OECD Programme for International Student Assessment 2015

FT Sampling Guidelines

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FIELD TRIAL SAMPLING GUIDELINES

1. Introduction Summary of NPM Main Tasks and Timeline

This document provides guidelines for the submission and approval of sampling and population information required prior to and shortly after the PISA 2015 Field Trial (FT) via six sampling tasks. This is the first version of this manual. It is possible that details will be updated into a final version after the March 2013 NPM meeting in Thailand. If that occurs, changes in version 2 will be in tracked format for easier viewing.

In the remainder of this document, items that require action, or are of utmost importance, have been highlighted in bold.

Acronyms used in this document are defined in Appendix F. Any variable names used are defined in the accompanying text.

2. Summary of NPM FT Sampling Tasks and Timeline

Presented below are all the tasks involved in FT sampling, and the times at which they need to occur.

- ***By Oct 15, 2012 for the first set of countries and by Nov. 14, 2012 for the second set of countries-*** Submit via email your first FT sampling task for 2015 (ST0) (languages of instruction for science) to Westat, Core 5.

- ***Mar 18-Mar20, 2013 -*** At the NPM meeting in Thailand, meet with sampling personnel from Westat, Core 5 if you are a new NPM. If you are not a new NPM you may request a meeting with sampling personnel as desired.

- ***By May 30, 2013*** – You should submit to the PISA Portal website your Options Questionnaire, Part II as an indication of your intention to participate in any national options for the Main Survey (MS) (grade-based sampling, sampling of other non-PISA students, adjudicated regions, other oversampling of PISA students, school overlap control, use of the UH assessment instrument, use of easier assessment instruments, etc.).

- ***By June 1, 2013 for half the countries and by June 15, 2013 for the other half – Sampling Task One (ST1)*** You should submit on the ST1 form the beginning dates of the academic year, FT and MS testing and population birth dates to the PISA Portal website. If any additional populations are to be sampled, they also need to be defined in this task.

- ***By July 1, 2013 for half the countries and by July 15, 2013 for the other half – Sampling Task Two (ST2)*** On the PISA Portal website you should submit on your ST2 form information on: which FT design you will use, number of students to select per school for both the FT and the MS, estimated rates for within-school student assessment for both the FT and the MS, school types containing PISA students, proposed stratification plans, sampling frame units, and plans to use *KeyQuest* for student sampling.

- ***By September 1, 2013 for half the countries and by September 15, 2013 for the other half – Sampling Task Three (ST3, ST3a)*** Submit your FT Sampling Plan as ST3 and ST3a via the PISA Portal to Westat, Core 5 so these can be approved before submitting Sampling Task 4 at the beginning of November.

- ***By November 1, 2013 for half the countries and by November 15, 2013 for the other half– Sampling Task Four (ST4)*** Submit your FT Sampled Schools as ST4 via the PISA Portal to Westat, Core 5 as the completion of first full draft of the FT sampling plan.

- ***By December 1, 2013 for the first half of the countries and by December 11, 2013 for the other half – Sampling Task Five (ST5)*** Review carefully and approve the ST5 form (which will become the Sampling Form for *KeyQuest* (SFKQ)) created by Westat, Core 5 and their sub-contractor, ACER.

- ***About eight weeks before testing will begin –*** Work with school co-ordinators to obtain student lists (and teacher lists if using teacher questionnaires) for sampling.

- ***About six weeks before testing will begin*** – Select student samples (and teacher samples if using teacher questionnaires) using *KeyQuest*.

- ***About two weeks after data collection ends – Sampling Task Six (ST6)*** Submit your FT Sampling Data and Checks as ST6 to Westat, Core 5 via *KeyQuest*.

3. General Procedures

This section outlines procedures which should be followed in submitting the FT sampling form information. If these procedures are followed, they will facilitate an efficient submission/review/approval process.

By having crucial sampling information that applies to both the FT and MS captured on standard forms in one and only one place—the PISA Portal website --- it will be much easier for everyone to access the same information at the same time.

Following the agreement of information that has been submitted to the PISA Portal, the data on the PISA Portal should not be edited. Of course, it may sometimes be necessary to update or amend information that has been agreed upon. In this situation, please contact Westat, Core 5 to alert them that changes need to be made.

When sending any email to Westat, Core 5, please cc PISA15SMP@Westat.com and ensure that you have your bracketed (i.e. (CCC)) 3-letter country code (e.g. ALB, BRA, DEU, etc.) in the email subject (see Appendix E). Note that round brackets around the 3-letter code help to ensure that any subjects with the word "s*che*dule" don't get sent to the Switzerland (CHE) email archive folder, for example.

4. Overview of the PISA MS Sample Design

The MS is discussed in this document about the FT because of its important influence on the FT. Almost everything planned for the MS must first be field trialled.

Despite the fact that the main mode of collection for PISA 2015 will be computer-based, the MS sample design for PISA 2015 is similar to that used in previous PISA cycles. That sample design begins with the definition of the PISA Target Population:

- The Target Population for PISA is students between 15 years and 3 (completed) months and 16 years and 2 (completed) months at the beginning of the testing period, attending educational institutions located within the country, and in grade 7 or higher.

The international desired target population is intended to provide full coverage of all PISA-eligible students attending educational institutions located within the country. This means that countries need to include (as well as any PISA-eligible students attending regular programmes), PISA-eligible students who attend school on a part-time basis, are in vocational training or other non-general types of programmes, or any other related type of educational programme, or who are in foreign or International schools **within the country**, **even if they are not included in other international or national studies**.

All schools located within a country **with the potential** to have 15-year-old students in grades 7 or above at the time of the MS will be sampled (a minimum of 150) from a complete listing of such schools using probability proportional to size (the school enrolment of 15-year-olds) sampling. Within the sampled schools, students (usually 42) will be sampled with equal probability.

Note that since the largest part (but not all) of the PISA target population is made up of 15-year-olds, then "15-year-olds" is the term often used when referring to the PISA target population. **Where you see the term "15-year-olds" in this document, think "15-year olds and 16-year olds which are part of the PISA birth date population definition".**

You may wonder about how this above target population definition arose. Historically the age definition for PISA arises from operational considerations for the 2000 assessment. It was desired by the OECD and the participating countries that the assessments should take place in about April of 2000. For ease of implementation it was decided that the population to be surveyed in April 2000 would be of students born in 1984. This was the basis of the PISA definition of "15-year-olds", and the relationship between the birth dates of eligible students, and the timing of the assessment.

5. Purpose of the FT and Overview of FT Sampling

The Field Trial (FT) has two main purposes, plus one additional important purpose for PISA 2015.

- To collect data to ensure that the instrument developed for the MS contains test items that are sound in all countries and that they are properly translated;

- To test the operational procedures for sampling students and conducting assessments within schools, including assessing how well the new computer platform functions within and across participating countries; and

- To conduct the mode effects study—the need to evaluate the invariance of item parameters across previous PISA cycles and across two modes, computer-based assessments (CBA) and paper-based assessments (PBA), for the 2015 cycle. **That is, countries doing CBA in the MS will do both CBA and PBA in the FT in order to conduct the mode effects study**.

As in the previous cycles of PISA, school sampling for the FT is much less rigorous than school sampling for the MS. **This is not the case for student sampling**, for which all procedures should be as similar as possible to what is planned for the MS.

For the FT it is expected that a number of schools will be sampled by the National Centre (NC), but approved by Westat, Core 5, from a **wide range of school types that contain 15-year-olds**, as specified in the next paragraph. The base number of schools to sample is between 25 and 54, but there will be an additional three schools also chosen for testing each national option which has an impact on sampling. No small schools need to be included in your FT school sample unless a particular school type has only small schools. In that case, please do include a few of these in your FT school sample (they will have the same within-school sampling plan as all other FT schools in your country). As noted, what is required in general is a number of sampled schools, chosen by the NC, but which need to represent within each country the various school types containing 15-year-olds. For example: different education tracks (academic, vocational, etc.), schools covering various grades that contain 15-year-olds, schools containing the various languages of instruction in which 15-year-olds can be taught, urban and rural schools, public and private schools, schools from geographic regions that may differ in terms of education practices, etc..

6. FT Sampling and PISA Standards

A number of definitions and Standards are listed under "Target Population and Sampling" in the PISA 2015 Standards. Some of these Standards do not apply to the FT. However, it is noted in the Standards that *for the FT, a sampling plan needs to be agreed upon*. In addition, Standard 3.1 refers to the required FT sample size (see Exhibit 1).

Exhibit 1: FT Implementation, PISA Standards

Standard 3.1. PISA participants participating in the PISA 2015 Main Survey will have successfully implemented the Field Trial. Unless otherwise agreed upon:

A Field Trial should occur in an assessment language if that language group represents more than 5% of the target population.

For assessment languages that apply to between 5 and 50% of the target population, the Field Trial student sample should be a minimum of 100 students per item.

For languages that apply to more than 50% of the target population, the Field Trial student sample should be a minimum of 200 students per item.

For additional adjudicated entities, where the assessment language applies to between 5 and 100% of the target population in the entity, the Field Trial student sample should be a minimum of 100 students per item.

Standard 3.2 Countries planning to use computer-based delivery in 2015 must also field trial paper-and-pencil booklets to test for mode effects.

Note 3.1 The PISA Technical Standards for the Main Survey generally apply to the Field Trial, except for the Target Population standard, the Sampling standard, and the Quality Monitoring standard. For the Field Trial a sampling plan needs to be agreed upon.

Note 3.2 The Field Trial participation standard for assessment languages applicable to between 5 and 50% of the target population can be varied if agreed upon, with such agreement subject to the principle that the absence of a Field Trial for that language would not affect the Main Survey and the principle that the assessment language version is trialled in another adjudicated entity where the assessment language applies to more than 50% of the target population.

Note 3.3 The sample size for the Field Trial will be a function of the test design and will be set to achieve the standard of 200 student responses per item.

Note 3.4 Consideration will be given to reducing the required number of students per item in the Field Trial where there are fewer than 200 students in total expected to be assessed in that language in the Main Survey.

Note 3.5 Without testing for mode effects in the Field Trial, it will be impossible for countries who wish to deliver PISA 2015 on computer to measure trends relative to performance in previous paper-based cycles.

7. FT School and Student Sample Sizes

For countries doing CBA in the MS, this section indicates the preferred optimal FT sample design, but also presents alternatives to that design, as well as a variation for each in how to obtain the required student samples sizes because of anticipated student losses due to student non-response, ineligibility, and exclusion. That is, in each design discussed below, either the number of schools remains as proposed in design x and the number of students to sample within schools increases, or the number of schools to sample increases, and the number of students to sample within schools remains as proposed in design x. Table 1 summarizes the school and student sample sizes for the various following FT sample designs.

There are further sample size considerations depending on languages of instruction for 15-year-olds in each country, and on international and national options (see sections 7.6 and 7.7). In other words, the requirements discussed next are the baseline requirements.

This section also discusses the FT sample design for countries doing PBA in the MS.

7.1 Preferred Optimal FT Sample Design

See document, *CY6_NPM(1303)_GEN_IntegratedDesign_ 1.docx*, regarding the Integrated Design for both FT and MS. Based on the **preferred** FT design for countries doing CBA in the MS, the FT sample size requirement is 25 schools, 78 students sampled per school, leading to1950 students. The 1950 refers to *assessed* students. This means that to get 1950 assessed students, 25 schools with at least 92 PISA students need to be sampled, assuming an estimated 85% assessment rate. If your country FT estimated assessment rate differs from 85%, then the number of students to sample per school will differ from 92. **Note that the assessment rate is not the same as the response rate--- student exclusions and ineligible students are not counted in response rates but ARE counted in the assessment rate.**

Although not as optimal as the plan noted in the previous paragraph, you may choose to sample more schools to get 1950 assessed students, rather than larger schools. If you go with this plan, assuming an 85% assessed student rate, rather than 25 schools, you would need to sample 30 schools, each having at

least 78 PISA students. As noted, this is not as optimal in its analytical ability as the plan in the previous paragraph because a school will not have all assessment instruments used as the analysis plan expects.

7.2 Alternative FT Sample Design1

There are also two alternate FT designs available. The second preferred FT design for countries doing CBA in the MS requires 39 sampled schools with 52 students sampled in each for a total of 2028 students for the FT (as described in Annex B of the Integrated Design Document and referred to as Alternative Sampling Design 1). Again, 2028 refers to *assessed* students. If the FT student assessment rate is estimated at 85%, then 39 schools with at least 62 PISA students will need to be sampled.

Although not as optimal as the plan noted in the previous paragraph, you may choose to sample more schools to get 2028 assessed students, rather than larger schools. If you go with this plan, assuming an 85% assessed student rate, rather than 39 schools, you would need to sample 46 schools, each having at least 52 PISA students. As noted, this is not as optimal in its analytical ability as the plan in the previous paragraph because a school will not have all assessment instruments used as the analysis plan expects.

7.3 Alternative FT Sample Design2

The third preferred FT design for countries doing CBA in the MS requires 54 sampled schools with 36 students sampled in each for a total of 1944 students for the FT (as described in Annex B of the Integrated Design Document and referred to as Alternative Sampling Design 2). Once more, 1944 refers to *assessed* students. If the FT student assessment rate is estimated at 85%, then 54 schools with at least 43 PISA students will need to be sampled.

Again, although not as optimal as the plan noted in the previous paragraph, you may choose to sample more schools to get 1944 assessed students, rather than larger schools. If you go with this plan, assuming an 85% assessed student rate, rather than 54 schools, you would need to sample 64 schools, each having at least 36 PISA students. As noted, this is not as optimal in its analytical ability as the plan in the previous paragraph because a school will not have all assessment instruments used as the analysis plan expects.

7.4 Alternative FT Sample Design for Small Population Countries

The final FT design for countries doing CBA in the MS is restricted to countries which have fewer than 10,000 PISA students in their PISA population. Such countries often take a full census in the MS, and having a full FT sample size may cause non-response in the MS. **Choosing this design though, means that no mode study is being conducted.** Thus, there are risks with this approach. We will not be able to capture unintended impact of the CBA on trends as there will be no paper booklets. Trend information will be based ONLY on the computer materials in PISA 2015 as well as borrowed information from other countries.

Based on PISA 2012 or prior information, countries eligible for the design outlined in the next paragraph are Macao, Cyprus, Iceland, Luxembourg, Montenegro, and Malta.

In this design for small countries doing CBA in the MS, 25 schools need to be sampled and 51 students in each school, for 1275 students. Again, 1275 students refers to *assessed* students. If the FT student assessment rate is estimated at 85%, then 25 schools with at least 60 PISA students need to be sampled.

Table 1. Summary of FT Designs for countries doing CBA in the MS

FT Design	# Schools to Sample	# Students to sample in each school
FT Preferred Optimal Design (para.18)	25	(78 / 0.xx)
Less optimal Variation	30	78
FT Alternate Design 1	39	(52/0.xx)
Less optimal Variation	46	52
FT Alternate Design 2	54	(36/0.xx)
Less optimal Variation	64	36
FT small population design	25	(51/0.xx)

Where 0.xx is the estimated FT assessment rate.

7.5 PBA FT Sample Design

If a country chooses to do PBA in the MS, then the FT sample requires 25 schools, with a within-school student sample size of 36 students for a total of 900 students. For 900 assessed students, then 25 schools with at least 43 students need to be sampled, assuming an 85% student assessed rate.

7.6 Language Considerations and FT Sample Size

All students must be tested in their language of Science instruction for the MS (See Exhibit 3, Standard 2.1 in section 8.2.5).

If a particular language is taught to a very small percentage of 15-year-olds, it is possible that these students could be excluded from the MS assessment to save on translation costs. Note that MS exclusion of students at the school level, for reasons other than the school being a special education school, should usually not be more than 0.5% of the target population. For 2015, it is not just translation costs which need to be considered, but also the fact that the CBA system in each language must have rigorous testing. Thus, if a particular language is **taught to less than 1% of 15-year-olds (as indicated on your agreed ST0), and if your exclusions from PISA 2012 were low, you should consider excluding the students taught in such a language from the MS**. If you make such a decision, be sure that your ST0 file is updated and submitted to Westat, Core 5 to reflect that.

It is important to realize that if ANY minority language students are to be included in the MS, then MS instruments must be available for these students in their language of instruction.

Therefore, while there is no required international verification for FT languages below 10% of the target population, and no requirement to FT languages below 5% of the target population, it will be necessary for countries to develop materials in these languages for the MS, and to have a nationally-verified version of all assessment materials (forms/booklets, questionnaires, etc.) in these languages. In such cases, the quality of these instruments are under the complete control of the NPM. **Additionally, because of CBA constraints, if you cannot borrow a version that has been Field Trialled, you need to develop the version for the FT even though it will only be used in the MS.**

For percentages of 10% or greater, international verification of translation IS required. That is, no minority language version used for 10% or more of the population can be employed in the MS if it was not field-trialled and did not have full international verification before the FT. The International verification should occur for ALL national versions in a testing language that represent 10% or more of the target population. There is some scope for negotiation about not field trialling a minority language used by between 5 and 10% of the population if the fully verified International version could be borrowed from another country and adapted for the MS.

Table 2 presents a summary of language requirements.

Table 2: Languages, FT requirements, and Verification

Language % of population	FT required	International Verification required	National verification required
< 5%	No	No	Yes
>=5% and < 10%	Yes	No	Yes
>=10%	Yes	Yes	No

It is because of these rules that sample sizes need to be adjusted from the base numbers in the following way so that enough students are available for FT item analyses:

- For languages between 5% and 50% of the population, the FT sample must be at least 100 students per item.
- For languages covering greater than 50% of the 15-year-old population, the FT sample size must be at least 200 students per item.

Essentially this means that for every minority language being tested in the FT, half the sample size of the majority language is needed for each such minority language.

There are also potential sample size requirements for languages for any regions/student groups in a country that will be oversampled in the MS so that they can be separately adjudicated. **If you wish to have separately adjudicated groups, you must make this known by recording this information when requested in May, and you must discuss the need for extra FT sample with Westat, Core 5**.

7.7 Participation in International and National Options and Sample Size

You should have already submitted to the PISA Portal in December 2012, your MS Options Questionnaire, Part I which asked about international options (Financial Literacy (FL), as well as four optional questionnaires (two for students, one for parents, and one for teachers)). By the end of May 2013, you will need to consider participation in national options, especially those options that involve the sampling of additional students -- PISA, or non-PISA.

By the end of May 2013, you will be asked to record on your MS Options Questionnaire, Part II, any proposed national variations to standard administrative arrangements for the MS, such as proposals for oversampling, school overlap control, use of the UH assessment instrument, use of easier assessment instruments, intentions for administering PISA in separately adjudicated regions, etc. etc..

This document may be updated through May 2014, as MS school sampling starts just after that and these plans need to be finalized by that time.

Countries participating in previous PISA cycles will notice in the document released prior to the March 2013 NPM meeting, *CY6_GEN_NationalOptionsAndVariations_1.docx*, that many of the sampling national options chosen in the past which were then free of charge, now come with an attached cost for PISA 2015. This is because there really should have been charges for these types of options in the past as they always involved additional work. Thus, it is even more important to think about these possibilities earlier than usual.

It is a requirement for the FT for PISA 2015 that the procedures for implementing optional components where additional students will be sampled be tested in at least three additional schools if you are planning to implement these activities for the MS. New procedures regarding sampling of students have been developed in *KeyQuest* since 2012 to accommodate the PISA 2015 FT and MS designs. These procedures need to be thoroughly tested.

If grade sampling is considered, the country should be fairly certain that it will implement grade sampling in the MS before testing this in the FT, as testing this option in the FT increases the undesirable risk of having the same students in the FT sample and the MS sample.

8. FT Sampling Tasks

The rest of this document provides the guidelines for submitting your FT sampling plan to Westat, Core 5 via six sampling task forms, and gives more details on the sampling tasks to be completed, in sequential order, by each NC.

8.1 Sampling Task One (ST1): Test Periods and Population Birth Date Definitions – DUE BY JUNE 1, 2013 for half of the countries (Group A) and by JUNE 15, 2013 for the others (Group B)

ST1 is an Excel file which collects information about your proposed FT and MS testing periods and PISA population date of birth definitions. This task is also where any additional populations to be sampled need to be specified (using birth dates, grades, other definitions). **You will need to submit this information via the PISA Portal for approval by Westat, Core 5**. Note that once ST1 has been agreed upon, any changes from what is recorded on the PISA Portal website should be approved by Westat, Core 5 so that the change can be implemented on the website. ST1 changes can only be made before student sampling commences. **Your confirmed testing dates will form the basis for many PISA processes, and it is therefore vital that the information about your testing dates that appears in PISA Portal is kept up-to-date.**

8.1.1 Submission Procedures

Along with country 3- letter codes found in Appendix E, there is an A or B beside each country code indicating whether your country belongs to the half of the countries to deliver forms by the first date or by the second date. If there is an A by your country code, please upload your FT sampling forms always by the first of the two noted due dates for every FT sampling task (except ST6). For ST1, that means by June 1. If there is a B by your country code, please upload your FT sampling forms always by the second of the two noted due dates. For ST1, that means by June 15. Countries were split randomly into two submission groups to help with the Westat, Core 5 review schedule.

The template which you should complete and then upload is stored under PISA 2015 Documents→Materials→2015 Field Test Resources→Sampling on the PISA Portal. The content of the form for ST1is similar to that of the ST1 for PISA 2012, but the format will be different. Instructions for completion will be included in the template. If you wish to clarify any aspects there will be a box to provide these clarifications or additional information. The template will be available for your use by May 15, 2013. Please replace the CCC by your 3-letter country code when you upload your ST1. Upload your completed form to the **Sampling** folder in your country folder, under PISA 2015 Document → Tasks.

8.1.2 Background Information for ST1

The PISA 2015 FT data collection needs to be completed within a period of no more than six consecutive weeks during the period March 1, 2014 – June 30, 2014, unless otherwise agreed upon.

The assessment should not take place during the first six weeks of the academic year in your country. You will be asked to submit the day and month marking the beginning of the academic year. If the beginning of the academic year differs for different school types, specify the beginning of the academic year for the main school type in the form, and for other school types, in the comment box of the form.

You will need to decide on a PISA population birth date definition that corresponds to the proposed data collection period.

The target population birth dates are determined by the time of testing, within limits. As noted earlier, students must be between the ages of 15 years and three completed months and 16 years and two completed months at the beginning of the testing period.

This means that if the assessment is to be conducted throughout the month of April 2014, for example, the eligible population may be defined as students born during 1998. If the testing is to take place in June 2014, the population may be defined as students born between March 1998 and February 1999 inclusive. Examples to help you determine your population date of birth definition are provided in Table 3.

Variation of up to one month in this age definition is permitted so long as the birth date definition is maintained as a 12 month period. **In particular, if the testing period is any 6 week period between March 1, 2014 and May 31, 2014, the birth date population may be defined as students born in 1998.** If no local factors dictate to the contrary, countries are encouraged to test within this time period and to use this birth date definition.

You need to be alert that possible drift in the assessment period can lead to the change in birth date definition. For example, an NPM might propose to test students born during 1998 during the month of May and this would be acceptable. But, if the testing period is postponed and slips to become May to mid-June, the population birth dates must be changed to students born February 1998 to January 1999 (or March 1998 to February 1999 if preferred), as it is not acceptable to have testing in June with a birth date definition of students born in 1998.

Table 3 shows selected testing windows and related birth date definitions for the FT.

Table 3. Testing Month and Birth Date Ranges for the FT target Student Population

Testing month	Birth date ranges (Inclusive)		
March 2014	*January 1998*	→	*December 1998*
	December 1997	→	**November 1998**
	November 1997	→	*October 1998*

Testing month	Birth date ranges (Inclusive)		
April 2014	*February 1998*	→	*January 1999*
	January 1998	→	**December 1998**
	December 1997	→	*November 1998*
May 2014	*March 1998*	→	*February 1999*
	February 1998	→	**January 1999**
	January 1998	→	*December 1998*
June 2014	*April 1998*	→	*March 1999*
	March 1998	→	**February 1999**
	February 1998	→	*January 1999*
July 2014	*May 1998*	→	*April 1999*
	April 1998	→	**March 1999**
	March 1998	→	*February 1999*
August 2014	*June 1998*	→	*May 1999*
	May 1998	→	**April 1999**
	April 1998	→	*March 1999*

NOTE: Dates in **BOLD** show the standard birth date definition for each testing month.
Dates in *italic* show the two optional birth date definitions for each testing month

8.1.3 Examples Illustrating how to use Table 3

Example 1: Testing from April 4 to April 15

The three options for the birth date definition are:

- Feb. 1998 through Jan. 1999
- Jan. 1998 through Dec. 1998 ← recommended
- Dec.1997 through Nov. 1998

Example 2: Testing from March 7 to April 15

The three options for the birth date definition for **March** are:

- Jan. 1998 through Dec. 1998
- Dec.1997 through Nov. 1998
- Nov.1997 through Oct. 1998

The three options for the birth date definition for **April** are:

- Feb.1998 through Jan. 1999
- Jan .1998 through Dec. 1998
- Dec.1997 through Nov. 1998

The three options that are in common for March and April are:

- Jan. 1998 through Dec. 1998 ← recommended
- Dec.1997 through Nov. 1998

Example 3: Testing from April 25 to June 3

The three options for the birth date definition for **April** are:

- Feb. 1998 through Jan. 1999
- Jan .1998 through Dec. 1998
- Dec.1997 through Nov. 1998

The three options for the birth date definition for **May** are:

- Mar. 1998 through Feb. 1999
- Feb. 1998 through Jan. 1999
- Jan. 1998 through Dec. 1998

The three options for the birth date definition for **June** are:

- Apr. 1998 through Mar.1999
- Mar. 1998 through Feb. 1999
- Feb. 1998 through Jan. 1999

The only birth date definition in common is Feb. 1998 through Jan. 1999.

8.1.4 Other examples

Examples of other acceptable testing times and birth date definitions are:

- Testing from March 16 to April 15 2014, students born Dec. 1997 through Nov. 1998
- Testing in April 2014, students born Feb. 1998 through Jan. 1999
- Testing from May 16 to June 15 2014, students born Mar. 1998 through Feb. 1999.

Examples of testing times and birth date definitions that are NOT acceptable are:

- Testing in April 2014, students born Nov. 1997 through Oct. 1998 (the students are too old).
- Testing in April 2014, students born Mar. 1998 through Feb. 1999 (the students are too young).
- Testing from May 16 to June 15 2014, students born in 1998 (the students are too old).

8.1.5 Consider the MS Testing Period and Population Birth Dates

When you decide on your testing period for the FT, you will also need to decide on the testing period for the MS, as well as corresponding MS population birth dates.

In fact the best approach is likely to be to determine these dates for the MS, and then determine appropriate dates for the FT. **The FT birth date definition should not overlap the definition to be used in the MS, to eliminate the possibility that any student could be sampled in both.** Hence, the test dates for both the MS and the FT need to be considered together. Dates for age definitions for the MS can be read from Table 3 by adding one to all years (i.e. 1998 → 1999, 2014 → 2015).

Note that for countries that participated in PISA 2012, your MS test dates should be at the same time of the year as they were in PISA 2012, unless otherwise agreed with Westat, Core 5. This requirement is stated in PISA Standard 1.3.

Exhibit 2: MS Testing Period, PISA Standards

Standard 1.3 Unless otherwise *agreed upon, t*he *testing period*:
- is no longer than six consecutive weeks in duration,
- does not coincide with the first six weeks of the academic year, and
- begins exactly three years from the beginning of the *testing period* in the previous PISA cycle.

8.1.6 Additional Populations Need to be Reflected on the ST1

If students from additional populations are to be sampled, these populations need to be specified on this form. If the population is defined by birthdates, these should be entered on the form where the birthdates can be specified. If the population is defined by a grade, the grade should be specified in the grade box. If the additional population needs to be identified in some other way (e.g., immigrant PISA population, Indigenous PISA population, national option students, etc.) please indicate with a '2' in the appropriate "Other" box, and add comments explaining the population in the "please specify" box. Note that a class based grade sample should have a '1' in the "Other" box. This information needs to be supplied for each additional population to be sampled (up to a maximum of 5 additional populations).

If no populations are to be sampled in addition to the PISA population, the section of this form for "Additional students" should not be changed.

8.2 Sampling Task Two (ST2): Preliminary Sampling Details: DUE BY JULY 1, 2013 for half of the countries (Group A) and by JULY 15, 2013 for the others (Group B)

ST2 is an Excel file with several tabs which collects information about a number of details required (e.g. school types containing PISA students, number of students to sample per school, etc.) prior to the preparation and negotiation of your FT sampling plan. **You will need to submit this information via the PISA Portal for approval by Westat, Core 5**. The details of the information to be collected are provided in the sub-sections following the sub-section about submission procedures. Any changes in this information from what is recorded on the PISA Portal website should be approved by Westat, Core 5 so that the change can be implemented on the website. Westat, Core 5 uses information from this form to help you design both your FT and MS samples.

When completing this form, think about the **full PISA population**, **including** any students you may wish to exclude from either the FT and/or MS. This form is intended to give us details about the **complete** PISA population in your country, and about the schools which contain them.

8.2.1 Submission Procedures

If there is an A by your country code in Appendix E, please upload your FT ST2 by July 1. If there is a B by your country code, please upload your FT ST2 by July 15.

The template which you should complete and then upload is stored under PISA 2015 Documents→Materials→2015 Field Test Resources→Sampling on the PISA Portal. The content, although not exactly the same, is similar to that of the ST2 for PISA 2012, but the format will be different. Instructions for completion will be included in the template. If you wish to clarify any aspects there will be a box to provide these clarifications or additional information. The template will be available for your use by May 15, 2013. Please replace the CCC by your 3-letter country code when you upload

your ST2. Upload your completed form to the **Sampling** folder in your country folder, under PISA 2015 Document → Tasks.

8.2.2 FT Design Choice for Countries doing CBA in the MS

The first tab of the ST2 Excel sheet asks about which design you will use for the FT.As noted earlier, there are several designs from which to choose. All countries should supply the information requested in this tab, even those doing PBA in the MS.

If you wish to clarify any aspects, there will be a box to provide these clarifications or additional information.

8.2.3 Expected Average Assessment Rate

On this tab of the ST2 Excel file, you will be asked to submit estimates for the average rate of students expected to be **assessed**, for both the FT and the MS. For countries participating in previous PISA cycles, this information can be based on previous PISA average student ineligibility rates, exclusion rates and response rates within schools. For new country NPMs, these will be best estimates, on the basis of previous educational survey experience. You will also be asked to provide the basis for your estimate.

If you wish to clarify any aspects, there will be a box to provide these clarifications or additional information.

8.2.4 Target Cluster Size

You will be asked, on this tab of the ST2 Excel file, to supply the number of students to sample per school for the FT and the number of students to sample per school for the MS.

The number of students to be selected per school when the school has at least that many PISA students is known as the target cluster size (WTCS1).

Think first about the MS. The usual WTCS1 is 42 for the CBA MS (35 if a country is doing PBA), but can be more or less (although no less than 25), depending on circumstances (classroom size available for testing, etc.). **If a school has fewer PISA-eligible students than the WTCS1, all PISA students must be sampled.**

In most countries the MS WTCS1 will be same for all schools. In a small number of countries the number of students sampled from each school might vary between strata. If you propose to vary the MS WTCS1 between strata, you will need to outline the details of your proposal on this tab of the ST2 Excel sheet.

In the MS, a sampled school with even one PISA-eligible student needs to have an assessment session. **However, for the FT, you will need to select schools that have at least as many eligible students as the FT WTCS1.**

The **FT** WTCS1 value will vary from country to country depending on which FT design will be used and also upon the expected student assessment rate. For example, if a country is doing CBA, the FT WTCS1 value will be [roundup(78/x)], where x is the estimated FT assessment rate, if the preferred optimal design is used. In this case, this means that the schools eligible to be sampled for the FT should each have at least [roundup(78/x)] PISA students (i.e. 15-year-olds).

If you wish to clarify any aspects, there will be a box to provide these clarifications or additional information.

8.2.5 School Composition

On the next tab of the ST2 Excel file, you will need to supply information about types of schools which may contain PISA students according to a number of different classification schemes, and the approximate **proportion of PISA students** in these school types. For example, under the International Standard Classification of Education (ISCED) Level, schools have been classified as those with only lower secondary grades ('ISCED 2'), only upper secondary grades ('ISCED 3') or both ISCED 2 and ISCED 3 ('mixed'). You are asked to provide an estimate of what **proportion of PISA students** attend each of these school types (i.e., **not** proportions of schools). This information is important for us to obtain a picture of your educational system and all of the different types of schools in your country that could include PISA students.

If you wish to clarify any aspects on this tab, there will be a box to provide these clarifications or additional information.

School classifications are based on:

- Funding of schools (>50% public funding, <50% public funding)
- Location of schools (urban, rural)
- ISCED level of schools (ISCED 2 only, ISCED 3 only, Mixed)
- ISCED programme orientation of schools (Pre-Vocational only, Technical only, Agriculture only, Other Vocational only, General only, Mixed)
- Gender composition of schools (Predominantly Male, All male, Mixed, All female, Predominantly female)
- Study commitment of schools (All full time, All part time, Mixed)
- Shift offerings of schools (Single (e.g. during the day), Multiple (e.g. day and evening shifts)
- School orientation / management (Secular, Religious)
- Student nationality of schools (Predominantly national, Predominantly international/foreign, Mixed)
- School Instructional language for Science (Single major language, single minor language in national schools, single minor language in International/foreign schools, multiple languages in national schools, multiple languages in International/foreign schools, Bilingual[1], Immersion[2], Mixed) (see more below)

[1] Schools or programs where the students are taught a significant part of their curriculum in two different languages of instruction are referred to as 'bilingual'.

- Special Education Needs (SEN, non-SEN) (see more below)

- School size of PISA students (< 3 PISA students, between 3 and 21 PISA students, between 22 and 41 PISA students, 42 or greater students)

PISA is rather limited in the extent to which it permits modifications and accommodations to assist students with special needs. The main reason for this is that PISA is not an assessment of individual students - the objective is not to obtain reliable and useful scores at the individual level, rather the PISA design is intended to generate data that are aggregated to provide national (and sub-group) measures. Therefore because the stakes are low (non-existent) at the individual level, the argument has been that the needs for international comparability of administration procedures take precedence.

There is provision for school co-ordinators to record information about students having special education needs; and if they are deemed severe enough to prevent the student from participating this is one of the accepted grounds for exclusion (more details will be provided in *School Co-ordinator's Manual*).

There is also provision for cases where a school caters exclusively for students with special educational needs to administer a shortened (one hour) version of the test to all sampled students (called the UH assessment instrument). However as PISA has evolved, procedures have been adapted that would enable individual students in mainstream schools to use this form under certain defined conditions, and would also allow more flexible administration conditions. For example, the number and duration of breaks during the assessment session can be changed to suit the needs of individual students using the UH assessment instrument, and the provision of extended time to complete the assessment in particular situations is possible.

Regarding the instructional language for science, if there are bilingual or immersion programs within schools that have PISA students, you will need to consider how students from such schools will be assessed if they are sampled for PISA. PISA students need to be assessed in their **language of instruction for Science**, but in such schools the "language of instruction" may be difficult to specify. Guidelines to help you with determining the appropriate course of action in these cases are provided in Standard 2.1 below. Later in the year (i.e., autumn) you will be asked to explain your approach to the assessment of students from these schools as part of your ST3, and also as part of the process of negotiating adaptations to your Test Administrator Manual.

Exhibit 3: Language of Instruction, PISA Standards

Standard 2.1 The PISA test is administered to a student in a language of instruction provided by the sampled school to that sampled student in the major domain (Science) of the test.

If the language of instruction in the major domain is not well defined across the set of sampled students then, if *agreed upon*, a choice of language can be provided, with the decision being made at the student, school, or National Centre level. Agreement with the International Contractor will be subject to the principle that the language options provided should be languages that are common in the community and are common languages of instruction in schools in that *adjudicated entity*.

[2] Schools or programs where the students are taught the major part of their curriculum in a language that is not their home language are referred to as 'immersion'.

If the language of instruction differs across domains then, if *agreed upon,* students may be tested using assessment instruments in more than one language on the condition that the test language of each domain matches the language of instruction for that domain. Information obtained from the FT will be used to gauge the suitability of using assessment instruments with more than one language in the MS.

In all cases the choice of test language(s) in the assessment instrument is made prior to the administration of the test.

8.2.6 Stratification

You will need to supply a list of proposed school stratification variables to be used in the MS, on the next tab of the ST2 Excel file. A subset of these variables should also be proposed for use in the FT. The best variables for stratification are those that can explain performance differences between schools.

If your country was in previous PISA cycles, it is generally recommended that stratification variables remain the same through cycles, unless there is a compelling reason to do otherwise. The new availability of an important performance explanatory variable is an example of a compelling reason to add a new school stratification variable. If a new national requirement is ensuring a specified sample size of some school type, this is also a reason to have that school type variable as a new stratification variable.

You will be asked first to identify the stratification variables that you plan to use at the MS stage, and to classify these as either explicit or implicit. Generally, explicit stratification variables are thought to be more important performance explainers (school ISCED level, or public versus private, are common examples) than implicit stratification variables. Explicit stratification variables are used in the MS to divide the school sampling frame (i.e. the list of all schools that could contain PISA-eligible students) into mutually exclusive groups (strata). Explicit stratification may be used for any or all of the following reasons:

- To improve the efficiency of the sample design, thereby making survey estimates more reliable;
- To apply different sample designs, such as disproportionate sample allocations, to specific groups of schools, such as those in states, provinces, or other regions;
- To ensure that all parts of a population are included in the sample;
- To ensure adequate representation of specific groups of the target population in the sample; and
- To obtain reliable estimates for each stratum, if so required.

Implicit stratification variables (school language, school gender composition, etc. as some examples) are used essentially to sort either the explicit strata or the school sampling frame if there are no explicit strata. Using implicit stratification is a very simple way of ensuring a strictly proportional sample allocation of schools across all implicit strata. It can also lead to improved reliability of survey estimates, provided the implicit stratification variables being considered are correlated with PISA achievement (at the school level).

The stratification variables and levels you nominate do NOT need to correspond exactly to the classifications used in the school composition table. For example, if school funding is an important stratifying variable you might prefer to have four levels (0-25% public funding, 26-50% public funding, 51-75% public funding, 76-100% public funding) rather than the two-level classification used above.

You should propose a set of three of the most important MS stratification variables for the separate FT stratification table. One exception to this is if more than one language needs to be field-trialled. In that case, one of the FT stratification variables must be language so that sample sizes can be ensured for each language.

For the FT, the chosen FT stratification variables will be used to form explicit strata only (even if some of the variables are defined as implicit stratifiers for the MS).

If you wish to clarify any aspects, there will be a box to provide these clarifications or additional information.

8.2.7 Sampling Frame Units

On this next tab of the ST2 Excel file, you will need to supply information about the units that will be listed on the school sampling frame for the MS. **If your country participated in PISA 2012, the units used on the 2012 MS sampling frame are the same which should be used for the 2015 MS sampling frame.**

The units on the sampling frame should be whole schools. There are particular circumstances, but only a few, where units on the sampling frame might need to be programmes, or tracks, or shifts, etc. Any proposed deviations from the school as the unit on the MS list of schools must be recorded on this form and discussed with Westat, Core 5.

The same sampling units that will be used for the MS should also be used for the FT.

If you wish to clarify any aspects, there will be a box to provide these clarifications or additional information.

8.2.8 Use of KeyQuest for Student Sampling

On this final tab of the ST2 Excel file, you will be asked to indicate whether it is your intention to use *KeyQuest* for student sampling, in both the FT and the MS. As noted in Standard 1.14 (Exhibit 4, shown below), unless otherwise agreed, you should use *KeyQuest* to draw the student sample. Proposals for student sampling using other methods must be discussed with Westat, Core 5, well in advance of use.

If you wish to clarify any aspects, there will be a box to provide these clarifications or additional information.

Exhibit 4: Student Sampling and *KeyQuest*, PISA Standards

Standard 1.14 For efficient and effective quality assurance provision, unless otherwise *agreed upon*, the National Centre will use *KeyQuest* to draw the student sample, using the list of eligible students provided for each school.

Note 1.5 Any exceptional costs associated with verifying a student sample selected other than by using *KeyQuest* will be borne by the National Centre.
Note1.6 Agreement with the International Contractor of alternative methods of drawing samples will be subject to the principle that the sampling methods used are scientifically valid and consistent with PISA's documented sampling methods.
Where a PISA participating country chooses not to use KeyQuest to draw the student sample, the National Centre provides the International Contractor with the data and documentation required for it to verify the correctness of the sampling procedures applied.

8.3 Sampling Task Three (ST3, ST3a): Submitting your FT Sampling Plan-- DUE BY SEPTEMBER 1, 2013 for half of the countries (Group A) and by SEPTEMBER 15, 2013 for the others (Group B)

The ST3 Word document form you need to submit will ask questions about any proposed exclusions from the FT. It will specifically ask if any languages are proposed to **not** be field-trialled. If there are any languages which will not be field-trialled and these are different than on the agreed ST0, reasons will need to be provided.

In the **Excel spreadsheet for ST3a you need to submit**, on the first tab, you will need to first summarize the distribution of FT eligible schools (i.e., those schools having at least as many PISA students as your FT WTCS1 value) according to a cross classification of the FT stratification variables agreed upon as part of ST2. The STIDSTRT(stratum) values appearing on the first tab of the ST3a will come initially from numbering the cross classification of those variables. Each combination of variables will have a unique STIDSTRT value, starting with the 2-digit value 01. On the second tab, the school allocation of your FT sample will be shown (that is, how many schools should be sampled from each stratum). There will be only one allocation sheet, indicating only one school set, unlike the three possible school sets for the PISA 2012 FT.

Finally, you will be asked to supply information about anything else pertinent to the FT sample that is important for the PISA 2015 contractors to know.

8.3.1 Submission Procedures

If there is an A by your country code in Appendix E, please upload your FT ST3 and ST3a by September 1. If there is a B by your country code, please upload your FT ST3 and ST3a by September 15.

The template which you should complete and then upload is stored under PISA 2015 Documents→Materials→2015 Field Test Resources→Sampling on the PISA Portal. The content and format of these forms is similar to that of the ST3 and ST3a for PISA 2012. Instructions for completion will be included in the templates. If you wish to clarify any aspects there will be a box to provide these clarifications or additional information. The templates will be available for your use by July 15, 2013. Please replace the CCC by your 3-letter country code when you upload your ST3 and ST3a. Upload your completed forms to the **Sampling** folder in your country folder, under PISA 2015 Document → Tasks.

8.4 Sampling Task Four (ST4): Submitting FT Sampled Schools-- DUE BY NOVEMBER 1, 2013 for half of the countries (Group A) and by NOVEMBER 15, 2013 for the others (Group B)

This **ST4 form you will need to submit** will be an Excel sheet with one row per sampled school showing the PISA stratum (STIDSTRT) variable and PISA school (STIDSCH) variable Identifiers. Each school within a stratum will have a 3-digit STIDSCH value (001, 002, etc.).School STIDSCH values need to re-start with 001 in each stratum.

For the FT, you are encouraged to **choose double the number of required schools to sample** to put on your ST4 form so that if any of the "sampled" schools chose not to participate, then you will have at least one additional school for each sampled school to act as a "replacement". These "replacements" should be identified in the WSCHREP column of this ST4 Excel file with a value of 1 (the "sampled" schools should have a value of 0) and the replacements should have STIDSCH values being larger than the last value used for the "sampled" schools. For example, if the last sampled school in stratum 01 was school 006, then the replacements in stratum 01 should have STIDSCH values as 007 through 012. Note that in this example, school 007 should be used as a replacement for school 001 because school 007 will have exactly the same set of within-school sampling parameters as school 001 has on the ST5 /SFKQ form (see section 8.5). Similarly school 008 should be used as a replacement for school 002 if needed; school 009 should be used as a replacement for school 003 if needed, and so on.

If you do not have enough participating schools, more cannot be added after within-school sampling has started. Therefore, as noted above, **you should identify replacement schools for your ST4 form**.

In addition to the variables STIDSTRT, STIDSCH, and WSCHREP, based on the most up-to-date school enrolment information possible, each school must have associated with it, an estimate of the number of 15-year-old students (stored as WENR0 on the ST4 file).

Each school, on the ST4, also needs to have an indicator concerning the use of the UH assessment instrument in the school (see Table 4 in section 8.5.2).

8.4.1 Submission Procedures

If there is an A by your country code in Appendix E, please upload your FT ST4 by November 1. If there is a B by your country code, please upload your FT ST4 by November 15.

The template which you should complete and then upload is stored under PISA 2015 Documents→Materials→2015 Field Test Resources→Sampling on the PISA Portal. The content and format of this form is similar to that of the ST4 for PISA 2012. Instructions for completion will be included in the template. The template will be available for your use by August 15, 2013 but note that **this form should not be submitted until all previous FT sampling forms are approved**. Please replace the CCC by your 3-letter country code when you upload your ST4. Upload your completed form to the **Sampling** folder in your country folder, under PISA 2015 Document → Tasks.

8.5 Sampling Task Five (ST5): Reviewing and Approving the FT Sampling Form for KeyQuest (SFKQ) -- DUE BY DECEMBER 1, 2013 for half of the countries (Group A) and by DECEMBER 11, 2013 for the others (Group B)

8.5.1 Review Procedures

If there is an A by your country code in Appendix E, please review your ST5 which has been uploaded by Westat, Core 5, by December 1. If there is a B by your country code, please review your uploaded ST5 by December 11.

Please review your Uploaded ST5 form in the **Sampling** folder in your country folder, under PISA 2015 Document → Tasks.

Once this form has been carefully reviewed and agreed upon by you, it cannot be changed without further discussion. Thus it is of the utmost importance that you fully understand and agree with all that is in this form. At the time that you are reviewing this form, if anything is unclear, do not hesitate to contact Westat, Core 5 for clarification. **This form will act as an input file to *KeyQuest* for student sampling (and teacher sampling if your country will use teacher questionnaires) and initial validity checks of the submitted data. After within-school sampling has started in *KeyQuest*, this ST5 file cannot be changed.**

8.5.2 The ST5 Form

This ST5 form is a school-level Excel file which contains all your sampled and replacement schools from your ST4 file, supplemented with all the within-school sampling parameters needed by *KeyQuest* to do the within-school sampling. The variable content of the ST5 is **exactly the same** as it was for PISA 2012. Once your previous FT sampling forms have been approved, Westat, Core 5 and their sub-contractor, ACER will create and submit your ST5 form to the PISA Portal website for you to carefully review and

agree upon. Once this form is agreed upon and is imported into *KeyQuest*, the ST5 form becomes known as SFKQ.

This form will contain many variables, but as noted, they are all the same variables as seen in PISA 2012. These variables are separated into the variables which NPMs need to review when sampling just from the PISA population (Table 4), and those variables that require review if the NPM's country is doing PISA and any sampling of additional populations (Table 5).

For PISA 2015, subsamples of students are again selected but unlike those selected for CBA for PISA 2012, these subsamples of students are used only to allocate the correct proportion of sampled students to the correct set of FT assessment instruments. The variables WECk, WEPSk, WEINDk, WETCSk, and WESGk, k=1 to 4, together specify the subsamples (in both Table 4 and 5).

Appendix D shows examples of four transposed SFKQs (to ease in viewing), showing one school where sampling is just for PISA, another school where sampling is for PISA and for teachers, another school which is a Special Education School using the UH assessment instrument, and another school where PISA students and additional grade students are sampled. Some variables appear there which will be automatically generated and do not need review. These variables are in Table 6 below. **Do not worry** about all the data you will see in Appendix D, nor on the real ST5 forms. When it is time to review this form, a detailed email will be sent to you by Westat, Core 5 about exactly what you need to review, how you need to review it, and what values you should expect to see for the International and national options you have chosen.

Table 4: Variables requiring review on FT Sampling Form for KeyQuest (SFKQ) for countries sampling just for PISA

Variable Name		**Variable description**
STIDSTRT		PISA assigned Stratum ID
STIDSCH		PISA assigned School ID
WNATID		National assigned school ID
WSCHREP		0=Main sampled school; 1= Replacement school
WENR0		ENR for PISA population
WTCS1		Target cluster size for PISA population
WSMOP		Sampling Option*
WUH		UH option: 0=No UH assessment instrument; 1=UH assessment instrument in SEN schools; 2=Special: agreed with Westat, Core 5;3=UH assessment instrument for SEN students in general schools
WECSk (k=1…4)		Cap on number to be subsampled proportionally (99996 for all steps except the last and 0 for the last)
WEPSk (k=1…4)		Proportion to sample
WEINDk (k=1…4)		Overlap indicator of subsample (always 0000 to indicate non-overlapping subsamples)
WETCSk (k=1…4)		Target Cluster Size for each defined subsample (99996 for all steps except the last and 0 for the last)
WESGk (k=1…4)		Set =1, to indicate that any subsampling is only from the PISA population ; Set=0 if no subsampling
WEOPTk		Values 01-30, and 70, 71. For each defined subsample, specifies the set of

Variable Name		Variable description
(k=1…4)		assessment instruments which that subsample sample of students will be assigned.
WGROUP		Values 0-15.For alternate FT designs for CBA, indicates the assignment of sampled schools to either one of three groups in the first alternate design or to one of six groups in the second alternate design. For FT designs where all schools will have the same set of assessment instruments allocated, these will have a WGROUP value indicating the FT design being used.

* See section 8.5.3.

Table 5: Variables requiring review on FT Sampling Form for KeyQuest (SFKQ) for countries sampling for PISA and additional populations (including for the Teacher Questionnaire)

Variable Name		Variable description
STIDSTRT		PISA assigned Stratum ID
STIDSCH		PISA assigned School ID
WNATID		National assigned school ID
WSCHREP		0=Main sampled school; 1= Replacement school
WENR0		ENR for PISA population
WENRi (i=1…5)		ENR for population i
WTCS1		Target cluster size for PISA population
WTCSj (j=2...5)		Target cluster size for other population defined groups
WSMOP		Sampling Option*
WUH		UH option: 0=No UH assessment instrument; 1=UH assessment instrument in SEN schools; 2=Special: agreed with Westat, Core 5;3=UH assessment instrument for SEN students in general schools
WECSk (k=1…4)		Cap on number to be subsampled proportionally (99996 for all steps except the last and 0 for the last)
WEPSk (k=1…4)		Proportion to sample
WEINDk (k=1…4)		Overlap indicator of subsample (always 0000 to indicate non-overlapping subsamples)
WETCSk (k=1…4)		Target Cluster Size for each defined subsample (99996 for all steps except the last and 0 for the last)
WESGk (k=1…4)		Groups to subsample for each defined subsample
WEINDk (k=1…4)		Overlap indicator for each defined subsample (always 0000 to indicate non-overlapping subsamples)
WEOPTk (k=1…4)		Values 01-30, and 70, 71. For each defined subsample, specifies the set of assessment instruments which that subsample sample of students will be assigned.
WGROUP		Values 0-15.For alternate FT designs for CBA, indicates the assignment of sampled schools to either one of three groups in the first alternate design or to one of six groups in the second alternate design. For FT designs where all

Variable Name		Variable description
		schools will have the same set of assessment instruments allocated, these will have a WGROUP value indicating the FT design being used.

* See section 8.5.3.

Table 6: Variables not requiring review on FT Sampling Form for KeyQuest (SFKQ) for any countries

Variable Name		Variable description
NC		National Centre 6 digit code
REGION		Set = 00
WDUALID		Set = 000
WORIGSTRT		Set = 01
WSELNUM		Set = 1
WSGj (j=1…5)		Sampling group set, pre-defined by WSMOP value
WINDj (j=1…5)		Sampling index indication overlap of samples, pre-defined by WSMOP value
WCSj (j=1..5)		Cap on number to be sampled proportionally, pre-defined by WSMOP value
WPSj (j=1…5)		Proportion to sample, pre-defined by WSMOP value

8.5.3 Some Variable Information

The variables, STIDSTRT, STIDSCH, WSCHREP, WENR0, and WUH variables will be extracted from your ST4, while Westat, Core 5 will supply any other required values based on discussions with you.

The WSMOP variable has the following values at this time.

- If a school will have just PISA students sampled, WSMOP=0
- If a school will have PISA students sampled as well as additional non-PISA grade students sampled through grade-based sampling option 1, WSMOP=1 (see Appendix C).
- If a school will have PISA students sampled as well as additional non-PISA grade students sampled through grade-based sampling option 2, WSMOP=2 (see Appendix C).
- If a school will have PISA students sampled as well as additional non-PISA grade students sampled through class grade-based sampling, WSMOP=3 (see Appendix C).
- If a school will have a sample of students eligible just for PISA, and a census of all students in a grade of interest, WSMOP=51.
- If a school will have a sample of students eligible just for PISA and not part of the PISA sub-population of interest, and a census of all PISA students belonging to a particular PISA sub-population of interest, WSMOP=52.

- If a school will have a sample of PISA students and a separate sample size for grade only students, WSMOP=53.

- If a school will have a sample only of non-PISA students, WSMOP=71, 72, 73, etc.

- If a school will have a sample only of PISA students but with a different TCS values needed per school, WSMOP=55.

- Other WSMOP values may be defined as required. For example, if a country is doing teacher sampling, then WSMOP=10 means that a school will have just PISA students sampled, along with teachers. Similarly, a country using WSMOP=55, which is also doing teacher sampling will have WSMOP=65. That is, teacher sampling causes a new WSMOP value by adding 10 to whatever the WSMOP value was originally. (See more about teacher sampling in Appendix B.)

8.6 Sampling Task Six (ST6): Submitting FT Sampling Data and Checks -- DUE BY the end of two weeks after your data collection has ended

Your ST6 Sampling Task consists of entering into *KeyQuest*, school and student status information, running validity checks, resolving validity errors and explaining validity warnings, and then to submit your sampling data (in the form of various *KeyQuest* output files) to Westat, Core 5, via *KeyQuest*.

You will need to enter the participation status of schools into *KeyQuest* using the School Participation instrument. Once a sampled school's participation has been confirmed, a 1 should be entered for the variable SCHPSTAT. If a sampled school is unwilling or unable to participate, then enter 2 for refusal or 3 for non-participation due to other reasons (specify the other reasons in the comment box). If the sampled school is ineligible, then record a 4 for a school with no PISA-eligible students, 5 for a school closure, and 6 for ineligible for other reasons (specify the other reasons in the comment box). If the school was included as a replacement school, but was not needed, enter 7. Table 7 provides a summary of these codes.

Table 7: School Participation Codes for the FT

Code	Code Meaning
1	Participant
2	Refusal
3	Non-participation for other reasons
4	No PISA-eligible students
5	School closure
6	School ineligible for other reasons (please specify)
7	Replacement that was not needed

Once the participation status for all schools and students has been entered, you will need to complete some validity checks on the sampling data. These will be identified within *KeyQuest* as 'Sampling Reports' and will be fully explained in the WSSM. Once all issues arising from these checks have been resolved, **you will need to submit your ST6 to Westat, Core 5 (which provides the required sampling data), along with the sampling reports, via *KeyQuest*.** More information about this process will be available from the WSSM.

8.7 Obtaining Student Lists from Participating Schools

You will need to provide instructions to School Co-ordinators regarding the collection of student lists (and teachers if your country is doing teacher questionnaires). These instructions appear in the international version of the School Coordinator manual, **and you will need to record adaptations to these instructions as part of the process of recording manual adaptations, as discussed in the Preparation of Materials key document that will be released in the fall of 2013**. Please note the following:

The instructions accompanying the form should convey the following:

- the importance of listing **all** eligible students, including those who may not be tested due to a disability or limited language experience (and all eligible teachers if your country is doing teacher questionnaires).

- the fact that any exclusion from the assessment of students who cannot be tested must be done **AFTER** the student sample is selected.

- the definition of PISA-eligible students (in grades 7 or higher born within the population birth date definition that has been agreed with Westat, Core 5 and is recorded on PISA Portal on Sampling Task One).

The *content* of the form should include the following:

- In countries where the Study Programme varies among the eligible students and cannot be assigned with reference to available school-level information, a column for Study Programme should be included.

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

- Student grade, gender, month and year of birth.

- There is a provision for up to 13 optional variables on the List of Students in *KeyQuest*, OPTION1 to OPTION13. You need to agree on your Manuals Adaptation Spreadsheet (MAS) on the use of any optional variables. They can be shift, language, immigrant indicator, or any additional necessary information about students. If not required they can be omitted from the form sent to schools. If used, they can be transmitted by *KeyQuest* into the Student Tracking Form (STF) if that is desired.

- In most circumstances, at most only one optional variable should be proposed. When considering optional variables, keep in mind the added complexity for test administrators and school co-

ordinators if additional variables are added to the student tracking form. Also keep in mind the space limitations of fitting information across a single page.

- However, some optional components (e.g. class based grade sample) will **require** the use of some optional variables. An additional one or two variables, above and beyond the 13 optional variables noted above, will be used for these specific purposes. Additional information on how the optional variables should be used will be provided in the Within-School Sampling Manual (WSSM).

- You will also need to record the PISA stratum (STIDSTRT) and PISA school ID (STIDSCH) as used on your ST5 (SFKQ) and agreed as part of your sampling plan.

- For administrative purposes, you may also need to record additional details such as school name, address, telephone number and email address.

- If you are selecting an additional sample as an option defined on the sampling task 1, you have to carefully identify on the List of Students, those eligible for PISA, and for your optional sample. (Refer to the WSSM for detailed explanation).

We recommend that you ask schools to retain a copy of the list in case you need to call the school with questions.

It is important that all students with a date of birth within the PISA population birth date definition enrolled in the school be listed. This includes students who may be excluded from testing because of a special educational need or limited experience in the language(s) in which the test is being offered, students who are frequently absent from school, and students who may be on work placement programmes at the time of testing. **It is very important that the lists of students provided by schools are complete lists of all PISA-eligible students since incomplete lists could seriously compromise the quality of the sample**.

Once a Student List is received from a school, please check it to ensure that all age-eligible students and all relevant information about the students (and teachers if your country is doing teacher questionnaires) has been received using the following as guidelines.

- Check for the number of students: The actual total number of PISA-eligible students in the list should be compared to the WENR0 variable on the SFKQ file. If the number is similar, then continue with the next check. If the number is quite different, for example, a difference of 20 or more, then the school should be contacted, to query them about the student list. The school should be told that a list with more students was expected and ask them to recheck they have included all eligible students (and explain to them again the target population birth dates). If they have left students off the list, an updated file needs to be requested. If the school confirms the number of age-eligible students in the list is correct, then continue with the additional checks below.

- Check student details:
  - Year Level
  - Sex
  - Birth date

- Check that all listed teachers have been identified as science or non-science teachers, if your country is using teacher questionnaires.

If any of this information is missing, or if there are students from only one year level, or only from one gender, or students haven't been included from the whole target population (for example, missed one month), etc., then send the school a letter, thanking them for sending the student list for PISA, but asking for additional information. Re-Attach the list of instructions for preparing the student list, ask them to re-review it, and note that you look forward to soon receiving an updated student list.

Since it is very important that the student sample represent current enrolments the list should not be prepared too far in advance of the testing, as discussed in the next paragraph.

The instructions for preparing the lists should be sent to the School Co-ordinator about 8 weeks before testing is to begin in the country, and after the key components of your manuals have been internationally verified. The individuals who prepare the lists should also be instructed to return the lists to you at least 6 weeks before testing is to begin. This will provide you with adequate time to select the student samples (and teacher samples if your country is doing teacher questionnaires) and send the Student Tracking and Session Attendance Forms that lists the selected students (and teachers if your country is doing teacher questionnaires) back to schools at least 2 weeks prior to testing. This schedule may be affected by school vacations and holidays. You should be aware of the impact of these events and modify the schedule accordingly. The preparation of the Student Tracking and Session Attendance Forms will be detailed in the *Preparation of Materials* key document provided in the fall of 2013.

9. KeyQuest Changes for PISA 2015

The main changes for within-school sampling in *Keyquest* for PISA 2015 are for SEN students, sampling for Financial Literacy, and sampling teachers for the administration of the teacher questionnaire.

9.1 Sampling for SEN Students

In PISA 2012, countries could choose to administer the UH assessment instrument to SEN students within mainstream schools who otherwise would have been excluded with SEN codes. Although SEN students always have to be identified on the school list of students prior to sampling, having a SEN code does not mean a student would necessarily be excluded if sampled. These particular SEN students who would otherwise have been excluded and who could take the UH assessment instrument if sampled had to be specially identified on the student list prior to student sampling. This involved three operations then: identifying SEN students; for each SEN student, would he/she be excluded if sampled?; if such a student would be excluded if sampled, could he/she sit the PISA test? Several countries which could have chosen this option to reduce their previously too high exclusion rates did not. They felt this method incurred too much burden on school co-ordinators which might in turn lead to school refusals.

For PISA 2015, identifying these special SEN students who could take the UH assessment instrument can now be done on the Student Tracking Form. Doing so involves some procedures which need to be carefully applied. Details on how to accomplish this will be in the WSSM. The PISA 2012 method of identifying such SEN students on the list of students remains available also. Countries with previous high exclusion rates due to high within-school exclusions are **strongly encouraged** to use the UH assessment instrument to reduce exclusions in PISA 2015.

9.2 Sampling for FL Students

Unlike PISA 2012 where an additional student sample was used for FL, if a country chooses FL for PISA 2015, then **a subsample of PISA sampled students** will do FL. These will not be chosen in *KeyQuest*

according to the same methods for PISA 2012 CBA students. This is because the four available subsamples in *KeyQuest* are already depleted through the proportional student sampling which needs to be done for allocating assessment instrument sets, and for the special SEN students in mainstream school getting the UH assessment instrument, as noted above. Students in the FT who will do FL are all of those who are given booklets 01-06 or forms 31-36 in the preferred optimal FT design. Thus, the FL subsample is determined through the assessment instrument allocation to the PISA sample. FL students will have their own Session Attendance Form generated on this basis.

9.3 Sampling for the Teacher Questionnaires

Sampling for teacher questionnaires is new for PISA 2015. *KeyQuest* allows 5 populations to be identified and sampled in addition to the PISA population. These populations are defined using six population indicator variables, TFPOPELIG0-5. If a student is eligible for PISA, then TFPOPELIG0=1. If a student is eligible for population 1, then TFPOPELIG1=1 and so on.

For PISA 2015, populations 4 and 5 will be used for science and non-science teachers respectively. Teachers will be listed on the list of students form following the listed students. While PISA students on the list will have TFPOPELIG0=1 and TFPOPELIG1-5=0, science teachers will have TFPOPELIG0-3=0**, TFPOPELIG4=1**, and TFPOPELIG5=0. Non-science teachers will have TFPOPELIG0-4=0, and **TFPOPELIG5=1**. (TFPOPELIG1-3 will not on the listing form if only PISA students are being sampled, but are mentioned here for completeness.)

Parameters on the ST5 set by Westat, Core 5 and ACER will indicate that 10 science teachers should be sampled from those on the list with TFPOPELIG4=1, and 15 should be sampled from those on the list with TFPOPELIG5=1. While this looks like 25 teachers will be sampled per school, it is expected that on average, no more than 20 teachers will be sampled per school.

A separate tracking form will be output from *KeyQuest* for science teachers and another for non-science teachers. A login form will also be produced for each sampled teacher. See also Appendix B.

10. Learning the KeyQuest *Functions and Operations Required for Student Sampling and Performing Student Sampling in* KeyQuest

The details of new *KeyQuest* functions and operations will be provided in the training materials for the February 2014 training meeting. NPMs are strongly encouraged to send their data managers for this training, especially those considering national or International options related to sampling such as an additional grade-based population. The final instructions will be available from the WSSM that will be released together with the software.

As NPMs and data managers, it will be extremely important to understand these new *KeyQuest* functions as the quality of student sampling and the weighting of the student data for the MS depends on it.

Appendix A – Financial Literacy

Section 9 talked briefly about FL with respect to *KeyQuest*.

This appendix talks about implications on FL when countries which are doing CBA in the MS choose a FT design that is not the preferred optimal design.

Thinking about the first FT alternate design, we cannot assume 9 students get forms 31-36 per school for school groups 1 and 2, as we can in the full FT design --- we can only assume 6. In school group 3, no students get booklets 01-06 or form 31-36 at all. Therefore, if a country doing FL chooses the first FT alternate deign, six will have to be added to each of school groups 1 and 2 (i.e. 19 in each of these).

If the second FT alternate design is chosen, school groups 3 and 6 would have no FL students at all. We get enough FL in school groups 1 &2. Since we are short only on FL students for forms 31-16, one school will need to be added to each of groups 4 and 5 (so 6 schools in each of those as opposed to 5).

Appendix B – Sampling for the Teacher Questionnaire

Section 9 talked about the general plan for sampling teachers in *KeyQuest* for the teacher questionnaire.

Teachers eligible for sampling are those who can teach the modal grade for PISA students. If there are two grades with 40+% of the PISA population in a country, then both grades should be considered modal grades and therefore, teachers from both grades are eligible to be sampled.

Countries choosing this option will need to adjust their ST1 so that the following variables have the required variables as noted just below.

Table 8: ST1 variables for additional populations 4 and 5 in a country participating in the teacher questionnaires option

IPP4ASMN	IPP4ASYR	IPP4AEMN	IPP4AEYR	IPP4GRD	IPP4OTH	IPP4COMM
00	0000	00	0000	00	2	science teachers
IPP5ASMN	**IPP5ASYR**	**IPP5AEMN**	**IPP5AEYR**	**IPP5GRD**	**IPP5OTH**	**IPP5COMM**
00	0000	00	0000	00	2	non-science teachers

The ST5 which becomes the SFKQ will also need special values which be entered by Westat, Core 5 and ACER, but which must be checked by the NPM. The involved ST5 (SFKQ) variables and values are just below.

Table 9: SFKQ variables for main sampling steps 4 and 5 in a country participating in the teacher questionnaire option

WCS4	WPS4	WTCS4	WSG4	WIND4
0	0	10	61	00000
WCS5	**WPS5**	**WTCS5**	**WSG5**	**WIND5**
0	0	15	63	00000

Appendix C – Grade-based Sampling Options

PISA is a 'yield-oriented' assessment. That is, it is designed to describe the outcomes of 15-year-olds.

The PISA design is not optimal for all purposes. In particular, a target population defined on the basis of age rather than grade level or class implies that instructional context cannot be captured precisely. Therefore, while PISA provides useful information on school-level contexts (such as disciplinary climate or the extent to which instruction varies along different teaching styles and methodologies) and how these impact on student achievement, it cannot capture the effects associated with class-specific or grade-specific dimensions. Measuring factors at this level would require additional components to be included in the PISA design (such as a combined age/grade-based design, use of intact classes, and/or longitudinal analyses of a grade cohort).

Some broadening of the issues that PISA can address might be achieved if the core age-based PISA population were to be supplemented with an additional grade-based population, defined as the modal grade attended by 15-year-old students. As explained more below, the overlap between a grade-based population and a birth date-based population is such that additional national costs would be modest.

A first advantage of a modal grade-based component relates to the added precision that could be obtained in describing the instructional context typically experienced by most of the PISA 15-year-old students. With the age-based design it can be difficult to interpret the precise nature of the relationship between data from the school questionnaire (or school aggregates of student responses) to student characteristics including achievement, due to the fact that students often come from a variety of grades. If analyses were conducted for a fixed grade containing most of the PISA population, more precise measures of the instructional context would be available. In particular, analyses relating achievement to instructional variables, such as students' aggregates describing teacher styles or teaching practices used in their classroom would be more amenable to interpretation if conducted at a single grade level rather than at the school level.

Secondly, information would be available on a component of the school context, which is not provided by the core age-based design, that is, the characteristics of the peer group – or, more generally, the characteristics of the larger student body who typically attend school in the same grade as most of the PISA students. Students whose age differs from that of the age-eligible PISA students, but who are in the same classrooms, contribute in shaping the global context in which instruction takes place. The influence of their socio-economic status, their academic level, their educational and occupational expectations, and so on, are likely to be part of the school intake effect. Using the whole group of students attending a same grade (rather than the 15 years old students only) would, for example, provide better estimates of the between-school variance, and of the extent to which it can be explained by home background variables versus school instructional characteristics.

Thirdly, a description of the typical grade attended by 15- year-old students may be interesting in and of itself. In most PISA countries, the modal grade is the typical grade that students are expected to attend at age 15 if their school career had no special disruptions. As a consequence, the characteristics of that grade (in terms of courses offered, diversity of study programmes, instructional time, etc.) can be described as what the various school systems typically offer to their 15- year-old students. In this respect, the grade component offers an opportunity for a number of meaningful international comparisons.

For example, in countries where the modal grade corresponds to the expected grade, one could look at how many of the students reached it on due time and what their achievement levels are; compare the

modal grade students with those who are lagging one or more grades behind; compare it with those who are in the same grade but are older than most students in that grade; and compare across countries the proficiency level that is typical of the grade attended by most 15-year-old students and the achievement differences of students who are below, at and above the expected grade.

C.1.Operational Implications: Sampling Students or Intact Classes

The implementation of the sampling for a grade-based population definition can proceed by either sampling students, as is currently undertaken for 15-year-olds, or through sampling intact classes. Sampling intact classes has analytic advantages if there is a desire to link individual students to the specifics of their instructional context. Operationally however, sampling students may have considerable advantages.

With the student-level sample, the sample of grade-eligible students would be sampled directly from a list of all such eligible students within the school. This sample selection would be fully integrated with the selection of the age-based sample. Thus, participating schools would be asked to provide a student list containing all 15-year-old students, plus all other students enrolled in grade 10, for example. A sample of the appropriate size would be selected from this combined student list, where the size would be determined in part by the extent of overlap between the age-based and grade-based populations.

In the case of classroom sampling, the selection of one or more classrooms from within the selected schools would be appropriate. Thus, the sample selection within a school would consist of two components. First a sample of 15-year-old students would be selected from a list of 15-year-olds enrolled in school. Next, a sample of grade 10 (for example) classes would be selected from a list of all grade 10 science classes in the school. All students from the selected classes would be included in the sample. Some students, eligible both by age and grade, would be selected twice. Such students would not need to be assessed twice, but the data they provide from a single assessment could be used in analyses of both the grade- and birth-date-eligible populations.

The classroom-based approaches may present challenges in many cases in the preparation of a suitable list of classrooms from which to select the sample. The best approach will depend upon whether classroom-based sampling is being used purely for operational convenience, as the easiest way to administer the assessment to a sample of grade 10 students (although this is unlikely to be the case, as discussed below), or whether the aim is to gather information about classrooms of students, either in association with a teacher questionnaire, or just as a means to provide good data for use in variance decomposition and mixed linear models (HLM).

First, consider the case of classroom sampling for convenience. While it may seem attractive to select whole classrooms of students, who can then stay in a single group during the assessment administration, this is unlikely to offer substantial benefit.

First, a separate sample of 15-year-olds will be selected from the same school, and they will have to be assembled into one place for the assessment. Because PISA requires this sample not be clustered by classroom, this will be true even if most 15-year-olds are in the relevant grade (say grade 10). Suppose for example that a school has 6 classes at grade 10, and all 15-year-olds are in grade 10. For the grade-based option suppose that two classes are to be selected. Then the combined sample for the assessment could consist of two whole classes of students, plus, say, 25 additional students drawn from the other four classes. This seems to be more trouble and effort than a sample of 35 student sampled from across the six classes, which would give the same results for PISA, and more precise ones for the grade-based estimates.

The second argument against the convenience of intact class sampling is that the PISA assessment requires several class periods to administer, so that whole class sample could only offer administrative benefit in cases where students in a class stay together for all periods in a day. Otherwise all grade 10 classes would be disrupted anyway. If, however, a case can be made for classroom sampling as a convenient approach, then science classes would make a good choice.

If classroom samples are preferred for analytic reasons, then considerable care and attention will be required to develop a suitable class list in each school. This will be straightforward in cases where every grade 10 student takes exactly one science class. Then the list of grade 10 science classes will make a suitable sampling frame for the grade 10 sample. But in some cases, grade 10 students may take more than one science class. There may be small numbers of grade 10 students who take no science class – these students must still be represented in the list of classes to be sampled, as the study is of science literacy among grade 10 students, not just grade 10 students studying science. In some cases there may be classes made up of students from several different grades. If any of the students in these are grade 10 students who are not taking any other science class, then these classes will need to be included on the list also. Thus any country that elects to use a class-based sampling approach will need to work very closely with Westat, Core 5 to ensure that appropriate classroom sampling procedures are used, and that this grade-based component does not inadvertently present a threat to the validity of the PISA 15-year-old sample in terms of undercoverage.

Given the concerns discussed above regarding classroom-based sampling the Contractors recommend the use of student sampling with the grade-based option.

C.2 Grade Selection

The grade usually identified for each country is the one with the greatest proportion of 15-year-old students (i.e. the greatest proportion of the PISA birth date-based population, often referred to as the modal grade for 15-year-olds). Note that in countries where two grades each have more than 40 percent of these students, we propose that you indicate which of the two grades you wish to sample from. Such countries could elect to include both grades. Indeed any country can elect to add an additional grade of its choosing, as a national option.

C.3 Sample Sizes

For each country, increased MS sample size depends on the overlap between age 15 and the modal grade of 15-year-olds as well as on whether more students will be selected per school, and/or more schools selected. It also depends upon whether direct student sampling is used, or classroom-based sampling.

In cases where classroom-based sampling is to be used, we suggest the following ‘rule of thumb’ for determining the implications for the student sample sizes. Consider the school sample for PISA 2012. In those schools with more than 60 students age-eligible for PISA, assume that the student sample size requirement will be doubled (from 35 students to 70 students in most cases). In those schools with fewer than 60 students, assume that there will be no extra student sample. Of course this is a very simplified approach, but should give a good indication of the amount of additional resources needed. Note that the classroom-based approach will require considerably more students to be sampled than the direct student sampling approach. In a country that has generally large schools, with most 15-year-olds in the target grade, direct student sampling will require virtually no additional sample, whereas classroom-based sampling will require the student sample size to be about doubled.

One approach to selecting a combined sample of 15-year-olds and grade students is to use the sampling interval calculated for the PISA students (count of PISA students divided by sample size of PISA

students), but apply it to a combined list of 15-year-olds and grade students. This is called grade-based sampling option 1. Under this option, few, if any, additional schools are needed. However, the sample size within each school could become large, perhaps too large to be manageable. If the WTCS1 is 35, as it commonly was in previous PISA cycles, and 50% of 15-year-olds are in the target grade, then the sample size will become about 53 in each school on average, and higher in individual schools that have fewer than 50% of -15-year-olds in the grade, or a lot more grade students than 15-year-olds.

A second approach, grade-based sampling option 2 is to compile the combined list of 15-year-old and grade students, but then to calculate a sampling interval that gives a target sample size equal to the WTCS1 overall. With this approach additional schools must be added to the MS sample because fewer than WTCS1 PISA students are obtained in each school.

A compromise between the two approaches can also be considered. In this case the total number of students per school is higher than the WTCS1 (but not as high as implied by grade-based sampling option 1), but the number of 15-year-olds per school is lower than the WTCS1. Thus with this approach the needed increase in the school sample size is more limited.

Some countries can adopt the grade-based option, using direct student sampling (not classroom-based sampling), with very little additional sample required, either schools or students (as they have over 85% overlap between the PISA birth date population and the target grade).

Countries choosing to do grade sampling will need to indicate their additional populations on their ST1 as follows:

Table 10: ST1 variables for additional population1 in a country participating in a non-class grade sample

IPP1ASMN	IPP1ASYR	IPP1AEMN	IPP1AEYR	IPP1GRD	IPP1OTH	IPP1COMM
00	0000	00	0000	10	0	Students in PISA sampled schools who are in grade 10 but older than PISA students

Table 11: ST1 variables for additional population1 in a country participating in a class grade sample

IPP1ASMN	IPP1ASYR	IPP1AEMN	IPP1AEYR	IPP1GRD	IPP1OTH	IPP1COMM
00	0000	00	0000	10	1	Two intact grade 10 classes will be sampled in each PISA sampled school

Appendix D – SFKQ examples

The following transposed table (for ease of viewing) shows the SFKQ setup for four schools. School 01 003 will have just PISA students sampled. School 02 007 with have PISA students sampled and teachers also will be sampled. School 03 008 is a Special Education school which will use the UH assessment instrument. School 05 001 will have PISA students and grade students sampled using grade sampling option 2 (WSMOP=2).

Do not worry about all the data in these examples. They are simply to illustrate at this point what the ST5 /SFKQ will look like for PISA 2015 for these types of cases. Everything you need to know will be explained in detail as we progress through the FT sampling process.

Rows shaded in grey show variables which you will not need to check. You should notice though, that there are more variables that will need to be checked for PISA 2015 as compared to PISA 2012.

			Case	
Variable	**PISAonly**	**PISA+TQ**	**PISA+UHSpecialSch**	**PISA+GradeOpt2**
COUNTRY	988	989	990	991
NC	098800	098901	199000	099100
Region	00	00	00	00
StIDStrt	01	02	03	05
StIDSch	003	007	008	001
WDUALID	000	000	000	000
WORIGSTRT	01	01	01	01
WNATID	NATID598	NATID78	NATIDBY987	NATID73401
WSELNUM	1	1	1	1
WSCHREP	0	1	0	0
WSMOP	**0**	**10**	**0**	**2**
WUH	**0**	**0**	**1**	**0**
WGROUP	01	01	01	01
WENR0	90	120	58	187
WENR1	0	0	0	238
WENR2	0	0	0	0
WENR3	0	0	0	0
WENR4	0	5	0	0
WENR5	0	23	0	0
WCS1	0	0	0	0
WPS1	0	0	0	0
WTCS1	78	78	78	110
WSG1	1	1	1	1, 32,33
WIND1	00000	00000	00000	00000
WCSi	0	0	0	0
WPSi	0	0	0	0

			Case	
Variable	**PISAonly**	**PISA+TQ**	**PISA+UHSpecialSch**	**PISA+GradeOpt2**
WTCSi	0	0	0	0
WSGi	0	0	0	0
WINDi	00000	00000	00000	00000
WCS4	0	0	0	0
WPS4	0	10	0	0
WTCS4	0	61	0	0
WSG4	0	0	0	0
WIND4	00000	00000	00000	00000
WCS5	0	0	0	0
WPS5	0	0	0	0
WTCS5	0	15	0	0
WSG5	0	63	0	0
WIND5	00000	00000	00000	00000
WEOPT1	03	01	00	01
WECS1	99996	99996	0	99996
WEPS1	0.42	0.23	0	0.23
WETCS1	99996	99996	0	99996
WESG1	1	1	00000	1,32,33
WEIND1	0000	0000	0000	0000
WEOPT2	01	02	00	02
WECS2	99996	99996	0	99996
WEPS2	0.396551724	0.454545455	0	0.454545455
WETCS2	99996	99996	0	99996
WESG2	1	1	0	1,32,33
WEIND2	0000	0000	0000	0000
WEOPT3	02	03	00	03
WECS3	0	0	0	0
WEPS3	1	1	0	1
WETCS3	99996	99996	0	99996
WESG3	1	1	0	1,32,33
WEIND3	0000	0000	0000	0000
WEOPT4	00	00	71	00
WECS4	0	0	0	0
WEPS4	0	0	0	0
WETCS4	0	0	99996	0
WESG4	0	0	1	0
WEIND4	0000	0000	0000	0000

Appendix E – Country codes and Allocation to the group to submit forms first or to the group to submit forms second

COUNTRY	*COUNTRY CODE*	*FT SAMPLING FORM SUBMISSION GROUP*
Albania	**ALB**	**B**
Algeria	**DZA**	**A**
Argentina	**ARG**	**B**
Australia	**AUS**	**A**
Austria	**AUT**	**B**
Belgium	**BEL**	**A**
Brazil	**BRA**	**B**
Bulgaria	**BGR**	**A**
Canada	**CAN**	**B**
Chile	**CHL**	**A**
China - SAR HongKong	**HKG**	**B**
China - SAR Macao	**MAC**	**A**
Chinese Taipei	**TAP**	**B**
Colombia	**COL**	**A**
Costa Rica	**CRI**	**B**
Croatia	**HRV**	**A**
Cyprus	**QCY**	**B**
Czech Republic	**CZE**	**B**
Denmark	**DNK**	**A**
Dominican Republic	**DOM**	**B**
Estonia	**EST**	**A**
Finland	**FIN**	**B**
France	**FRA**	**A**
Germany	**DEU**	**B**
Georgia	**GEO**	**A**
Greece	**GRC**	**B**
Hungary	**HUN**	**A**
Iceland	**ISL**	**B**
Indonesia	**IDN**	**A**
Ireland	**IRL**	**B**
Israel	**ISR**	**A**
Italy	**ITA**	**B**
Japan	**JPN**	**A**
Jordan	**JOR**	**B**

Kazakhstan	**KAZ**	**A**
Kosovo	**KSV**	**B**
Latvia	**LVA**	**A**
Lebanon	**LBN**	**B**
Lithuania	**LTU**	**A**
Luxembourg	**LUX**	**B**
Macedonia	**MKD**	**A**
Malaysia	**MYS**	**B**
Malta	**MLT**	**A**
Mexico	**MEX**	**B**
Moldova	**MDA**	**A**
Montenegro	**MNE**	**B**
Netherlands	**NLD**	**A**
New Zealand	**NZL**	**B**
Norway	**NOR**	**A**
Panama	**PAN**	**B**
Peru	**PER**	**A**
Poland	**POL**	**B**
Portugal	**PRT**	**A**
Qatar	**QAT**	**B**
Republic of Korea	**KOR**	**A**
Romania	**ROU**	**B**
Russian Federation	**RUS**	**A**
Scotland	**QSC**	**B**
Serbia	**SRB**	**A**
Singapore	**SGP**	**B**
Slovak Republic	**SVK**	**A**
Slovenia	**SVN**	**B**
Spain	**ESP**	**A**
Sweden	**SWE**	**B**
Switzerland	**CHE**	**A**
Thailand	**THA**	**B**
Trinidad&Tobago	**TTO**	**A**
Tunisia	**TUN**	**B**
Turkey	**TUR**	**A**
United Arab Emirates	**UAE**	**B**
United Kingdom	**QUK**	**A**
United States of America	**USA**	**B**
Uruguay	**URY**	**A**
Vietnam	**VNM**	**A**

Appendix F – Acronyms

CCC	3- letter country codes codes identifying each country that should always be in email subjects enclosed in round brackets
ACER	Sub-contractor to Westat, Core 5
CBA	Computer Based Assessments
WSSM	Within-School Sampling Manual
FL	Financial Literacy
FT	Field Trial
HLM	Hierarchial Linear Modelling
ISCED	International Standard Classification of Education (level, programme, orientation, etc.)
KeyQuest	ACER's student sampling software
MAS	Manuals Adaptation Spreadsheet
MS	MS
NC	National Centre
NPM	National Project Manager
PBA	Paper Based Assessments
PISA Portal	The PISA 2015 website
PISA	Programme for International Student Assessment
SEN	Special Education Needs
SFKQ	Sampling Form for KeyQuest (Sampling Task 5 on PISA Portal)
ST1	Sampling Task 1 (template upload to PISA Portal) on PISA Portal
ST2	Sampling Task 2 (template upload to PISA Portal) on PISA Portal
ST3	Sampling Task 3 (template upload to PISA Portal) on PISA Portal
ST3a	Sampling Task 3a (template upload to PISA Portal)
ST4	Sampling Task 4 (template upload to PISA Portal)
ST5	Sampling Task 5 (PISA Portal form to review)
ST6	Sampling Task6 (data and checks submitted to Westat, Core 5 via KQ)
STIDSCH	PISA assigned School ID
STIDSTRT	PISA assigned stratum ID
STF	Student Tracking Form
WUH	UH option: 0=No UH assessment instrument; 1=UH assessment instrument in SEN schools; 2=Special: agreed with Westat, Core 5;3=UH assessment instrument for SEN students in general schools