

# Argentina, Australia, Austria, Azerbaijan, Belgium, Bulgaria, Brazil, Canada, Switzerland, Chile, Co - Programme for International Student Assessment 2006

**Organisation for Economic Co-operation and Development (OECD)**

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## Overview

### Identification

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ID NUMBER  
WLD\_2006\_PISA\_v01\_M

### Version

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VERSION DESCRIPTION

PRODUCTION DATE

NOTES

### Overview

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#### ABSTRACT

The OECD Programme for International Student Assessment (PISA) is a collaborative effort undertaken by all member countries and a number of non-member partner countries to measure how well students, at age 15, are prepared to meet the challenges they may encounter in future life. Age 15 is chosen because at this age, in most OECD countries, students are approaching the end of compulsory schooling, and so, some measure of the knowledge, skills and attitudes accumulated over approximately ten years of education is gained from an assessment at this time. the PISA assessment takes a broad approach to assessing knowledge, skills and attitudes that reflect current changes in curricula, moving beyond the school based approach towards the use of knowledge in everyday tasks and challenges. the skills acquired reflect the ability of students to continue learning throughout their lives by applying what they learn in school to non-school environments, evaluating their choices and making decisions. the assessment, jointly guided by the participating governments, brings together the policy interests of countries by applying scientific expertise at both national and international levels.

PISA combines the assessment of domain-specific cognitive areas such as science, mathematics and reading with information on students' home background, their approaches to learning, their perceptions of their learning environments and their familiarity with computers. A high priority in PISA 2006 is an innovative assessment of student attitudes towards science - questions about this were contextualised within the cognitive part of the test. Bringing the attitude items closer to the cognitive questions allowed questions to be targeted at specific areas, with the focus on interest in science and students' support for scientific enquiry. Student outcomes are then associated with these background factors.

PISA uses: i) strong quality assurance mechanisms for translation, sampling and test administration; ii) measures to achieve cultural and linguistic breadth in the assessment materials, particularly through countries' participation in the development and revision processes for the production of the items; and iii) state of the art technology and methodology for data handling. the combination of these measures produces high quality instruments and outcomes with superior levels of validity and reliability to improve the understanding of education systems as well as students' knowledge, skills and attitudes.

PISA is based on a dynamic model of lifelong learning in which new knowledge and skills necessary for successful adaptation to a changing world are continuously acquired throughout life. PISA focuses on things that 15-year-old students will need in the future and seeks to assess what they can do with what they have learned. the assessment is informed, but not constrained, by the common denominator of national curricula. thus, while it does assess students' knowledge, PISA also examines their ability to reflect, and to apply their knowledge and experience to real world issues. For example, in order to understand and evaluate scientific advice on food safety an adult would need not only to know some basic facts about the composition of nutrients, but also to be able to apply that information. the term "literacy" is used to encapsulate this broader concept of knowledge and skills.

PISA is designed to collect information through three-yearly cycles and presents data on the reading, mathematical and scientific literacy of students, schools and countries. It provides insights into the factors that influence the development of skills and attitudes at home and at school, and examines how these factors interact and what the implications are for policy development.

PISA 2006 is the third cycle of a data strategy defined in 1997 by participating countries. the results allow national policy makers to compare the performance of their education systems with those of other countries. Similar to the previous cycles,

the 2006 assessment covers the domains of reading, mathematical and scientific literacy, with the major focus on scientific literacy. Students also respond to a background questionnaire, and additional supporting information is gathered from the school authorities. Fifty-six countries and regions, including all 30 OECD member countries, are taking part in the PISA 2006 assessment. together, they comprise almost 90% of the world's economy.

Since the aim of PISA is to assess the cumulative yield of education systems at an age where compulsory schooling is still largely universal, testing focused on 15-year-olds enrolled in both school-based and work-based educational programmes. Between 5 000 and 10 000 students from at least 150 schools will typically be tested in each country, providing a good sampling base from which to break down the results according to a range of student characteristics.

The primary aim of the PISA assessment is to determine the extent to which young people have acquired the wider knowledge and skills in reading, mathematical and scientific literacy that they will need in adult life. the assessment of cross-curricular competencies continues to be an integral part of PISA 2006. the main reasons for this broadly oriented approach are:

- Although specific knowledge acquisition is important in school learning, the application of that knowledge in adult life depends crucially on the acquisition of broader concepts and skills. In science, having specific knowledge, such as the names of plants and animals, is of less value than understanding broad topics such as energy consumption, biodiversity and human health in thinking about the issues under debate in the adult community. In reading, the capacity to develop interpretations of written material and to reflect on the content and qualities of text are central skills. In mathematics, being able to reason quantitatively and to represent relationships or dependencies is more apt than the ability to answer familiar textbook questions when it comes to deploying mathematical skills in everyday life.
- In an international setting, a focus on curriculum content would restrict attention to curriculum elements common to all or most countries. this would force many compromises and result in an assessment too narrow to be of value for governments wishing to learn about the strengths and innovations in the education systems of other countries.
- Certain broad, general skills are essential for students to develop. they include communication, adaptability, flexibility, problem solving and the use of information technologies. these skills are developed across the curriculum and an assessment of them requires a broad cross-curricular focus.

PISA is not a single cross-national assessment of the reading, mathematics and science skills of 15-year-old students. It is an ongoing programme that, over the longer term, will lead to the development of a body of information for monitoring trends in the knowledge and skills of students in various countries as well as in different demographic subgroups of each country. On each occasion, one domain will be tested in detail, taking up nearly two-thirds of the total testing time. the major domain was reading literacy in 2000 and mathematical literacy in 2003, and is scientific literacy in 2006. this will provide a thorough analysis of achievement in each area every nine years and a trend analysis every three. Similar to previous cycles of PISA, the total time spent on the PISA 2006 tests by each student is two hours, but information is obtained on about 390 minutes worth of test items. the total set of questions is packaged into 13 linked testing booklets. each booklet is taken by a sufficient number of students for appropriate estimates to be made of the achievement levels on all items by students in each country and in relevant sub-groups within a country (such as males and females, and students from different social and economic contexts). Students also spend 30 minutes answering questions for the context questionnaire.

The PISA assessment provides three main types of outcomes:

- Basic indicators that provide baseline profile of the knowledge and skills of students.
- Contextual indicators that show how such skills relate to important demographic, social, economic and educational variables.
- Indicators on trends that emerge from the on-going nature of the data collection and that show changes in outcome levels and distributions, and in relationships between student-level and school-level background variables and outcomes.

#### KIND OF DATA

#### UNITS OF ANALYSIS

- Individuals

- Schools

## Scope

## NOTES

The scope of Programme for International Student Assessment (PISA) 2006 includes:

- ICT FAMILIARITY: Use of computers
- PARENTS: student's past science activities, parents' views on student's school, science in the student's intended career and the need for scientific knowledge and skills in the job market, parents' views on science and the environment, the cost of education services, parents' education and occupation
- SCHOOL: characteristics of the school, student body, school's resources, staffing, organisation of the school, environment in the curriculum, career guidance and preparation of students for further education
- STUDENT: student and family backgrounds, student's view on various issues related to science, environment, careers and <broad science>, learning time, teaching and learning science
- READING LITERACY
- MATHEMATICAL LITERACY
- SCIENTIFIC LITERACY

## Coverage

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### GEOGRAPHIC COVERAGE

OECD countries

- Australia
- Austria
- Belgium
- Canada
- Czech Republic
- Denmark
- Finland
- France
- Germany
- Greece
- Hungary
- Iceland
- Ireland
- Italy
- Japan
- Korea
- Luxembourg
- Mexico

- Netherlands
- New Zealand
- Norway
- Poland
- Portugal
- Slovak Republic
- Spain
- Sweden
- Switzerland
- Turkey
- United Kingdom
- United States

Partner countries/economies

- Argentina
- Azerbaijan
- Brazil
- Bulgaria
- Chile
- Colombia
- Croatia
- Estonia
- Hong Kong-China
- Indonesia
- Israel
- Jordan
- Kyrgyzstan
- Latvia
- Liechtenstein
- Lithuania
- Macao-China
- Montenegro

- Qatar
- Romania
- Russian Federation
- Serbia
- Slovenia
- Chinese Taipei
- Thailand
- Tunisia
- Uruguay

## Producers and Sponsors

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### PRIMARY INVESTIGATOR(S)

Name	Affiliation
Organisation for Economic Co-operation and Development (OECD)	

### OTHER PRODUCER(S)

Name	Affiliation	Role

DDI DOCUMENT ID

DDI\_WLD\_2006\_PISA\_v01\_M

## Sampling

### **Sampling Procedure**

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### **Deviations from Sample Design**

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### **Response Rate**

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### **Weighting**

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# Questionnaires

## Overview

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The questionnaires seek information about:

- Students and their family backgrounds, including their economic, social and cultural capital
- Aspects of students' lives, such as their attitudes towards learning, their habits and life inside school, and their family environment
- Aspects of schools, such as the quality of the schools' human and material resources, public and private control and funding, decision-making processes, and staffing practices
- Context of instruction, including institutional structures and types, class size, and the level of parental involvement
- Strategies of self-regulated learning, motivational preferences and goal orientations, self-related cognition mechanisms, action control strategies, preferences for different types of learning situations, learning styles, and social skills required for co-operative or competitive learning
- Aspects of learning and instruction in science, including students' motivation, engagement and confidence with science, and the impact of learning strategies on achievement related to the teaching and learning of science

Two additional questionnaires are offered as international options:

- A computer familiarity questionnaire focusing on: i) availability and use of information and communications technology (ICT), including the location where it is mostly used as well as the type of use; ii) ICT confidence and attitudes, including self-efficacy and attitudes towards computers; and iii) learning background of ICT, focusing on where students learned to use computers and the Internet. The OECD published a report resulting from analysis of data collected via this questionnaire in 2003, *Are Students Ready for a Technology-Rich World? What PISA Studies Tell Us* (OECD, 2005).
- A parent questionnaire focusing on a number of topics including the student's past science activities, parents' views on the student's school, parents' views on science in the student's intended career and the need for scientific knowledge and skills in the job market, parents' views on science and the environment, the cost of education services, and parents' education and occupation.



## Data Collection

### Data Collection Dates

Start	End	Cycle
2006	2006	N/A

### Data Collection Mode

Face-to-face [f2f]

### Data Collection Notes

The design and implementation of PISA for the 2000, 2003 and 2006 data collections has been the responsibility of an international consortium led by the Australian Council for Educational Research (ACER) with Ray Adams as international project director. The other partners in this consortium have been the National Institute for Educational Measurement (Cito Group) in the Netherlands, Unité d'analyse des systèmes et des pratiques d'enseignement (aSPe) at Université de Liège in Belgium, Westat and the Educational Testing Service (ETS) in the United States and the National Institute for Educational Research (NIER) in Japan.

The consortium implements PISA within a framework established by the PISA Governing Board (PGB) which includes representation from all participating countries at senior policy levels. The PGB established policy priorities and standards for developing indicators, for establishing assessment instruments, and for reporting results. Experts from participating countries served on working groups linking the programme policy objectives with the best internationally available technical expertise in the three assessment areas. These expert groups were referred to as Subject Matter Expert Groups (SMEGs) (see Appendix 8 for members). By participating in these expert groups and regularly reviewing outcomes of the groups' meetings, countries ensured that the instruments were internationally valid and that they took into account the cultural and educational contexts of the different OECD member countries, that the assessment materials had strong measurement potential, and that the instruments emphasised authenticity and educational validity.

Each of the participating countries appointed a National Project Manager (NPM), to implement PISA nationally. The NPM ensured that internationally agreed common technical and administrative procedures were employed. These managers played a vital role in developing and validating the international assessment instruments and ensured that PISA implementation was of high quality. The NPMs also contributed to the verification and evaluation of the survey results, analyses and reports.

The OECD Secretariat had overall responsibility for managing the programme. It monitored its implementation on a day-to-day basis, served as the secretariat for the PGB, fostered consensus building between the countries involved, and served as the interlocutor between the PGB and the international consortium.

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- Context of instruction, including institutional structures and types, class size, and the level of parental involvement
- Strategies of self-regulated learning, motivational preferences and goal orientations, self-related cognition mechanisms, action control strategies, preferences for different types of learning situations, learning styles, and social skills required for co-operative or competitive learning
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## **Supervision**

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## Data Processing

### **Data Editing**

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### **Other Processing**

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## Data Appraisal

### **Estimates of Sampling Error** **Other forms of Data Appraisal**



# Documentation

## Questionnaires

### ICT Familiarity Component for the Student Questionnaire

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Title ICT Familiarity Component for the Student Questionnaire  
Date 2005-12-01  
Language English  
Filename PISA06\_ICT\_questionnaire.pdf

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### Parent Questionnaire for PISA 2006

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Title Parent Questionnaire for PISA 2006  
Date 2005-12-01  
Language English  
Filename PISA06\_Parent\_questionnaire.pdf

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### School Questionnaire for PISA 2006

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Title School Questionnaire for PISA 2006  
Date 2005-12-01  
Language English  
Filename PISA06\_School\_questionnaire.pdf

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### Student Questionnaire for PISA 2006

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Title Student Questionnaire for PISA 2006  
Date 2005-12-01  
Language English  
Filename PISA06\_Student\_questionnaire.pdf

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## Reports

### Green at Fifteen?

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Title Green at Fifteen?  
subtitle How 15-year-olds Perform in Environmental Science and Geoscience in PISA 2006  
Author(s) OECD  
Date 2009-01-01  
Language English  
Filename 9809071E.pdf

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### PISA 2006 Science Competencies for Tomorrow's World: Volume 1 -

## Analysis

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Title	PISA 2006 Science Competencies for Tomorrow's World: Volume 1 - Analysis
Author(s)	OECD
Date	2007-01-01
Language	English
Description	It summarises the performance of students in PISA 2006 and uses the information gathered to analyse what factors may relate to success in education.
Filename	39703267.pdf

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## PISA 2006: Volume 2 - Data/Données

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Title	PISA 2006: Volume 2 - Data/Données
Author(s)	OECD
Date	2007-01-01
Language	English
Description	<p>Volume 2: Data presents the PISA 2006 full dataset underlying Volume 1: Analysis. Volume 1 examines the performance of students, schools and countries in the context of socio-economic background and identifies important educational policies and practices that are associated with educational success. Together with the PISA 2000 and PISA 2003 surveys, PISA 2006 completes the first cycle of assessment in the three key subject areas. PISA is now conducting a second cycle of surveys, beginning in 2009 with reading as the major subject and continuing in 2012 (mathematics) and 2015 (science).</p> <p>Volume 2 : Données expose l'ensemble des données du cycle PISA 2006. Il s'agit du complément indispensable du Volume 1 : Analyse des résultats qui examine les performances des élèves, des établissements et des pays dans le contexte du milieu socioéconomique et identifie les politiques et pratiques d'éducation de premier plan qui sont gage de succès éducatif. Avec les enquêtes PISA 2000 et PISA 2003, PISA 2006 vient compléter le premier cycle d'évaluation dans les trois domaines majeurs. Le programme PISA lance actuellement son second cycle d'enquête, qui débutera en 2009 avec la compréhension de l'écrit pour domaine principal et se poursuivra en 2012 avec les mathématiques et en 2015 avec les sciences.</p>
Filename	39703566.pdf

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## PISA 2006 Les compétences en sciences, un atout pour réussir: Volume 1 - Analyse des résultats

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Title	PISA 2006 Les compétences en sciences, un atout pour réussir: Volume 1 - Analyse des résultats
Author(s)	OECD
Date	2007-01-01
Language	French
Description	It summarises the performance of students in PISA 2006 and uses the information gathered to analyse what factors may relate to success in education.
Filename	39777163.pdf

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## Top of the Class

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Title	Top of the Class
subtitle	High Performers in Science in PISA 2006
Author(s)	OECD
Date	2009-01-01
Language	English
Description	<p>This report looks at top-performing students in the PISA 2006 science assessment, their attitudes and motivations, and the schools in which they are enrolled. Top-performers are defined as those 15-year-old students who are proficient at Levels 5 and 6 on the PISA 2006 science scale as compared with strong performers (proficient at Level 4), moderate performers (proficient at Levels 2 and 3), and those who are at risk of being left behind (proficient at Level 1 or below).</p>

Filename 42645389.pdf

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## Equally prepared for life?

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Title Equally prepared for life?  
subtitle How 15-year-old Boys and Girls Perform in School  
Author(s) OECD  
Date 2009-01-01  
Language English  
Filename 42843625.pdf

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## The High Cost of Low Educational Performance

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Title The High Cost of Low Educational Performance  
subtitle The Long-run Economic Impact of Improving PISA Outcomes  
Author(s) OECD  
Date 2010-01-01  
Language English  
Filename 44417824.pdf

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## Iberoamerica in PISA 2006: Regional Report

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Title Iberoamerica in PISA 2006: Regional Report  
Author(s) OECD  
Date 2010-01-01  
Language English  
Filename 45753892.pdf

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## Technical documents

## Assessing Scientific, Reading and Mathematical Literacy

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Title Assessing Scientific, Reading and Mathematical Literacy  
subtitle A Framework for PISA 2006  
Author(s) OECD  
Date 2006-01-01  
Language English  
Description this publication presents the conceptual framework underlying the PISA 2006 assessments, including a re-developed and expanded framework for scientific literacy, incorporating an innovative component on the assessment of students' attitudes towards science, and the frameworks for the assessment of reading and mathematics. Within each domain, the framework defines the contents that students need to acquire, the processes that need to be performed and the contexts in which knowledge and skills are applied. Finally, it illustrates the domain and their aspects with sample tasks.  
Filename 37464175.pdf

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## PISA Data Analysis Manual

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Title PISA Data Analysis Manual  
subtitle SAS Second Edition  
Author(s) OECD  
Date 2009-01-01



Language English

Description The PISA Data Analysis Manual has been developed to provide researchers with various techniques needed to correctly analyse the complex databases. It helps researchers confidently replicate procedures used for the production of the PISA initial reports and thematic reports, and accurately undertake new analyses in areas of special interest. In addition to the inclusion of the necessary techniques, the manual also includes a detailed account of the PISA 2006 database. This information for PISA 2000 is found in the PISA 2000 Database Manual (OECD, 2002a) and for PISA 2003 in the PISA 2003 Data Analysis Manual (OECD, 2005b).

This PISA Data Analysis Manual is a revised edition of the PISA 2003 Data Analysis Manual (OECD, 2005b). The chapters in the manual are expanded to cover various analytical issues in PISA in general, while applying examples from all available PISA surveys – PISA 2000, PISA 2003 and PISA 2006.

Filename 9809021E.pdf

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## PISA Data Analysis Manual

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Title PISA Data Analysis Manual

subtitle SPSS Second Edition

Author(s) OECD

Date 2009-01-01

Language English

Description The PISA Data Analysis Manual has been developed to provide researchers with various techniques needed to correctly analyse the complex databases. It helps researchers confidently replicate procedures used for the production of the PISA initial reports and thematic reports, and accurately undertake new analyses in areas of special interest. In addition to the inclusion of the necessary techniques, the manual also includes a detailed account of the PISA 2006 database. This information for PISA 2000 is found in the PISA 2000 Database Manual (OECD, 2002a) and for PISA 2003 in the PISA 2003 Data Analysis Manual (OECD, 2005b).

This PISA Data Analysis Manual is a revised edition of the PISA 2003 Data Analysis Manual (OECD, 2005b). The chapters in the manual are expanded to cover various analytical issues in PISA in general, while applying examples from all available PISA surveys – PISA 2000, PISA 2003 and PISA 2006.

Filename 9809031E.pdf

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## PISA Related Items - Science

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Title PISA Related Items - Science

Author(s) OECD

Date 2006-12-01

Language English

Filename 38709385.pdf

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## PISA Related Items - Reading

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Title PISA Related Items - Reading

Author(s) OECD

Date 2006-12-01

Language English

Filename 38709396.pdf

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## PISA Related Items - Mathematics

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Title PISA Related Items - Mathematics

Author(s) OECD

Date 2006-12-01

Language English

Filename 38709418.pdf

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## Comparisons Over Time on the PISA Scales

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Title Comparisons Over Time on the PISA Scales  
Author(s) OECD  
Language English  
Filename 39712449.pdf

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## Technical Standards for PISA 2006

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Title Technical Standards for PISA 2006  
Author(s) OECD  
Language English  
Filename 39736696.pdf

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## School Sampling Preparation Manual

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Title School Sampling Preparation Manual  
Author(s) OECD  
Date 2005-04-01  
Language English  
Filename 39829698.pdf

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## Take the Test: Sample Questions from OECD's PISA Assessments

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Title Take the Test: Sample Questions from OECD's PISA Assessments  
Author(s) OECD  
Language English  
Filename 41943106.pdf

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## PISA 2006 Technical Report

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Title PISA 2006 Technical Report  
Author(s) OECD  
Date 2009-01-01  
Language English  
Filename 42025182.pdf

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## Codebook: INT\_Cogn06\_S\_Dec07

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Title Codebook: INT\_Cogn06\_S\_Dec07  
Language English  
Filename Codebook\_Cogn06\_S\_Dec07.pdf

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## Codebook: INT\_Cogn06\_T\_Dec07

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Title Codebook: INT\_Cogn06\_T\_Dec07  
Language English  
Filename Codebook\_Cogn06\_T\_Dec07.pdf

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## Codebook: INT\_Stu06\_Dec07

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Title Codebook: INT\_Stu06\_Dec07  
Language English  
Filename Codebook\_Stu06\_Dec07.pdf

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## Codebook: INT\_Par06\_Dec07

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Title Codebook: INT\_Par06\_Dec07  
Language English  
Filename Codebook\_Par06\_Dec07.pdf

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## Codebook: INT\_Sch06\_Dec07

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Language English  
Filename Codebook\_Sch06\_Dec07.pdf

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