weeks of the completion of the testing**.

Ideally, from the perspective of the multiple marking design, eight markers will be for Mathematics and Science, with each person able to mark booklets in both of these subject areas. In countries where it is not possible to find persons who can mark both mathematics and science at the PISA level, four persons may be used for mathematics and four for science, but the information from the multiple marking will not be as comprehensive.

Markers do not need high level academic qualifications, but they must have a good understanding of either mid-secondary level mathematics and science or **<language of test>**. They must also understand secondary level students and ways that students at this level express themselves. Teachers on leave, recently retired teachers and senior teacher trainees would all be potentially suitable markers. NPMs who are uncertain about the suitability of people they may be able to recruit for marking should discuss their situation with the International Project Centre.

To assist NPMs with the process of selecting markers, the consortium will provide materials which may be used to screen applicants for marking positions. These materials will be similar in nature to the PISA Marking Guides, but will be much briefer. They will be designed so that applicants who are considered to be potentially suitable can be given a brief training session, after which they will mark some student responses. Guidelines for assessing the results of this screening exercise will be provided with the materials at the Brussels training meeting.

7.3   Organise Marking

There are nine different test booklets in the PISA 2000 main survey (ten if the SE booklet was implemented in the country):

- all booklets contain Reading clusters only:
    - Booklets 1 to 6 each have three reading clusters (90 minutes of testing time per booklet),
      Booklets 8 and 9 each have two reading clusters (60 minutes of testing time per

booklet),
Booklet 7 has only reading clusters (120 minutes of testing time);

- SE booklet has some reading materials;

- six booklets contain mathematics clusters:

    - Booklets 1, 3, 5, 8 and 9 (30 minutes of testing time per booklet);

    - SE booklet has some mathematics materials; and

- six booklets contain science clusters:

    - Booklets 2, 4, 6, 8 and 9 (30 minutes of testing time per booklet);

    - ES booklet has some science materials.

Each of the reading clusters is included in three booklets, except R9 which is only included in 2 booklets. Of the four 15-minute mathematics clusters, two appear in three booklets (i.e. M_2 and M_3) and two appear in two booklets (i.e. M_1 and M_4). Similarly, two 15-minute science clusters are used in three booklets (i.e. S_2 and S_3) and the other two are used in two booklets (i.e. S_1 and S_4). This overlap of content across booklets means that the training load for markers will be substantially less than it was for the field trial, as they will not have to work with entirely different sets of codes each time they move to a new booklet.

7.4   Process Booklets

Booklets should be logged in rigorously as they are returned by the Test Administrators or as they arrive directly from schools. All booklets and questionnaires should be accounted for against the Student Tracking Form, and all codes for present/absent should be checked for validity against the booklet returns. (If any test booklet is missing from a school's returned package, it is essential that every effort be made to retrieve it.)

Check that all returned booklets and questionnaires are adequately identified. (If they are not, you will need to call on the Test Administrator to go back to the school to work with the School Co-ordinator to ascertain the ID numbers of the respondents.) The School and Student Questionnaires should then be set aside for separate handling.

File the Student Tracking Forms carefully in School ID order in one or more ring binders especially for that purpose. (These binders will need to be kept handy for easy consultation.)

Sort booklets by booklet number, maintaining School ID order in the sets of Booklet 1, Booklet 2, etc.

7.4.1　Selecting the Booklets for Multiple Marking

The main principle in setting aside the booklets for multiple marking is that the selection needs to ensure a wide spread of schools and students. Ideally, all schools will have returned the completed booklets before the selection takes place. In practice, it will probably be preferable to begin the marking before all completed booklets have reached the National Centre. It is suggested that no marking begin until at least half of the booklets have been returned.

One possible way to select the booklets for multiple marking is to apply a approach like that used for the within school student sampling. If N is the total number of Booklet 1s returned or expected and if RN is a random number between 0 and 1, then NPMs can select the booklets according to the following formula:

$$\left[\left(\frac{N}{100}RN\right)+1\right]+(step-1)\left(\frac{N}{100}\right)$$

If 550 Booklet 1s are expected and if RN equals 0.4, then the formula becomes:

$$\left[\left(\frac{550}{100}0.4\right)+1\right]+(1-1)\left(\frac{550}{100}\right)=\left[2.2+1\right]+0(5.5)=3.2$$

The first booklet will be the third booklet.

$$\left[\left(\frac{550}{100}0.4\right)+1\right]+(2-1)\left(\frac{550}{100}\right)=[2.2+1]+1(5.5)=8.7$$

The second booklet selected for Multiple Marking will be the eighth booklet and so on. This example assumes the required minimum sample size of 4500 is achieved.

With 4500 respondents, the number of students completing each booklet will be close to 500 if the booklets have been correctly allocated. One hundred of each booklet are required for multiple marking, which means, you will need to select approximately every fifth booklet of each type to set aside. Depending on the actual number of completed booklets, you may need occasionally to select every fourth booklet or every sixth booklet so that 100 of each booklet are selected. If your sample size is very different from 4500, please vary this 'one in five' ratio accordingly.

7.4.2   Booklets for Single Marking

All booklets remaining after those for multiple marking have been set aside need to be marked by only one marker. For the required sample size of 4500, there should be approximately 400 of each booklet in this category. These booklets should be sorted into school ID order within booklet number.

7.5   Some General Principles

7.5.1   How to Show the Marks Assigned

On the right hand side of each test item that requires a judgement of the response given, there is a string of small code numbers. In the books being processed by only one marker, the mark assigned should be indicated directly in the booklet by circling the appropriate code number alongside the item. If a mark has to be changed, the first mark should be fully erased or clearly indicated as no longer applying. Note that "*Not Applicable*" code is not included in the string of small code numbers.

7.5.3 Facilitate Tracking of Booklets

Have a supply of batch headers readily available. These batch headers should be pre-printed with spaces for the following to be recorded: Booklet number (e.g. Booklet 4); how many booklets and the school IDs represented in the pile; the date and time; Marker's name; and Marker's ID number. Each marker who takes a pile of booklets should fill in this information on the header sheet. The completed header sheet should be kept with the pile of booklets. When the booklets in the pile have all been marked, the marker should initial the header sheet to indicate this, and record the date when finished.

The batch header sheets will also be used to keep a record of the quality monitoring activities undertaken. These activities will be described in a separate document to be provided at the Brussels training meeting.

7.6 Training and Marking Sequence: Single Marking

The recommended sequence of tasks for both training of markers and marking of student responses is outlined in this section. More detailed information on these procedures will be made available at the Brussels NPM training meeting.

Within each domain, it is required that all single marking be undertaken one booklet at a time, so that one booklet is finished before the next is started. It is also a requirement that all recruited markers mark every booklet. With this scheme, training can be undertaken one booklet at a time, or even one cluster or one unit at a time if the trainers are available on an almost constant basis. Generally, because markers will work at different rates but will need to be trained together, it will be more efficient to train at least at the cluster level. Regardless of how the training is compartmentalised, the student responses **must be marked item by item.** That is, Item X is marked in all booklets before the next item requiring marking is considered.

The quality of the marking will need to be monitored regularly as the marking proceeds. Guidelines on how to carry out this task will be provided at the Brussels meeting. It is estimated that monitoring activities will require between two and three additional days for reading and between one and two extra days for mathematics and science combined.

It is recommended that the reading and the mathematics/science marking be done at least partly at different times (for example, mathematics/science marking could begin two weeks before the reading marking begins). Eight of the nine booklets contain material in Reading and in Mathematics and/or Science. Except for Booklet 7, which contains only reading, it could be difficult to maintain an efficient flow of booklets through the marking process if all marking in all three domains is being done at the same time.

7.6.1 Assign ID Numbers to Markers

NPMs must assign a 3-digit ID number to each marker, as follows:

Mathematics, first digit =   1
Reading, first digit =   2
Science, first digit =   3
Maths/science, first digit =   4

Within each of these four categories, the remaining two digits will begin at 01 and continue in sequence to reach the number of persons who will be undertaking the marking. Thus, if 16 markers are used for reading, their ID numbers will go from 201 to 216. **Contrary to the Field Trial, the marker ID must be recorded for both single and multiple marked booklets**.

7.6.2 Allocate Booklets to Markers

This section assumes that 16 reading markers and eight mathematics/science markers will be used. With 400 of each book to be processed, each reading marker will be responsible for 25 of

each booklet and each mathematics/science marker will need to mark 50 of each booklet. Always work with the booklets sorted by booklet number and keep them in school ID order as far as possible.

Marking of any items requiring only one marker in the booklets set aside for multiple marking will be done by the fourth marker during the multiple marking process.

7.6.3   Reading

After training, practice and review, each marker will take a pile of 25 (exactly one sixteenth if NPMs recruit 16 markers) of the same booklet. Countries are free to work with the booklets in any order, as long as all booklets of the same type are marked (as far as possible) before another booklet is begun. (Note, however, that there may need to be two sequences of marking undertaken, in order to begin the marking process before all booklets have been returned to the National Centre.)

If the mathematics/science marking must begin at the same time as, or very shortly after the reading marking, it is recommended that the reading marking commences with Booklets 1, then with booklet 2 and so on. Mathematics and science marking can be done in the following order: booklet 5 and then 6,8,9,1,2,3,4. If the mathematics/science marking begins at a different time to the reading marking, then the two markers groups can mark the booklets in the same order.

As booklets are sorted by school and student ID, a marker will have to mark Booklet 1s from 8 or 9 schools. It is important that markers be assigned a different subset of schools for the next booklet to be marked. Exhibit 7-2 shows how booklets should be assigned to markers for the reading single marking. Let us suppose that School ID ranges from 1 to 150. According to this design, Reading Marker 1 (M1 in Exhibit 7-2) will mark all Booklet 1s of subset 1 (schools 1 to 9), Reading Marker 2 (M2 in Exhibit 7-2) will mark all Booklet 1s of subset 2 (schools 10 to 18) and so on. For booklet 2, Reading Marker 1 will mark Booklet 2s of subset 2 (schools 10 to 18), Reading Marker 2 will mark Booklet 2s of subset 3 (schools 19 to 27). Subset 1 (school 1 to 9) will be marked by Reading Marker 16.

Exhibit 7-2: Allocation of the booklets for single marking of reading

	Subsets of Booklets															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
B1	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16
B2	M16	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15
B3	M15	M16	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14
B4	M14	M15	M16	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13
B5	M13	M14	M15	M16	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
B6	M12	M13	M14	M15	M16	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11
B7	M11	M12	M13	M14	M15	M16	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10
B8	M10	M11	M12	M13	M14	M15	M16	M1	M2	M3	M4	M5	M6	M7	M8	M9
B9	M9	M10	M11	M12	M13	M14	M15	M16	M1	M2	M3	M4	M5	M6	M7	M8
SEB	M8	M9	M10	M11	M12	M13	M14	M15	M16	M1	M2	M3	M4	M5	M6	M7

The use of 'table leaders' to assist with queries and to monitor the consistency of the marking will be important. Table leaders should be knowledgeable about marking processes and about one or more of the domains being assessed. It is recommended that table leaders be responsible for four to six markers each.

After the initial training, practice and review, when coding issues are expected to be discussed openly until consensus is reached, it will be preferable for markers to work quietly, referring queries to their table leader rather than to their neighbour. The table leader may wish to share a particular query with the rest of the group. The table leader could also work as a marker, but must be prepared to advise others as the need arises.

The NPM, or overall leader of the marking, should ensure that there is a smooth flow of booklets. It will be important to have enough surfaces on which to spread out and later reassemble the piles of booklets.

7.6.4   Mathematics and Science

For mathematics and science, two table leaders will be needed. Otherwise both the training and marking processes will be similar to those described above for reading. Note that all of the booklets which contain mathematics or science items also contain reading items, and will need to be shared with the reading markers. The booklets should be assigned to markers according to exhibit 7-3.

Exhibit 7-3: Allocation of the booklets for single marking of mathematics and science

	Subsets of booklets							
	1	2	3	4	5	6	7	8
B1	M1	M2	M3	M4	M5	M6	M7	M8
B2	M8	M1	M2	M3	M4	M5	M6	M7
B3	M7	M8	M1	M2	M3	M4	M5	M6
B4	M6	M7	M8	M1	M2	M3	M4	M5
B5	M5	M6	M7	M8	M1	M2	M3	M4
B6	M4	M5	M6	M7	M8	M1	M2	M3
B8	M3	M4	M5	M6	M7	M8	M1	M2
B9	M2	M3	M4	M5	M6	M7	M8	M1
SEB	M1	M2	M3	M4	M5	M6	M7	M8

7.7   Multiple Marking

The multiple marking should be carried out after marking of all the booklets not set aside for this purpose has been completed. Markers should be thoroughly familiar with the Marking Guides by this time, but may have most recently marked a different booklet from those allocated to them for multiple marking.   For this reason, markers should re-read the relevant Marking Guide for their multiple marking study booklets before beginning the marking.

Markers should not consult each other about the Marking Guides during the multiple marking exercise.

The multiple marking differs significantly from the single marking in that **the marks assigned should not be shown in the booklets themselves by the first three markers**. These markers will need to use the special purpose marking record sheets, provided in appendix 3.

Unlike in the field trial, the main survey multiple marking record sheets are designed so that all the marks per student per booklet will be recorded on the same sheet. Marks will be shown by circling a pre-printed code number for each item. Multiple marking will be done item by item, as in the single marking. A student's record sheet will remain with the booklet until all items within the booklet have been marked by the designated marker. It is essential that the ID of the student whose booklet is being marked be written onto the separate record sheet, together with the marker's ID number and the marks assigned.

7.7.1   Multiple marking in countries with more than one language

Unless there is more than one NPM, countries where booklets will be provided in more than one language need carry out the multiple marking study in one language only. These countries should choose the language that is used for the majority of their PISA booklets. If two languages are used equally, the NPM may choose either language. Nevertheless, NPMs who have to deal with more than one language are encouraged to conduct the Multiple Marking on the different national languages.

7.7.2   Reading

The multiple marking design for reading specified here assumes 16 markers, with ID numbers 201 to 216. It is important that the design be followed exactly as specified, as the design provides for balanced links between clusters and markers. In the Exhibit 7-4 the 16 markers are also shown grouped into 8 pairs of two, with Group 1 comprising the first two markers (201 and 202), Group 2 the next two (203 and 204), and so on.

The design involves two steps, with the booklets divided into two sets. Booklets 1, 3, 5 and 7 make up one set, and Booklets 2, 4, 6, and 8/9 as a second set. The four markings of each booklet should be carried out by the allocation of booklets to markers shown in Exhibit 7-4.

Exhibit 7-4.   Allocation of booklets to markers for multiple marking of reading

Step	Booklet	Marker groups	Marker IDs
1	1	ℵ and ℑ	201, 202, 203, 204
	3	ℜ and ℘	205, 206, 207, 208
	5	⊗ and ⊕	209, 210, 211, 212
	7	∅ and ∩	213, 214, 215, 216
2	2	ℑ and ℜ	203, 204, 205, 206
	4	℘ and ⊗	207, 208, 209, 210
	6	⊕ and ∅	211, 212, 213, 214
	8/9	∩ and ℵ	215, 216, 201, 202

In this scenario, with all 16 markers working, the odd-numbered booklets (except 9) will be marked at the same time. The 100 Booklet 1s, for example, should be divided into four bundles of 25, and these bundles rotated among markers 201, 202, 203 and 204, so that each of these markers will eventually have marked all 100 of this booklet. The same pattern should be followed for Booklets 3, 5 and 7.

Remember that the first three times a bundle of booklets is marked, the marks should be circled on the separate multiple marking sheets. The fourth time, the marks should be circled in the booklets as was done for the single marking and also marks the few single marked items.

After the odd-numbered set of booklets has been put through the multiple marking, the pairs of markers should re-group (but remaining in their pairs) and follow the allocation in the second half of the table above. That is, Booklet 2 will be marked by markers 203, 204, 205 and 206, and so on for the remaining booklets.

If only 8 markers are being used, the design will apply by using the group designation in Exhibit 7-4 to indicate the marker ID. However, there will need to be four steps, not two, in order to achieve four

markings per booklet. The third and fourth steps can be achieved by starting the third step with Booklet 1 marked by markers 3 and 4 and continuing the pattern in a similar way as shown in the Exhibit, and by starting the fourth step with Booklet 2 marked by markers 4 and 5.

As there are unequal numbers of items requiring multiple marking in the various booklets, it is likely that some marker groups will need to take longer breaks than others. It will be very important to have a person designated to supervise the flow of booklets through the multiple marking processes.

Marking of any single-marker items in the booklets that have been through the multiple marking process should be done by the fourth marker. Marks for these items should be circled in the booklets.

7.7.3   Mathematics and Science

The multiple marking design for mathematics and science specified here assumes 8 markers, with ID numbers 401 to 408, who can each mark both mathematics and science. It is important that the design be followed exactly as specified, as the design provides for balanced links between clusters and markers.

The design requires four steps. The allocation of booklets to markers is shown in Exhibit 7-5. In this case there is no pairing of markers into groups.

Exhibit 7-5. Allocation of booklets for multiple marking of mathematics and science

Step	Booklet	Domain	Marker IDs
1	1	Mathematics	401, 402, 403, 404
	2	Science	405, 406, 407, 408
2	3	Mathematics	402, 403, 404, 405
	4	Science	406, 407, 408, 401
3	5	Mathematics	403, 404, 405, 406
	6	Science	407, 408, 401, 402
4	8	Math and	404, 405, 406, 407
	9	Math and	408, 401, 402, 403

If four mathematics and four science markers are being used, a different multiple marking design will be necessary. Additional information will be provided at the Brussels meeting to countries which cannot avoid separating the mathematics and science markers.

The two steps for the multiple marking in reading and the four steps for the multiple marking in mathematics and science can be inverted, as far as marker ID assignments to the different booklets are not changed. For instance, step 4 in mathematics and science can be done before step 1. It gives some flexibility to countries according to time constraints.

7.8   Cross-National Exchange of Booklets

Cross-national comparability in the assignment of marks will be explored in the main survey both through statistical methods and through the exchange of booklets between countries using the same language. This marking will be carried out after national data have been entered and cleaned. Specifications for this exercise will be provided later in 2000.

7.9   Code Questionnaires

In their national options, countries may need to pre-code some responses before data from the questionnaire are entered into the software.

The main coding required for the Student Questionnaire internationally is for mother's and father's occupation and student occupation expectation. In most countries there is more than one way that this can be achieved. NPMs may use a national coding scheme with more than one hundred occupational title categories, provided that this national classification can be recoded (see below), or they may use four-digit ISCO88 (International Standard Classification of Occupations, 1988 Edition) codes. It is preferred that a National Classification is used because it will then be possible to compare relationships between occupational status and achievement using both international and national measures of occupational status. Countries will need to provide precise information about their national scheme to the consortium.

If a national classification is not available, ISCO88 should be used.

A summary of ISCO codes and occupational titles is available from the PISA website. This should not be difficult to translate into other languages because it is short and clear. It can then be used by countries which have neither a national occupational classification scheme nor access to ISCO.

The ISCO manual is available in English, French, Spanish and possibly German. Note that it is not practicable to attempt to translate ISCO itself into another language.

You may wish to contact your national government statistical agency for details on ISCO in relation to your country. Please check whether the agency has conversion files between ISCO and your national classification of occupational titles. Please inform the International Project Centre of any such conversion files.

There are several other questions in the Student Questionnaire where some simple pre-coding may need to be done before data entry.

Details of all coding required will be provided in the Data Entry Manual.

7.10   Install Data Entry Software

The consortium will provide data entry software to participating countries. The software will run under Windows 95 or higher, and Windows NT 4.0 or higher. The software contains the data base structures for all the booklets and questionnaires used in the main survey and incorporates many enhancements since the field trial version. These data base structures can be modified by the user. For example, variables can be added or deleted. The data should be entered directly from the booklets. However, for the reliability study where items are marked by several markers, the data will be recorded on separate sheets and will be entered from those sheets into tailored files. The data entry software performs validation checks as data are entered. Importing facilities are also available if data have already been entered into text files. It is strongly recommended that data are entered directly into KeyQuest, in order to take advantage of its many PISA-specific features.

The separate Data Entry Manual provides full details of the functionality of the KeyQuest software.

7.11   Material to be Submitted

7.11.1   Hard Copy Material

NPMs must send a hard copy of the complete set of instruments to the IPC and are invited to provide an electronic version of this documentation on a CD. The 'complete set' consists of the nine or ten test booklets as formatted for their country, the School and Student Questionnaires likewise, and any international and national option instruments.

Adaptation and Modification Forms must accompany the submission of questionnaires. The whole set of instruments and the Adaptation and Modification Forms should be sent as soon as the instruments are printed. (Note that this is in addition to the proposed adaptations and modifications to the

instruments, plus the proposed final formatting, which will have been sent to the IPC for approval several weeks beforehand.)

7.11.2   Enter, Check and Submit Data

NPMs have **12 weeks from the end of the testing sessions in their country** to code items, undertake multiple marking (but not the cross-national marking), enter all data, check data and submit all the documentation and the data files to the IPC. If you have a very unusual circumstance which results in problems with meeting this deadline, please consult the IPC immediately. Data files *must* be submitted in KeyQuest.

7.11.3   Check Data

Before submitting their data, NPMs are required to run the checking procedures that are described briefly below. More information on how to execute these checking procedures will be provided in the Data Entry Manual. NPMs are required to complete: 1) the Student Tracking Forms; 2) the list of sampled schools; before data entry begins. Information contained in these forms is necessary for running the data checking procedures.

When necessary, NPMs must correct any data errors detected by the checking procedures. Hard or electronic copies of the cleaning reports must be submitted with the data files.

Eight different checking procedures must be implemented before NPMs submit their data files to the IPC:

> **Report 1**: *Single (i.e., non-matching) records between the School Questionnaire file and the list of schools*
> This report will list school entries which either appear in the School Questionnaire file but not on the school list, or vice versa. In the former case this means that the school ID was not correctly entered (assuming that the school list is accurate). In the latter case, it may be that the School Questionnaire was received and mislaid, or was missed in the data

entry step. To facilitate the identification of errors, the school participation status will be included in the cleaning report.

Report 2: *Duplicate student ID in test data file*
Any record included in this report will mean that a student ID number has been mis-keyed (each student answered only one test booklet)

Report 3: *Single (i.e., non-matching) records between the Student Tracking Form and test booklets*
Any record listed in this report indicates a record that is not on the Student Tracking Form but which has an entry in the test data file, or vice versa. Absent or excluded students are not included in this report, provided that they are correctly coded on the Student Tracking Form.

Report 4: *Single (i.e., non-matching) records between the Student Tracking Form and the Student Questionnaire*
Any record listed in this report indicates a record that is not on the Student Tracking Form but which has an entry in the questionnaire data file, or vice versa. Absent or excluded students are not included in this report, provided that they are correctly coded on the Student Tracking Form.

Report 5: *Single (i.e., non-matching) records between the test and questionnaire data files*
Any record listed in this report indicates a record that is not in the test data file but which has an entry in the questionnaire data file, or vice versa. KeyQuest provides for four different versions of the Student Questionnaire and the international options: 1) questionnaire alone; questionnaire with IT; questionnaire with CCC; and CCC with IT. It was not possible to build one instrument containing the questionnaire and both CCC and IT. Countries implementing both international options are required to produce Report 5 for the CCC+IT instrument.

Report 6: *Multiple records in reliability files*
This report will list each student in the reliability files. The expected occurrence of multiple records is three (the fourth coding from the multiple marking will be part of the main file entered from the booklet). Any record occurring more or less than three times must be considered to be an error.

Report 7: *Multiple records in reliability and test booklet files*
This report will list each student in both the reliability and the test booklet files. The expected occurrence of multiple records is four. Any record occurring more or less than four times must be considered to be an error.

Report 8: *Duplicate records for student–marker combinations*
This report will show duplicate records for student and marker IDs between the test booklet and reliability files (if the multiple marking design is followed correctly, such duplicates should not occur).

7.11.4   Submit Files

The data files submitted must include:

- Data for the test booklets and context questionnaires;

- Data for the international option instrument(s);

- Data for the multiple marking study;

- List of sampled schools; and

- Student Tracking Forms.

NPMs must provide hard copies of student lists if these are not imported into KeyQuest.

Submission of data files via FTP access to the IPC at ACER is preferred. Please contact ACER a day or two before you are ready to send the files for instructions on how to proceed.

7.12   After submission of the data

NPMs must designate a data manager who will work actively with the IPC during the international data cleaning process. Responses to requests for information by the IPC must be provided within three working days of the request.

Unresolved student identification problems will lead to deletion of that record. Other unsolved data errors will also lead to the deletion of data.

8.   DOCUMENTATION

8.1   Documentation to be Submitted by NPMs

Before undertaking the main study testing, NPMs are required to make the following information available to the IPC:.

- ■ School Sampling Report – a description of the method used and the results of the school sampling (see Chapter 3 and the PISA Sampling Manual);

- ■ Translation Verification Form – a copy is attached as Appendix 2. Most countries have already submitted this form.

- ■ Translated materials with the *National Revisions Forms* or *the Adaptation and Modification Forms*. The *National Revisions Form* is included in Chapter 4. The *Adaptation and Modification Form* was distributed in a separate mailing.

8.2   Produce Main Survey Operations Report

National Project Managers are asked to prepare a report documenting the results of the Main Survey. This report serves two very important purposes. First, it documents all main survey activities in the country. Second, it summarises recommendations for changes in materials, manuals, and procedures for the future. The IPC is very interested in the experiences of the participating countries and their recommendations for improvement. The information to be included in the report comes from a variety of sources, including the forms used throughout the study, the session report forms filled in by the Test Administrators, and formal observations conducted by the NPM and his or her staff.

The report requested is similar in content to the Field Trial report. Reports from countries for the field trial varied greatly in length, from 6 pages to 100 pages or so. As a guide, reports of the main survey operations should be between 20 and 30 pages long.

The following are the main topics that the IPC would like NPMs to include in their reports:

Document Student Sampling

- How was the sample selected?

- Were there any differences from the standard procedures defined in the manuals?

- What criteria were used to define students who could be excluded from the assessment?

- How were schools recruited for the study?

- Assessment results—how many schools and students were selected, excluded and assessed?

- Were there any problems or questions about sampling forms and procedures?

Document Translation Verification

- What was the process for translation and verification?

- Were there any problems encountered with these procedures?

Document Field Organisation and Supervision

- What was the schedule of activities?

- How were test administrators hired, trained and supervised?

- How did you define the role of the School Co-ordinators and Test Administrators?

- Were there any problems with this organisation?

Document Test Instruments and Administration

- How did you organise the assessment sessions – were the cognitive and questionnaire sections administered at the same time? How long were the breaks between sections?

- How were the test instruments packaged and distributed?

- Were there any problems with the test instruments, such as printing problems, students not understanding words or questions, difficulties in the administration, etc?

- Were there any problems with the script and timing of the sessions?

Document Marking, Data Entry, and Quality Control

- Were there any modifications to the international specifications?

- Were there any problems in marking any of the items?

- Were there any problems with the data entry programs?

- What quality control procedures were implemented throughout the process?

Add General Comments and Recommendations

If you have any general comments or recommendations that you think would be helpful revising any aspect of the study, please include them in your report.

We ask that you submit the Main Survey report to the IPC no later than one month after submitting your data. Note that data must be submitted within twelve weeks of the conclusion of the testing.

Appendix 1 National Revisions Form

Instructions relating to the use of the National Revisions form

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- A *National Revisions form* should be completed by each translator for each test or test section which he/she is in charge of translating. He/She will record in it all the deviations in relation to the source text which he/she judged to be indispensable. If there are many adaptations, use several copies of the enclosed standard form if necessary.

- The national verifier shall collate the revisions proposed by the two translators in charge of the same tool. He/She will discuss with them (and, if necessary, with the experts of the national team) possible contentious cases.

- The revisions retained after this consultation work shall be reported on one or on several blank copies of the *National Revisions form*, which should be enclosed with the translated version of the instrument when it is sent to the *International Project Centre.*

- The various booklets will be printed **only after** the revisions have been ratified by the *International Project Centre* and the adjustments which it may require have been inserted.

Every form which has been sent back to the *International Centre* shall show:

- the name of the translated instrument (booklet title or code);

- the name of the country;

- the target language;

- the name of the translator responsible for the verification;

- the sending date.

For each of the proposed revisions, it will be necessary to indicate:

- the page of the source document where the adapted passage or item appears;

- a precise indication of the location of the revision (the name of the text extract, the line where the passage is, or the number of the modified item);

- the formulation retained in the target language;

- a brief justification for the proposed revision.

Appendix 2 Verification Form

Please complete this form and return before *25 November 1998* to:
Ms. Aletta Grisay, SPE
Fax: +32 43 66 28 55 / Tel: +32 43 68 71 60 / email: agrisay@*ibm.net*

Please copy your mails to steve.dept@euronet.be

CONTACT INFORMATION

Country:_____ NPM: _____

The person in charge for translation and translation verification in our country is /will be:

  Name:_____

  Telephone*: _____

  Fax*: _____

  email address: _____

- *Please also state country code*

- *If more than one instruction language is tested in your country, and different persons are in charge for different languages, please provide the contact information for each person.*

Deadlines information

OUR FIELD TRIAL TESTING DATES WILL BE FROM _____ UNTIL _____

Our material should be given for printing on (date)   :_____

We need the feedback from the verifier(s) on (date)   : _____
SPE will receive the last material to be verified on (date) : _____
SPE will receive the first material to be verified on (date): _____

LANGUAGE(S) OF TEST INFORMATION

We will test _____ % of our students in (instruction language 1) _____

We will test _____ % of our students in (instruction language 2) _____

We will test _____ % of our students in (instruction language 3) _____

We will test _____ % of our students in (instruction language 4) _____

We will test _____ % of our students in (instruction language 5) _____

(Please note that the test material in instruction languages used with less than 5% of the students in your target population will NOT be verified by the PISA consortium. If you want that a NATIONAL verifier for minority language(s) used with less than 5% of your students to attend a verification training session, please add the following information:

Name: _____   Language: _____   Contact email : _____

TRANSLATION PROCEDURES INFORMATION

Please briefly describe how the translation procedures are being implemented in your country:

Appendix 3 Multiple Marker Coding Sheets

OECD PISA 2000 MAIN SURVEY

RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 1: Reading   Marker's name_____   Date_____/00

Marker ID   Student ID

StIDStr   StIDSch   tIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet.*

*You must mark **the same item** throughout all booklets assigned to you before moving to another item*

*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes			Missing	N/A
Q1E	Employment	R219Q01E	0	1		9	n
Q2		R219Q02	0	1		9	n
Q4	Graffiti	R081Q02	0	1		9	n
Q5		R081Q05	0	1		9	n
Q6		R081Q06A	0	1		9	n
Q7		R081Q06B	0	1		9	n
Q16	Beach	R070Q04	0	1		9	n
Q21	Nuclear	R225Q02	0	1		9	n
Q24	Bicycle	R238Q01	0	1		9	n
Q26	Personnel	R234Q01	0	1		9	n
Q27		R234Q02	0	1		9	n
Q28	WarrantyHotPoint	R241Q01	0	1		9	n
Q29		R241Q02	0	1		9	n
Q32	Optician	R227Q03	0	1		9	n
Q33		R227Q04	0	1	2	9	n
Q34		R227Q06	0	1		9	n
Q36	If	R086Q07	0	1		9	n
Q37		R086Q04	0	1		9	n
Q39	Shirt	R102Q04A	0	1		9	n
Q41		R102Q06	0	1		9	n
Q44	Exchange	R111Q02B	0	1	2	9	n
Q47		R111Q06B	0	1	2	9	n

OECD PISA 2000 MAIN SURVEY

RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 2: Reading   Marker's name_____   Date_____/00

Marker ID   Student ID

StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet.*

*You must mark **the same item** throughout all booklets assigned to you before moving to another item*

*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes				Missing	N/A
Q4	Nuclear	R225Q02	0	1			9	n
Q7	Bicycle	R238Q01	0	1			9	n
Q9	Personnel	R234Q01	0	1			9	n
Q10		R234Q02	0	1			9	n
Q11	WarrantyHotPoint	R241Q01	0	1			9	n
Q12		R241Q02	0	1			9	n
Q13	Library	R091Q05	0	1			9	n
Q16		R091Q07B	0	1	2		9	n
Q17a	Gift	R119Q09A	0	1			9	n
Q17b		R119Q09B	0	1			9	n
Q19		R119Q07	0	1	2	3	9	n
Q21		R119Q08	0	1	2		9	n
Q23		R119Q05	0	1	2	3	9	n
Q24	News Agencies	R093Q03	0	1			9	n
Q25		R093Q04	0	1			9	n
Q27	Drugged Spiders	R055Q02	0	1			9	n
Q28		R055Q03	0	1	2		9	n
Q29		R055Q05	0	1			9	n
Q30a	Just Art	R122Q01A	0	1			9	n
Q30b		R122Q01B	0	1			9	n
Q30c		R122Q01C	0	1			9	n
Q34	Aesop	R067Q04	0	1	2		9	n
Q35		R067Q05	0	1	2		9	n

OECD PISA 2000 MAIN SURVEY

RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 3: Reading   Marker's name_____   Date_____/00

Marker ID

Student ID

StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet.*

*You must mark **the same item** throughout all booklets assigned to you before moving to another item*

*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes				Missing	N/A
Q1	Library	R091Q05	0	1			9	n
Q4		R091Q07B	0	1	2		9	n
Q5a	Gift	R119Q09A	0	1			9	n
Q5b		R119Q09B	0	1			9	n
Q7		R119Q07	0	1	2	3	9	n
Q9		R119Q08	0	1	2		9	n
Q11		R119Q05	0	1	2	3	9	n
Q14	Optician	R227Q03	0	1			9	n
Q15		R227Q04	0	1	2		9	n
Q16		R227Q06	0	1			9	n
Q18	If	R086Q07	0	1			9	n
Q19		R086Q04	0	1			9	n
Q21	Shirt	R102Q04A	0	1			9	n
Q23		R102Q06	0	1			9	n
Q26	Exchange	R111Q02B	0	1	2		9	n
Q29		R111Q06B	0	1	2		9	n
Q30	Macondo	R061Q01	0	1	2		9	n
Q33		R061Q05	0	1			9	n
Q35	Household	R083Q02	0	1			9	n
Q38		R083Q06	0	1			9	n
Q46	Telephone	R104Q05	0	1	2		9	n

RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 4: Reading   Marker's name_____   Date_____/00

Marker ID   Student ID

                                                    StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet.*

*You must mark **the same item** throughout all booklets assigned to you before moving to another item*

*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes				Missing	N/A
Q3	Optician	R227Q03	0	1			9	n
Q4		R227Q04	0	1	2		9	n
Q5		R227Q06	0	1			9	n
Q7	If	R086Q07	0	1			9	n
Q8		R086Q04	0	1			9	n
Q10	Shirt	R102Q04A	0	1			9	n
Q12		R102Q06	0	1			9	n
Q15	Exchange	R111Q02B	0	1	2		9	n
Q18		R111Q06B	0	1	2		9	n
Q19	News Agencies	R093Q03	0	1			9	n
Q20		R093Q04	0	1			9	n
Q22	Drugged Spiders	R055Q02	0	1			9	n
Q23		R055Q03	0	1	2		9	n
Q24		R055Q05	0	1			9	n
Q25a	Just Art	R122Q01A	0	1			9	n
Q25b		R122Q01B	0	1			9	n
Q25c		R122Q01C	0	1			9	n
Q29	Aesop	R067Q04	0	1	2		9	n
Q30		R067Q05	0	1	2		9	n
Q39	Planint	R099Q04B	0	1	2	3	9	n
Q43	Opinions	R120Q06	0	1			9	n
Q45	South Pole	R220Q01	0	1			9	n

OECD PISA 2000 MAIN SURVEY

RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 5: Reading   Marker's name_____   Date_____/00

Marker ID   Student ID

StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet.*

*You must mark **the same item** throughout all booklets assigned to you before moving to another item*

*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes			Missing	N/A
Q1	News Agencies	R093Q03	0	1		9	n
Q2		R093Q04	0	1		9	n
Q4	Drugged Spiders	R055Q02	0	1		9	n
Q5		R055Q03	0	1	2	9	n
Q6		R055Q05	0	1		9	n
Q7a	Just Art	R122Q01A	0	1		9	n
Q7b		R122Q01B	0	1		9	n
Q7c		R122Q01C	0	1		9	n
Q11	Aesop	R067Q04	0	1	2	9	n
Q12		R067Q05	0	1	2	9	n
Q16	Macondo	R061Q01	0	1	2	9	n
Q19		R061Q05	0	1		9	n
Q21	Household	R083Q02	0	1		9	n
Q24		R083Q06	0	1		9	n
Q32	Telephone	R104Q05	0	1	2	9	n
Q33E	Employment	R219Q01E	0	1		9	n
Q34		R219Q02	0	1		9	n
Q36	Graffiti	R081Q02	0	1		9	n
Q37		R081Q05	0	1		9	n
Q38		R081Q06A	0	1		9	n
Q39		R081Q06B	0	1		9	n
Q48	Beach	R070Q04	0	1		9	n

OECD PISA 2000 MAIN SURVEY

RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 6: Reading   Marker's name_____   Date_____/00

Marker ID   Student ID

StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet.*

*You must mark **the same item** throughout all booklets assigned to you before moving to another item*

*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes				Missing	N/A
Q1	Macondo	R061Q01	0	1	2		9	n
Q4		R061Q05	0	1			9	n
Q6	Household	R083Q02	0	1			9	n
Q9		R083Q06	0	1			9	n
Q17	Telephone	R104Q05	0	1	2		9	n
Q23	Planint	R099Q04B	0	1	2	3	9	n
Q27	Opinions	R120Q06	0	1			9	n
Q29	South Pole	R220Q01	0	1			9	n
Q37	Nuclear	R225Q02	0	1			9	n
Q40	Bicycle	R238Q01	0	1			9	n
Q42	Personnel	R234Q01	0	1			9	n
Q43		R234Q02	0	1			9	n
Q44	WarrantyHotPoint	R241Q01	0	1			9	n
Q45		R241Q02	0	1			9	n

RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 7: Reading   Marker's name_____   Date_____/00

Marker ID   Student ID

| | | | | | | | | | | | | | | |
                                              StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet.*

*You must mark **the same item** throughout all booklets assigned to you before moving to another item*

*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes				Missing	N/A
Q6	Planint	R099Q04B	0	1	2	3	9	n
Q10	Opinions	R120Q06	0	1			9	n
Q12	South Pole	R220Q01	0	1			9	n
Q17E	Employment	R219Q01E	0	1			9	n
Q18		R219Q02	0	1			9	n
Q20	Graffiti	R081Q02	0	1			9	n
Q21		R081Q05	0	1			9	n
Q22		R081Q06A	0	1			9	n
Q23		R081Q06B	0	1			9	n
Q32	Beach	R070Q04	0	1			9	n
Q34	Library	R091Q05	0	1			9	n
Q37		R091Q07B	0	1	2		9	n
Q38a	Gift	R119Q09A	0	1			9	n
Q38b		R119Q09B	0	1			9	n
Q40		R119Q07	0	1	2	3	9	n
Q42		R119Q08	0	1	2		9	n
Q44		R119Q05	0	1	2	3	9	n
Q46	Runners	R110Q04	0	1			9	n
Q47		R110Q05	0	1			9	n
Q49	Job Interview	R237Q01	0	1			9	n
Q50		R237Q03	0	1			9	n
Q51	New Rules	R236Q01	0	1			9	n
Q52		R236Q02	0	1	2		9	n
Q53	Contact Employer	R246Q01	0	1			9	n
Q54		R246Q02	0	1			9	n
Q55	Allergies	R239Q01	0	1			9	n
Q56		R239Q02	0	1			9	n

RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 8: Reading   Marker's name_____   Date_____/00

Marker ID   Student ID

StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet.*

*You must mark **the same item** throughout all booklets assigned to you before moving to another item*

*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes			Missing	N/A
Q36	Runners	R110Q04	0	1		9	n
Q37		R110Q05	0	1		9	n
Q39	Job Interview	R237Q01	0	1		9	n
Q40		R237Q03	0	1		9	n
Q41	New Rules	R236Q01	0	1		9	n
Q42		R236Q02	0	1	2	9	n
Q43	Contact Employer	R246Q01	0	1		9	n
Q44		R246Q02	0	1		9	n
Q45	Allergies	R239Q01	0	1		9	n
Q46		R239Q02	0	1		9	n
Q48	Flu	R077Q03	0	1	2	9	n
Q50		R077Q05	0	1	2	9	n
Q53	Amanda	R216Q02	0	1		9	n
Q54a		R216Q03A	0	1		9	n
Q54b		R216Q03B	0	1		9	n
Q54c		R216Q03C	0	1		9	n
Q55		R216Q04	0	1		9	n
Q58	Labour	R088Q03	0	1	2	9	n
Q64	Lake Chad	R040Q03B	0	1		9	n

OECD PISA 2000 MAIN SURVEY

RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 9: Reading   Marker's name_____   Date_____/00

Marker ID   Student ID

| | | |

StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet.*

*You must mark **the same item** throughout all booklets assigned to you before moving to another item*

*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes			Missing	N/A
Q35	Flu	R077Q03	0	1	2	9	n
Q37		R077Q05	0	1	2	9	n
Q40	Amanda	R216Q02	0	1		9	n
Q41a		R216Q03A	0	1		9	n
Q41b		R216Q03B	0	1		9	n
Q41c		R216Q03C	0	1		9	n
Q42		R216Q04	0	1		9	n
Q45	Labour	R088Q03	0	1	2	9	n
Q51	Lake Chad	R040Q03B	0	1		9	n
Q55	Runners	R110Q04	0	1		9	n
Q56		R110Q05	0	1		9	n
Q58	Job Interview	R237Q01	0	1		9	n
Q59		R237Q03	0	1		9	n
Q60	New Rules	R236Q01	0	1		9	n
Q61		R236Q02	0	1	2	9	n
Q62	Contact Employer	R246Q01	0	1		9	n
Q63		R246Q02	0	1		9	n
Q64	Allergies	R239Q01	0	1		9	n
Q65		R239Q02	0	1		9	n

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RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 1: Mathematics   Marker's name_____   Date_____/00

Marker ID   Student ID

StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet*
*You must mark **the same item** throughout all booklets assigned to you before moving to another item*
*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes											Missing	N/A
Q54	Walking	M124Q01	0	1	2									9	n
Q55		M124Q03	00	11	21	22	23	24	31					99	97
Q57	Apples	M136Q02	00	11	12	13	14	15						99	97
Q58		M136Q03	01	02	11	12	21							99	97
Q60	Continent Area	M148Q02	01	02	11	12	13	14	21	22	23	24	25	99	97
Q62	Growing Up	M150Q03	01	02	11	12	13							99	97
Q63		M150Q02	00	11	21	22								99	97

RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 3: Mathematics   Marker's name_____   Date_____/00

Marker ID   Student ID

StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet.*

*You must mark **the same item** throughout all booklets assigned to you before moving to another item*

*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes									Missing	N/A
Q49	Pop Pyramids	M155Q02	00	11	12	13	21					99	97
Q51		M155Q03	00	11	12	13	21	22	23			99	97
Q61	Robberies	M179Q01	01	02	03	04	11	12	21	22	23	99	97

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RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 5: Mathematics   Marker's name_____   Date_____/00

Marker ID   Student ID

StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet*

*You must mark **the same item** throughout all booklets assigned to you before moving to another item*

*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes											Missing	N/A
Q51	Apples	M136Q02	00	11	12	13	14	15						99	97
Q52		M136Q03	01	02	11	12	21							99	97
Q54	Continent	M148Q02	01	02	11	12	13	14	21	22	23	24	25	99	97
Q56	Growing Up	M150Q03	01	02	11	12	13							99	97
Q57		M150Q02	00	11	21	22								99	97
Q60	Pop Pyramids	M155Q02	00	11	12	13	21							99	97
Q62		M155Q03	00	11	12	13	21	22	23					99	97

RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 8: Mathematics*[)]   Marker's name_____   Date_____/00

Marker ID   Student ID

| | | | | | | | | | | | | | |

                                                                           StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet*

*You must mark **the same item** throughout all booklets assigned to you before moving to another item*

*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes											Missing	N/A
Q7	Robberies	M179Q01	01	02	03	04	11	12	21	22	23			99	97
Q10	Apples	M136Q02	00	11	12	13	14	15						99	97
Q11		M136Q03	01	02	11	12	21							97	99
Q13	Continent	M148Q02	01	02	11	12	13	14	21	22	23	24	25	99	97
Q15	Growing Up	M150Q03	01	02	11	12	13							99	97
Q16		M150Q02	00	11	21	22								99	97

*[)] This record sheet should be used if the country has different markers for mathematics and science.

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RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 9: Mathematics *)   Marker's name_____   Date_____/00

Marker ID   Student ID

StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet.*

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*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes							Missing	N/A
Q24	Walking	M124Q01	0	1	2					9	n
Q25		M124Q03	00	11	21	22	23	24	31	99	97
Q28	Pop Pyramids	M155Q02	00	11	12	13	21			99	97
Q30		M155Q03	00	11	12	13	21	22	23	99	97

*) This record sheet should be used if the country has different markers for mathematics and science.

RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 2: Science   Marker's name_____   Date_____/00

Marker ID   Student ID

StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet.*

*You must mark **the same item** throughout all booklets assigned to you before moving to another item*

*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes									Missing	N/A
Q43	Greenhouse	S114Q03	01	02	11	12						99	97
Q44		S114Q04	01	02	03	11	12	13	14	15	21	99	97
Q45		S114Q05	01	02	03	11	12					99	97
Q49	Earth	S269Q03	01	02	11	12						99	97
Q54	Good Vibrations	S131Q02	01	02	03	11	12					99	97
Q55		S131Q04	01	02	03	04	11					99	97

RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 4: Science   Marker's name_____   Date_____/00

Marker ID   Student ID

| | | |

StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet*

*You must mark **the same item** throughout all booklets assigned to you before moving to another item*

*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes								Missing	N/A
Q50	Semmelweis	S195Q02	01	02	03	04	11	12	13	21	99	97
Q52		S195Q05	01	02	11	12	13	14	15		99	97
Q58	Tidal Power	S209Q02	01	02	03	11	12	13	14	15	99	97
Q59	Ozone	S253Q01	01	11	12	13	21	22	23	31	99	97
Q64	Daylight	S129Q02	01	02	03	04	11	12	13	21	99	97
Q66	Algae	S268Q02	01	02	03	11	12	13	14	15	99	97

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RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 6: Science   Marker's name_____   Date_____/00

Marker ID   Student ID

StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet*

*You must mark **the same item** throughout all booklets assigned to you before moving to another item*

*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes								Missing	N/A
Q47	Earth	S269Q03	01	02	11	12					99	97
Q52	Good Vibrations	S131Q02	01	02	03	11	12				99	97
Q53		S131Q04	01	02	03	04	11				99	97
Q54	Semmelweis	S195Q02	01	02	03	04	11	12	13	21	99	97
Q56		S195Q05	01	02	11	12	13	14	15		99	97
Q62	Tidal Power	S209Q02	01	02	03	11	12	13	14	15	99	97

RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 8: Science *⁾   Marker's name_____   Date_____/00

Marker ID   Student ID

StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet*

*You must mark **the same item** throughout all booklets assigned to you before moving to another item*

*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes										Missing	N/A
Q21	Greenhouse	S114Q03	01	02	11	12							99	97
Q22		S114Q04	01	02	03	11	12	13	14	15	21		99	97
Q23		S114Q05	01	02	03	11	12						99	97
Q26	Semmelweis	S195Q02	01	02	03	04	11	12	13	21			99	97
Q28		S195Q05	01	02	11	12	13	14	15				99	97
Q34	Tidal Power	S209Q02	01	02	03	11	12	13	14	15			99	97

*⁾ This record sheet should be used if the country has different markers for mathematics and science.

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RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 9: Science *)   Marker's name_____   Date_____/00

Marker ID

Student ID

StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the*
booklet
*You must mark **the same item** throughout all booklets assigned to you before moving to another item*
*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes								Missing	N/A
Q1	Ozone	S253Q01	01	11	12	13	21	22	23	31	99	97
Q6	Daylight	S129Q02	01	02	03	04	11	12	13	21	99	97
Q8	Algae	S268Q02	01	02	03	11	12	13	14	15	99	97
Q11	Earth	S269Q03	01	02	11	12					99	97
Q16	Good Vibrations	S131Q02	01	02	03	11	12				99	97
Q17		S131Q04	01	02	03	04	11				99	97

*) This record sheet should be used if the country has different markers for mathematics and science.

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RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 8: Mathematics/Science *)   Marker's name_____   Date_____/00

Marker ID   Student ID

                                                                                                        StIDStr   StIDSch   StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the*
booklet.
*You must mark **the same item** throughout all booklets assigned to you before moving to another item*
*Show a mark by **circling** the appropriate marking code.*

Question #	Item name	Item Label	Marking Codes											Missing	N/A
Q7	Robberies	M179Q01	01	02	03	04	11	12	21	22	23			99	97
Q10	Apples	M136Q02	00	11	12	13	14	15						99	97
Q11		M136Q03	01	02	11	12	21							97	99
Q13	Continent	M148Q02	01	02	11	12	13	14	21	22	23	24	25	99	97
Q15	Growing Up	M150Q03	01	02	11	12	13							99	97
Q16		M150Q02	00	11	21	22								99	97
Q21	Greenhouse	S114Q03	01	02	11	12								99	97
Q22		S114Q04	01	02	03	11	12	13	14	15	21			99	97
Q23		S114Q05	01	02	03	11	12							99	97
Q26	Semmelweis	S195Q02	01	02	03	04	11	12	13	21				99	97
Q28		S195Q05	01	02	11	12	13	14	15					99	97
Q34	Tidal Power	S209Q02	01	02	03	11	12	13	14	15				99	97

*) This record sheet should be used if the country has the same markers for mathematics and science.

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RECORD SHEET FOR MULTIPLE MARKING   <FIRST/SECOND/THIRD> MARKING

Booklet 9: Mathematics/Science *⁾   Marker's name_____

    Date_____/00

Marker ID   Student ID

                                                                   StIDStr   StIDSch

    StIDSt

*Please enter **and check** the full ID for the student, and keep this sheet with the booklet until you have marked all the designated items in the booklet.*

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Question #	Item name	Item Label	Marking Codes								Missing	N/A
Q1	Ozone	S253Q01	01	11	12	13	21	22	23	31	99	97
Q6	Daylight	S129Q02	01	02	03	04	11	12	13	21	99	97
Q8	Algae	S268Q02	01	02	03	11	12	13	14	15	99	97
Q11	Earth	S269Q03	01	02	11	12					99	97
Q16	Good Vibrations	S131Q02	01	02	03	11	12				99	97
Q17		S131Q04	01	02	03	04	11				99	97
Q24	Walking	M124Q01	0	1	2						9	n
Q25		M124Q03	00	11	21	22	23	24	31		99	97
Q28	Pop Pyramids	M155Q02	00	11	12	13	21				99	97
Q30		M155Q03	00	11	12	13	21	22	23		99	97

*⁾ This record sheet should be used if the country has the same markers for mathematics and science.