

Program for International Student Assessment

International Data Explorer Help Guide

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PISA International Data Explorer Help Guide

I. Background on the Program for International Student Assessment (PISA) and the PISA International Data Explorer

The Program for International Student Assessment (PISA) International Data Explorer (IDE) is a web-based application for accessing data from PISA, supported by the U.S. National Center for Education Statistics (NCES). PISA is a system of international assessments that measures 15-year-olds' capabilities in reading literacy, mathematics literacy, and science literacy. PISA also includes measures of general or cross-curricular competencies such as problem solving. PISA focuses on the application of knowledge and skills as students near the end of mandatory schooling. PISA is organized by the Organization for Economic Cooperation and Development (OECD), an intergovernmental organization of industrialized countries.

Begun in 2000, PISA is administered every 3 years. Each administration includes assessments of all three subjects, but assesses one of the subjects in depth (the *major* subject area or domain). The other two subjects in that year are considered *minor* domains. The major subject area assessed was reading literacy in 2000, mathematics literacy in 2003, and science literacy in 2006, with the cycle repeating again in 2009 with reading literacy as the major subject area. When a subject area is the major domain, the design is such that it is possible to report subscales as well as a combined scale. For example, in 2009 and 2000, results are reported for a combined reading literacy scale and five reading subscales. In the years when a subject area is a minor domain, the reporting scale is based on a set of items of varying difficulty that represent the range of topics covered by the full assessment; an overall scale is available for that subject area, but not for subscales. For example, in 2006, results are reported for an overall reading literacy scale, but not for subscales. For simplicity, the combined reading literacy scale is referred to as the overall reading literacy scale for all 3 years. Similarly, the combined science scale is referred to as the overall science scale for both 2006 and 2009.

Exhibit 1. PISA Administration Cycle

Assessment year	2000	2003	2006	2009	2012	2015
Subjects assessed	READING	Reading	Reading	READING	Reading	Reading
	Mathematics	MATHEMATICS	Mathematics	Mathematics	MATHEMATICS	Mathematics
	Science	Science	SCIENCE	Science	Science	SCIENCE
		Problem solving			Problem solving	

NOTE: Reading, mathematics, and science literacy are all assessed in each assessment cycle of the Program for International Student Assessment (PISA). A separate problem-solving assessment was administered in 2003 and is planned for 2012. The subject in all capital letters is the major subject area for that cycle.

SOURCE: Organization for Economic Cooperation and Development (OECD), Program for International Student Assessment (PISA), 2009.

Table 1. PISA Reporting Scales Currently Available in the IDE, by Year

Reporting Scale	Year		
	2000	2006	2009
READING			
PISA Reading Scale: Overall Reading	x	x	x
PISA Reading Subscale: Access and Retrieve	x		x
PISA Reading Subscale: Interpret and Integrate	x		x
PISA Reading Subscale: Reflect and Evaluate	x		x
PISA Reading Subscale: Continuous text			x
PISA Reading Subscale: Noncontinuous text			x
MATHEMATICS			
PISA Mathematics Scale: Overall Mathematics		x	x
SCIENCE			
PISA Science Scale: Overall Science		x	x
PISA Science Subscale: Identifying Scientific Issues		x	
PISA Science Subscale: Explaining Phenomena Scientifically		x	
PISA Science Subscale: Using Scientific Evidence		x	
PISA Attitude Subscale: Interest in Science		x	
PISA Attitude Subscale: Support for Scientific Inquiry		x	

Note: The science attitude subscales are not included in the overall science scale. Also, data for the two reading subscales, Continuous and Noncontinuous text, is not currently available in the IDE for PISA 2000.

For more information about the definitions of the various literacy scales and subscales, see the PISA 2009 Assessment Framework: *PISA 2009 Assessment Framework: Key competencies in reading, mathematics and science*. Paris: Author. This is available at: <http://www.oecd.org/dataoecd/11/40/44455820.pdf>.

II. General Overview

There are four general steps for exploring PISA data using the PISA IDE (see exhibits 2 and 3). Each step is described in more detail starting on page 7.

Exhibit 2. General overview for using the IDE

1. Select Criteria: Choose your measure(s) and jurisdiction(s).	2. Select Variables: Select at least one variable from the selection of categories and subcategories.	3. Edit Reports: Preview how your data will look and edit your report format options and statistics options as desired.	4. Build Reports: Retrieve the data, make charts and graphs, save, and print reports.
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Exhibit 3. Introduction to the IDE environment



III. Computer Requirements for IDE

- Screen resolution should be 1024 x 768 pixels.
- Browsers: Internet Explorer (IE) version 6 or higher (IE7 is recommended). For rendering and scrolling pages with large tables, Firefox 2.0 is faster than IE7 (Firefox 3.0 or higher is recommended).
- Enable JavaScript and pop-ups in your browser.
- IDE requires Flash version 9.0.115 or higher (download Adobe Flash Player at <http://get.adobe.com/flashplayer/>).
- Exports of files to Microsoft Office require Office 2003 or later.
- Exports of files to PDF can be read with Adobe Acrobat Reader.
- Screen reader software should be Jaws 8.0 or higher.

If you encounter an error, please send us the details through **Contact Us** (located in the upper right portion of the screen on each page of the IDE website). When writing, include your browser version and operating system version, and as many other details as possible. Be sure to provide an e-mail address so that we can contact you.

IV. Steps to Explore Data

To create your own custom tables, charts, and graphs, follow these steps when using the PISA IDE.

1. Select Criteria
2. Select Variables
3. Edit Reports
4. Build Reports

1. Select Criteria

A. Overview

Your data query in the PISA IDE begins on the **Select Criteria** screen (see exhibit 4).

Select a **Subject** from the drop-down menu. Once the screen resets, you can choose one or more **Years**, **Measures**, and **Jurisdictions** for the data you wish to view or compare.

Use the **Reset** button located in the upper right portion of the screen (just below the **Help** button) to cancel your selections and begin again.

Exhibit 4. Selecting criteria

PISA IDE 1. Select Criteria 2. Select Variables 3. Edit Reports 4. Build Reports

STEP 1: Select criteria from each drop-down menu to begin. Additional options related to your selections will appear. Then select measures, jurisdictions, and years based on available data. [Help](#)

Subject: Science **Age:** Age 15 [Reset](#)

Measure	All Years	2009	2006
<input checked="" type="checkbox"/> PISA Science Scale: Overall Science	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> PISA Science Subscale: Identifying Scientific Issues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> PISA Science Subscale: Explaining Phenomena Scientifically	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> PISA Science Subscale: Using Scientific Evidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> PISA Attitude Scale: Interest in Science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> PISA Attitude Scale: Support for Scientific Inquiry	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Group	Jurisdiction	All Years	2009	2006
<input type="checkbox"/> International	<input type="checkbox"/> International Average (OECD)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/> Average for Selected Countries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> OECD	<input type="checkbox"/> Australia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/> Austria	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/> Belgium	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/> Canada	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/> Chile	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/> Czech Republic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/> Denmark	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/> Estonia	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B. Choose Subject

Under **Subject**, you have the choice of **Mathematics**, **Reading**, or **Science**. Once a subject is chosen, the screen resets and you can select a Year(s), a **Measure(s)**, and a **Jurisdiction(s)**.

C. Choose Year

At the top of the **Measure** and **Jurisdiction** sections, you have the choice of selecting 2009, 2006, and/or 2000 by checking the appropriate box. To include data from all years, check the All Years box to the left of the individual years. Data availability varies by year. Reading data are currently available for 2009, 2006, and 2000; Mathematics and Science data are available for 2009 and 2006. Reading data for 2003 as well as Mathematics and Science data for 2003 and 2000 will be available shortly.

D. Choose Measure

After choosing a subject, you can choose between the overall scale and/or any of the subject's subscales. However, subscales are only available for a subject area that was a major domain that year. Note that the overall scale is the default.

For PISA 2009 data, subscales are available for reading, but not for mathematics and science.

For PISA 2006 data, subscales are available for science, but not for mathematics and reading.

For PISA 2000 data, note that reading is the only subject for which subscales are available; data are not yet available for analysis using the PISA 2000 mathematics and science scales.

E. Choose Jurisdiction

With your Measure(s) and Year selected, next choose at least one **Jurisdiction**.

Jurisdictions are found under the following **Groups**: **OECD** and **Non-OECD**. There is also a **Group** category called **International**, with options to display the **International Average (OECD)** and the **Average for Selected Countries**. Please note that selecting **International Average (OECD)** or **Average for Selected Countries** increases the frequency of receiving an error message in the **Build Reports** step due to the high volume of information contained in these groups.

The general procedures for selecting one or more jurisdictions are as follows:

1. When the blue arrow to the left of the group name is pointed down, the jurisdictions in that group are open (i.e., shown below) and can be selected. If you click the checkbox next to the group name (e.g., "OECD"), you will select all the jurisdictions within that group. If desired, uncheck the group name to de-select all.
2. Click the checkboxes next to specific jurisdictions that you are interested in, or uncheck those jurisdictions that you wish to de-select.

- If you want to close a group (for example, close the list of OECD countries in order to readily see the non-OECD jurisdictions), click the blue arrow next to the group name. For the closed group, the blue arrow points to the right instead of pointing down and showing the group components (see exhibit 5).

Exhibit 5. Choosing jurisdictions

Group	Jurisdiction	All Years	2009	2006
▼ <input type="checkbox"/> International	<input type="checkbox"/> International Average (OECD)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	<input type="checkbox"/> Average for Selected Countries			
▶ <input type="checkbox"/> OECD				
▼ <input type="checkbox"/> Non-OECD	<input type="checkbox"/> Albania			NO DATA
	<input type="checkbox"/> Argentina			
	<input type="checkbox"/> Azerbaijan			
	<input type="checkbox"/> Brazil			
	<input type="checkbox"/> Bulgaria			
	<input type="checkbox"/> Chinese Taipei			

Be advised that closing the group will not de-select your choices.

To continue in the IDE, click the **Select Variables** button at the bottom right portion of the page or the tab at the top of the page to go to the next screen.

2. Select Variables

A. Overview

Step 2, **Select Variables**, can only be accessed after choosing criteria at step 1, **Select Criteria**.

To continue your data query and edit a report, *you must choose at least one variable on this screen*. You can browse for variables using the **Category** and **Sub Category** lists, or by using the **Search** function (see exhibit 6). You can return to this screen to change variable selections at any time.

Exhibit 6. Select variables overview

PISA IDE 1. Select Criteria 2. Select Variables 3. Edit Reports 4. Build Reports

STEP 2: Select at least one variable from the category list below. View the list of all available variables, view by selected variables only, or search variables by keywords. Years selected will override previous selections. [Help](#)

Subject, Grade: Science, Age 15
Jurisdictions: Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation
Measure: PISA Science Scale: Overall Science
Year: 2006 [Reset](#)

[View All \(811\)](#) [View Selected \(0\)](#) Search: [Go](#)

Category	Sub Category	Variable	All Years	2009	2006
▶ Student and Family Characteristics			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
▶ Students' Attitudes and Learning Strategies			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
▶ Learning Time (In and Out of School)			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
▶ Careers and Further Education			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
▶ Libraries			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B. Search Using Category and Sub Category Lists

Choose at least one variable on this screen for your report. One way to do this is to search for variables using the **Category** and **Sub Category** lists. If you don't wish to choose from any of the specified categories and subcategories, then select **All students**.

The variables shown are tied to the criteria you selected at step 1 (**Measure**, **Year** and **Jurisdiction**), which are indicated at the top of the screen. If a variable is not available for a particular year selection, it will display an icon for "No data" next to it. To change any of these criteria, return to step 1, **Select Criteria**.

To browse for variables, get details about them, select them, and view them:

1. Click the blue arrows to open and close categories and subcategories of variables (see exhibit 7).
2. Click **details** or **hide details** to show or hide the full title of a given variable, the PISA ID, and the values (i.e., variable labels). Note that some variables have the same or similar short titles, but comparing details will show you how the variables differ. See the example in exhibit 7 below, which shows the composite variable for the educational level of mother (MISCED) and an item from the student background questionnaire pertaining to mother's highest level of schooling completed (ST06Q01).
3. Click the checkbox next to a variable to select it for your analysis/report. You will see the count increase next to **View Selected**.
4. Click the **View Selected** tab to see the variables you have chosen. To return to the full list of variables by category, click the **View All** tab.

Exhibit 7. Select variables using category and subcategory lists

PISA IDE 1. Select Criteria 2. Select Variables 3. Edit Reports 4. Build Reports

STEP 2: Select at least one variable from the category list below. View the list of all available variables, view by selected variables only, or search variables by keywords. Years selected will override previous selections. [Help](#)

Subject, Grade: Science, Age 15
Jurisdictions: Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation
Measure: PISA Science Scale: Overall Science
Year: 2006 [Reset](#)

View All (811) View Selected (0) Search: Go

Category	Sub Category	Variable	All Years	2009	2006
Student and Family Characteristics	Student Demographics		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	Language and Immigration				
	Parents' Employment and Education	<input type="checkbox"/> Highest educational level of parents (ISCED) details		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Educational level of mother (ISCED) details		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Educational level of father (ISCED) details		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Mother [highest schooling] Q6 details		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Father [highest schooling] Q9 details		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Mother [ISCED 6] details		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Mother [ISCED 5A or 6] Q7a details		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Mother [ISCED5A] details		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Mother [ISCED 5B] Q7b details		<input type="checkbox"/>	<input type="checkbox"/>
		<input type="checkbox"/> Mother [ISCED 4] Q7c details		<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/> Father [ISCED 5A or 6] Q10a details		<input type="checkbox"/>	<input type="checkbox"/>	

[3. Edit Reports](#)

When you have selected the variable(s) you want to include, continue by clicking the **Edit Reports** button at the bottom of the page or the tab at the top of the page to go to the next screen.

C. Search Function

The second way to search for variables is to use the **Search** function on the **Select Variables** screen.

Type a term in the **Search** box and click **Go** (or hit 'Enter' on your keyboard) to find variables by keywords in the question and/or details for the variable (see exhibit 8). If you use multiple keywords, "and" is assumed. Also narrow your search using "or," "not," "and not," or "near." The search function operates on an exact phrase if it is contained in quotes. The variable(s) that include the search term(s) in the question or its details will be listed.

See section B. Select Variables: Search Using Category and Sub Category Lists for information on how to get details about variables, selecting variables, and viewing variables.

Exhibit 8. Select variables using the search function

PISA IDE						
1. Select Criteria		2. Select Variables		3. Edit Reports		4. Build Reports
<p>STEP 2: Select at least one variable from the category list below. View the list of all available variables, view by selected variables only, or search variables by keywords. Years selected will override previous selections.</p> <p>Subject, Grade: Science, Age 15 Jurisdictions: Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation Measure: PISA Science Scale: Overall Science Year: 2009</p>						
View All (811)		View Selected (1)		Search: interest or enjoyment		Go
Category	Sub Category	Variable	All Years	2009	2006	
Students' Attitudes and Learning Strategies	Engagement in reading activities		<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
	Reading Types and Tasks					
	Enjoyment of and Interest in Science	<input type="checkbox"/> Sci enjoyment - Have fun Q16a details		NO DATA		
		<input type="checkbox"/> Sci enjoyment - Like reading Q16b details		NO DATA		
		<input type="checkbox"/> Sci enjoyment - Science problems Q16c details		NO DATA		
		<input type="checkbox"/> Sci enjoyment - New knowledge Q16d details		NO DATA		
		<input type="checkbox"/> Sci enjoyment - Learning science Q16e details		NO DATA		
		<input type="checkbox"/> Sci interest - Physics Q21a details		NO DATA		
		<input type="checkbox"/> Sci interest - Chemistry Q21b details		NO DATA		
		<input type="checkbox"/> Sci interest - Plant biology Q21c details		NO DATA		

When you have selected the variable(s) you want to include, continue by clicking the **Edit Reports** button at the bottom of the page or the tab at the top of the page to go to the next screen.

3. Edit Reports

A. Overview

You can access step 3, **Edit Reports**, after choosing criteria at step 1, **Select Criteria**, and choosing variables at step 2, **Select Variables**.

At this step, you can

- preview and edit the layout of your reports;
- copy reports or create new reports based on the variables selected;
- change formatting options, such as number of decimal places to display, for all reports (these may also be changed in individual reports, but format options can overwrite previous edits);
- change statistics options, such as average scale scores and proficiency levels, for all reports (these may also be changed in individual reports, but statistics options can overwrite previous edits);
- select reports to be built into tables and charts at step 4, **Build Reports**; and
- delete reports.

Using your chosen criteria, the IDE will return a separate data report for each variable you have chosen. If you have selected two or three variables (not counting **All Students**), you will also see a cross-tabulated report that crosses these two or three variables. If your selected criteria include more than one measure (e.g., overall science scale and one or more science subscales), a separate set of data reports will be generated for each measure (see exhibit 9).

Exhibit 9. Edit reports overview

Report	All	Action	Measure	Variable	Year	Jurisdiction	Statistic
Report 1	<input checked="" type="checkbox"/>	Preview Delete Copy	PISA Science Scale: Overall Science	All students	2006	Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation	Average scale scores
Report 2	<input checked="" type="checkbox"/>	Preview Delete Copy	PISA Science Scale: Overall Science	Gender Q4	2006	Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation	Average scale scores
Report 3	<input checked="" type="checkbox"/>	Preview Delete Copy	PISA Science Scale: Overall Science	Sci interest - Human biology Q21d	2006	Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation	Average scale scores
Cross-Tabulated Report 1	<input checked="" type="checkbox"/>	Preview Delete Copy	PISA Science Scale: Overall Science	Gender Q4, Sci interest - Human biology Q21d	2006	Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation	Average scale scores
Report 4	<input checked="" type="checkbox"/>	Preview Delete Copy	PISA Science Subscale: Identifying Scientific Issues	All students	2006	Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation	Average scale scores
Report 5	<input checked="" type="checkbox"/>	Preview Delete Copy	PISA Science Subscale: Identifying Scientific Issues	Gender Q4	2006	Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation	Average scale scores
Report 6	<input checked="" type="checkbox"/>	Preview Delete Copy	PISA Science Subscale: Identifying Scientific Issues	Sci interest - Human biology Q21d	2006	Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation	Average scale scores

B. Preview Report

Select **Preview** to see how your report will be laid out. The preview will not provide actual data, but will show how the data will be arranged in rows and columns (see exhibit 10).

Exhibit 10. Edit reports using preview report

		Gender Q4				
		Female		Male		
Sci interest - Human biology Q21d	Years	Jurisdictions	Average scale scores	Standard Errors	Average scale scores	Standard Errors
High Interest	2006	International Average (OECD)				
		Average for Selected Countries				
		Canada				
		France				
		Germany				
		Italy				
		Japan				
		United Kingdom				
		United States				
		Russian Federation				
Medium Interest	2006	International Average (OECD)				
		Average for Selected				

C. Edit Report

You can edit your report by choosing **Edit** under **Action** on the **Edit Reports** main screen. (You can select **Preview** at any time to see how your changes will affect the report's final layout.) Another way to edit a report is to select the **Edit** tab when you are previewing a report. The following can be done using this function (see exhibit 11):

1. Name your report. You have the option to give each report a distinctive name, up to a limit of 50 characters using only letters, numbers, spaces, underscores, and hyphens. (Otherwise, the default is Report 1, Report 2, etc., and Cross-Tabulated Report 1, Cross-Tabulated Report 2, etc.)
2. Select a measure. You can choose a measure if more than one was selected at step 1.
3. Select jurisdictions, variables, years and statistics to include (out of the selections previously made at steps 1 and 2). You can also create new variables out of the ones already chosen (For further information, see Edit Reports, section D, Create New Variables.) You can select up to two statistics options from the following: average scale scores; percentages; proficiency levels—discrete; standard deviations; and percentiles. (For further information, see section G. Edit Reports: Statistics Options.)
4. Change the table layout by dragging elements to determine which items will appear in rows and which will appear in columns. Some of the arrangements will not be permissible, but a pop-up alert will explain this.

Exhibit 11. Editing reports

The screenshot shows the 'Edit Report' window with the following configuration:

- Name:** Report 2
- Measure:** PISA Science Scale: Overall Science

Step 2: Select available options from each of the columns below, then preview results.

Jurisdiction	Variable Create new...	Year	Statistic
<input type="checkbox"/> Select All <input checked="" type="checkbox"/> Canada <input checked="" type="checkbox"/> France <input checked="" type="checkbox"/> Germany <input checked="" type="checkbox"/> Italy <input checked="" type="checkbox"/> Japan <input checked="" type="checkbox"/> United Kingdom <input checked="" type="checkbox"/> United States	<input type="checkbox"/> All students <input checked="" type="checkbox"/> Gender Q4 <input type="checkbox"/> Sci interest - Human biology Q21d	<input type="checkbox"/> Select All <input type="checkbox"/> 2009 <input checked="" type="checkbox"/> 2006	<input checked="" type="checkbox"/> Average scale scores <input type="checkbox"/> Percentages <input type="checkbox"/> Proficiency levels - discrete <input type="checkbox"/> Standard deviations <input type="checkbox"/> Percentiles

Step 3: Drag and drop header elements between Row and Column to custom design the report.

TABLE LAYOUT	
Row	Column
<div style="border: 1px solid black; padding: 2px; text-align: center;">Years</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">Jurisdictions</div>	<div style="border: 1px solid black; padding: 2px; text-align: center;">Gender Q4</div>

Be advised that to save changes, make sure to select **Done** in the lower right portion of the screen before closing the **Edit Report** window.

D. Create New Variables

This tab can be reached only from within the **Edit Report** window or **Create New Report** window. To create a new variable, you can combine values that make up an existing variable. The steps are as follows:

1. Click **Create new...** under the **Variable** heading in the **Edit Report** window or **Create New Report** window.
2. Select the variable for which you wish to combine values.
3. Select the values you want to combine by checking the boxes to the left of the values (see exhibit 12).
4. Create a name for the new value, and press **Create**. See how the collapsed values appear in gray.

5. Wait for the screen to refresh, and press **Done**.
6. The new variable will appear in the **Variable** list in the **Edit Report** window or **Create New Report** window, with the designated as "<name of variable being recoded> (Collapsed)". You will need to check the box next to the new (collapsed) variable for it to appear in the report. You can click **Preview** to see how the table will be laid out before retrieving data.

Exhibit 12. Creating new variables

The screenshot shows a 'Create Variables' dialog box with the following elements:

- Section 1:** 'Select a Variable group:' with a dropdown menu set to 'Sci interest - Human biology Q21d' and a 'Help' button.
- Section 2:** 'Select values to create new Variable:' with four checkboxes:
 - High Interest
 - Medium Interest
 - Low Interest
 - No Interest
- Section 3:** 'Create a name for the new Value:' with a text input field containing 'no_low' and a 'Create' button.
- Bottom:** 'Reset', 'Cancel', and 'Done' buttons.

A new variable that you create is applicable to that specific report; it does not apply to the other reports appearing in the **Edit Reports** screen. For example, if you selected multiple measures of science literacy for analysis, then you would need to create the new variable for each measure, or create a copy of the report and edit it accordingly. To do the latter, click on **Copy** report in the **Edit Reports** screen (copied reports appear at the end of the list of reports) and then edit the new copy (using the above example, you can change the measure and give the report a new name).

You can repeat the process and combine different values of a variable to create additional new variables. Using the **Create New Report** function, you can create a new report for each new variable that you create. (For further information, see section E. Edit Reports: Create New Report).

If you selected two or three variables to create new variables from, you can repeat the process for each of these variables. Using the **Create New Report** or **Edit Report** function, these collapsed

variables will be listed and available for cross-tabulation (see exhibit 13). You can click **Preview** to see how the table will be laid out before retrieving data.

Exhibit 13. Edit reports with collapsed variables

The screenshot shows the 'Edit Report' window with the following configuration:

- Name:** Report 2
- Measure:** PISA Science Scale: Overall Science
- Step 2:** Select available options from each of the columns below, then preview results.

Jurisdiction	Variable	Year	Statistic
<input checked="" type="checkbox"/> Canada	<input type="checkbox"/> All students	<input type="checkbox"/> Select All	<input checked="" type="checkbox"/> Average scale scores
<input checked="" type="checkbox"/> France	<input type="checkbox"/> Gender Q4	<input type="checkbox"/> 2009	<input type="checkbox"/> Percentages
<input checked="" type="checkbox"/> Germany	<input type="checkbox"/> Sci interest - Human biology Q21d	<input checked="" type="checkbox"/> 2006	<input type="checkbox"/> Proficiency levels - discrete
<input checked="" type="checkbox"/> Italy	<input checked="" type="checkbox"/> Sci interest - Human biology Q21d (Collapsed)		<input type="checkbox"/> Standard deviations
<input checked="" type="checkbox"/> Japan			<input type="checkbox"/> Percentiles
<input checked="" type="checkbox"/> United Kingdom			
<input checked="" type="checkbox"/> United States			
<input checked="" type="checkbox"/> Russian Federation			
- Step 3:** Drag and drop header elements between Row and Column to custom design the report.

TABLE LAYOUT	
Row	Column
<div style="border: 1px solid black; padding: 2px; text-align: center;">Years</div> <div style="border: 1px solid black; padding: 2px; text-align: center;">Jurisdictions</div>	<div style="border: 1px solid black; padding: 2px; text-align: center;">Sci interest - Human biology Q21d (Collapsed)</div>

E. Create New Report

From the main Edit Reports screen, clicking on Create New Report brings up the same options as Edit, but with no checkboxes marked and without any new variables you may have created. Thus, Create New Report provides a “clean slate” for your selections from the first two steps, Select Criteria and Select Variables (see exhibit 14). Each new report you create will appear at the end of the list of reports. If you do not give the report a specific name, it will be called “New Report.”

Exhibit 14. Creating new reports

New Report

Edit **Preview** **Cancel** **Done** **Help**

1. Create a name and select a measure for the new report.

Name: Measure:

2. Select available options from each of the columns below, then preview results.

Jurisdiction	Variable Create new...	Year	Statistic
<input type="checkbox"/> Select All <input type="checkbox"/> Canada <input type="checkbox"/> France <input type="checkbox"/> Germany <input type="checkbox"/> Italy <input type="checkbox"/> Japan <input type="checkbox"/> United Kingdom <input type="checkbox"/> United States	<input type="checkbox"/> All students <input type="checkbox"/> Gender Q4 <input type="checkbox"/> Sci interest - Human biology Q21d	<input type="checkbox"/> Select All <input type="checkbox"/> 2009 <input checked="" type="checkbox"/> 2006	<input checked="" type="checkbox"/> Average scale scores <input type="checkbox"/> Percentages <input type="checkbox"/> Proficiency levels - discrete <input type="checkbox"/> Standard deviations <input type="checkbox"/> Percentiles

3. Drag and drop header elements between Row and Column to custom design the report.

TABLE LAYOUT	
Row	Column
<input type="text" value="Jurisdictions"/>	
<input type="text" value="Years"/>	

F. Format Options

From the main **Edit Reports** screen, clicking on **Format Options** will allow you to make formatting changes applicable to all the reports listed. The following formatting options are available using this function (see exhibit 15):

1. **Variable Labels (Long)** displays a more detailed description of the variables selected in a query than the default short label. For variables from questionnaires, the full text of the question is displayed. Be advised that the length of the extra detail may sometimes interfere with table formatting.
2. **Show data for values categorized as Missing** will include the percentage of students in the total sample or in a reporting group for whom membership in a particular response category is unknown because no response was given by the student, their teacher, or their school. The percentage of “missing” will be shown in the right-most table column. Missing data are available only for queries that involve percentages as the statistic type. Unless you check this option, the default is for missing responses to not be included in the percentage distribution shown.

3. **Decimal Places** allows you to specify a greater level of precision for a particular statistic (one or two decimal places) than the default, which is whole numbers. Note that only integer-level precision is allowed for percentages; that is, the number of decimal places is fixed at **None** for percentages. Also, standard errors will be shown to one more decimal place than is shown for a particular statistic. For example, if you request that the proficiency scores be displayed to one decimal place, the corresponding standard errors will be displayed to two decimal places. If you export to Excel, you will be able to increase the number of decimal places in most cases.
4. **Include** gives you the options to show or not show standard errors and parentheses/brackets surrounding the standard errors. Unless you indicate otherwise, the default is to show standard errors with parentheses surrounding them. You can preview the effects of your selection in the **Sample Display** area (see blue-shaded box).

Exhibit 15. Format options

Format Options X

Choose options that will apply to all reports.
View selected format in Sample Display. **Help**

Variable Labels:

Short (e.g. Gender)

Long (e.g. Gender of student as taken from school records)

Show data for values categorized as Missing (this applies only when percentages are displayed).

Decimal Places: None 1 2

(For row percents, the number of decimal places is fixed at "None")

Include:

Standard Errors None

Use parentheses/brackets

Sample Display: ### (.#)

Cancel **Done**

Be advised that choices in the **Format Options** window will apply to all reports and cannot be changed for individual reports. Use the **Reset** button located in the upper right portion of the screen (just below the **Help** button) to restore the **Format Options** to the default settings (though caution is advised, as this will also delete any new reports that you have created).

G. Statistics Options

Available only from the main **Edit Reports** screen, clicking on **Statistics Options** allows you to designate up to two statistics. The selections made are applicable to all the reports listed, although you can also change the statistics for an individual report when you edit that report. (For further information, see section C. Edit Reports: Edit Report.)

The following statistics options are available (see exhibits 16a and 16b):

1. **Average scale scores.** For the PISA assessment, student performance is reported on scales that range from 0 to 1,000. PISA reports the average scale score for a variety of demographic samples of the student population (e.g., the average scale score in science for female students). By default, the standard errors of the scale scores are shown in parentheses.
2. **Percentages.** This statistic shows the percentage of students as a row percentage. For example, if the table cell for Black female students in the United States is 7 percent, then Black females composed 7 percent of the total number of students assessed. By default, percentage distributions do not include those with missing data. For information on how to show data for values categorized as missing, see section F. Edit Reports: Format Options.
3. **Proficiency levels – discrete.** Discrete proficiency levels are reported as the percentage of students performing at each PISA proficiency level. The following proficiency levels are available by subject:

Reading (see exhibit 16a)

- *Level 1 and below*
- *At level 2*
- *At level 3*
- *At level 4*
- *Level 5 and above*

Science (see exhibit 16b)

- *Below level 1*
- *At level 1*
- *At level 2*
- *At level 3*
- *At level 4*
- *At level 5*
- *At level 6*

Mathematics (see exhibit 16b)

- *Below level 1*
 - *At level 1*
 - *At level 2*
 - *At level 3*
 - *At level 4*
 - *At level 5*
 - *At level 6*
4. **Standard deviations.** The standard deviation is a measure of how widely or narrowly dispersed scores are for a particular dataset. Under general normality assumptions, 95 percent of the scores are within two standard deviations of the mean. For example, if the average score of a dataset is 500 and the standard deviation is 100, it means that 95 percent of the scores in this dataset fall between 300 and 700.
5. **Percentiles.** This statistic shows the threshold (or cutpoint) score for the following:
- *10th percentile – the bottom 10 percent of students*
 - *25th percentile – the bottom quarter of students*
 - *50th percentile – the median (half the students scored below the cutpoint and half scored above it)*
 - *75th percentile – the top quarter of students*
 - *90th percentile – the top 10 percent of students*

Exhibit 16a. Statistics options (reading)

Statistics Options

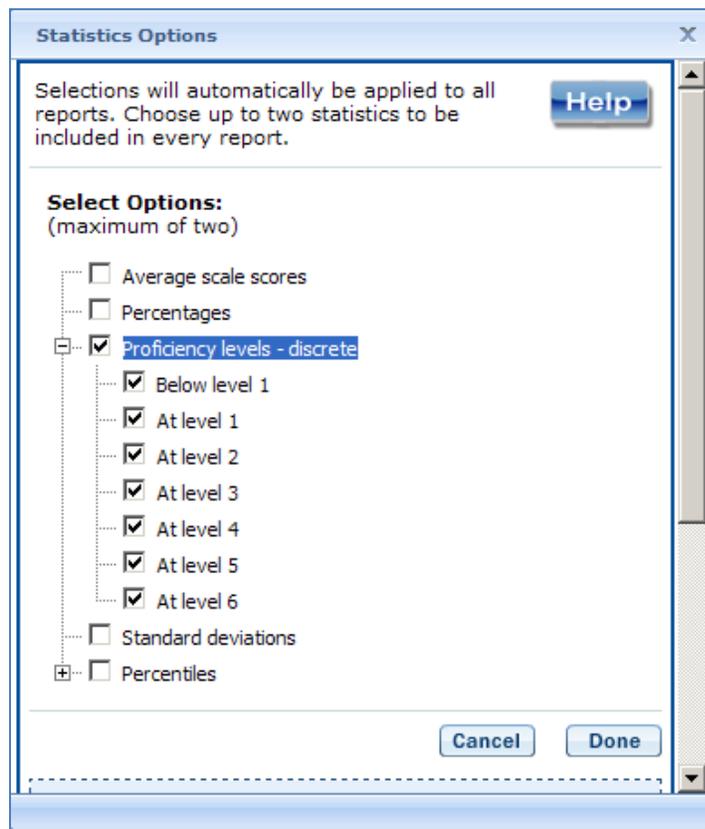
Selections will automatically be applied to all reports. Choose up to two statistics to be included in every report. [Help](#)

Select Options:
(maximum of two)

- Average scale scores
- Percentages
- Proficiency levels - discrete
 - Level 1 and below
 - Level 2
 - Level 3
 - Level 4
 - Level 5 and above
- Standard deviations
- Percentiles
 - 10th Percentile
 - 25th Percentile
 - 50th Percentile
 - 75th Percentile
 - 90th Percentile

[Cancel](#) [Done](#)

Exhibit 16b. Statistics options (mathematics and science)



The selections you make in **Statistics Options** will be applied automatically to all reports, although you can change the statistics for an individual report when you edit that report. Be advised that if you use **Statistics Options** after editing the statistics in one or more of your individual reports, the options selected will overwrite your previously edited selections. If you wish to use the same criteria and variables in a report with a different selection of statistics, consider using the **Create New Report** function to generate a new report with different statistics. (For further information, see section E. Edit Reports: Create New Report.) You can also make a copy of an individual report.

You can use the **Reset** button located in the upper right portion of the screen (just below the **Help** button) to restore the **Statistics Options** to the default setting, which is average scale scores for all reports (this will also delete any new reports that you created).

Not all statistics are available for all reports. Availability depends on other selections you have made to define the content and format of your report:

- Percentages will not display if jurisdictions or years appear in columns.
- Proficiency level results cannot be displayed in both columns and rows.
- If proficiency levels are selected as a variable, only percentages will be displayed.

Please note that statistics produced by the IDE may not match the statistics shown in reports published by OECD due to differences in certain statistical standards. In particular, organizations differ in the minimum sample sizes required for publishing student scores.

H. Select Reports to Build

As you edit your reports, you can give them distinct names (up to 50 characters) to differentiate them, as well as make changes to the jurisdictions and variables previously selected, the statistics, and the layout of the rows and columns. (For further information, see section C. Edit Reports: Edit Report.) You may also have made copies of reports with these changes. In order to proceed to step 4, **Build Reports**, each report for which you want to retrieve data should be previewed/inspected using the Preview function. To decrease processing time as you move to step 4, you can uncheck any reports for which you do not wish to retrieve data. By default, all reports are checked. To uncheck one or more reports, you can either uncheck the reports individually or click on the **All** box. Doing the latter will uncheck all of the reports and allow you to check only those that you wish to retrieve data for. In the example that follows (see exhibit 17), data will be retrieved only for the overall science measure and only for the scientific interest in human biology report. For this report, the statistics have been edited to show both average scale scores and percentages.

Exhibit 17. Selecting reports to build

PISA IDE 1. Select Criteria ▶ 2. Select Variables ▶ 3. Edit Reports ▶ 4. Build Reports ▶

STEP 3: Preview and edit existing reports using the action links next to each report name. Create new reports, set format and statistic options. (New and copied reports will appear at the bottom of the report list.) [Help](#)

Subject, Grade: Science, Age 15
Jurisdictions: Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation
Measure: PISA Science Scale: Overall Science
Variables: Gender Q4, Repeat [ISCED 3], At Home - Grandparents, Sci interest - Physics Q21a, Sci interest - Human biology Q21d, Teacher-student ratio (recode as 4 categories)
Years: 2009, 2006 [Reset](#)

Create New Report		Format Options		Statistics Options			
Report	All	Action	Measure	Variable	Year	Jurisdiction	Statistic
Report 1	<input checked="" type="checkbox"/>	Preview Edit Delete Copy	PISA Science Scale: Overall Science	Gender Q4	2009, 2006	Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation	Average scale scores
Report 2	<input checked="" type="checkbox"/>	Preview Edit Delete Copy	PISA Science Scale: Overall Science	Repeat [ISCED 3]	2009, 2006	Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation	Average scale scores
Report 3	<input checked="" type="checkbox"/>	Preview Edit Delete Copy	PISA Science Scale: Overall Science	At Home - Grandparents	2009, 2006	Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation	Average scale scores
Report 4	<input checked="" type="checkbox"/>	Preview Edit Delete Copy	PISA Science Scale: Overall Science	Sci interest - Physics Q21a	2009, 2006	Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation	Average scale scores
Report 5	<input checked="" type="checkbox"/>	Preview Edit Delete Copy	PISA Science Scale: Overall Science	Sci interest - Human biology Q21d	2009, 2006	Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation	Average scale scores
Report 6	<input checked="" type="checkbox"/>	Preview Edit Delete Copy	PISA Science Scale: Overall Science	Teacher-student ratio (recode as 4 categories)	2009, 2006	Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation	Average scale scores

[4. Build Reports ▶](#)

If you wish to delete a report from the list of reports, click **Delete** in the **Action** column. Use the **Reset** button located in the upper right portion of the screen (just below the **Help** button) to restore the deleted reports (though caution is advised, as this will also delete any new reports that you created and restore the **Format Options** and **Statistics Options** to the default settings).

To continue to the last step in the IDE, click the **Build Reports** button at the bottom of the page or the tab at the top of the page to go to the next screen.

4. *Build Reports*

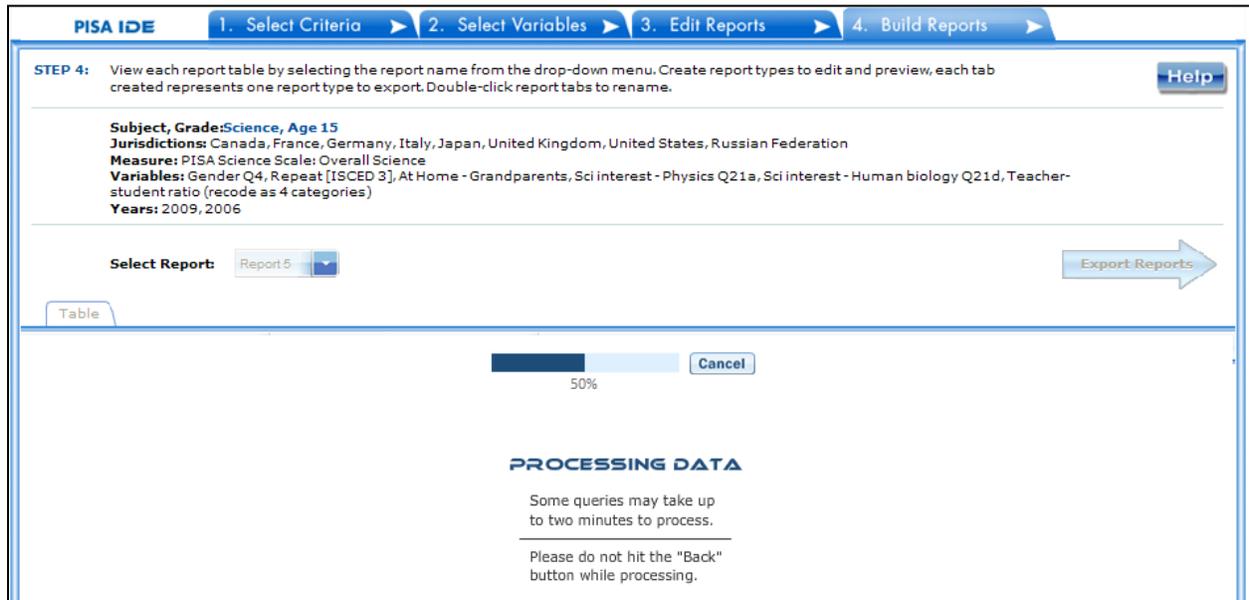
A. Overview

You can access step 4, **Build Reports**, after choosing criteria at step 1, **Select Criteria**, and selecting at least one jurisdiction or International average in which case the default report built will provide data for just average scale scores and for the **All Students** variable for the year 2009. In most cases, you will proceed to step 4, **Build Reports**, not only after completing step 1, but also after choosing different or additional variables at step 2, **Select Variables**, and editing the reports at step 3, **Edit Reports**.

In **Build Reports**, you can do the following:

1. Generate a data table for each report selected in step 3, **Edit Reports** (see exhibit 18). By default, all reports are checked, though you can uncheck any reports for which you do not wish to retrieve data. (For further information, see section 3-H. Edit Reports: Select Reports to Build.)
2. Export and save data tables into various formats using the **Export Reports** button. The output formats include HTML (print-friendly), Microsoft Word, Microsoft Excel, and Adobe PDF.
3. Select the **Chart** tab to create and customize charts of the data for each report and save them for export in the above formats.
4. Select the **Significance Test** tab to run a significance test on your results, customize it and export it.

Exhibit 18. Building reports overview



PISA IDE 1. Select Criteria ▶ 2. Select Variables ▶ 3. Edit Reports ▶ 4. Build Reports ▶

STEP 4: View each report table by selecting the report name from the drop-down menu. Create report types to edit and preview, each tab created represents one report type to export. Double-click report tabs to rename. Help

Subject, Grade: Science, Age 15
Jurisdictions: Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation
Measure: PISA Science Scale: Overall Science
Variables: Gender Q4, Repeat [ISCED 3], At Home - Grandparents, Sci interest - Physics Q21a, Sci interest - Human biology Q21d, Teacher-student ratio (recode as 4 categories)
Years: 2009, 2006

Select Report: Report 5 Export Reports

Table

50% Cancel

PROCESSING DATA

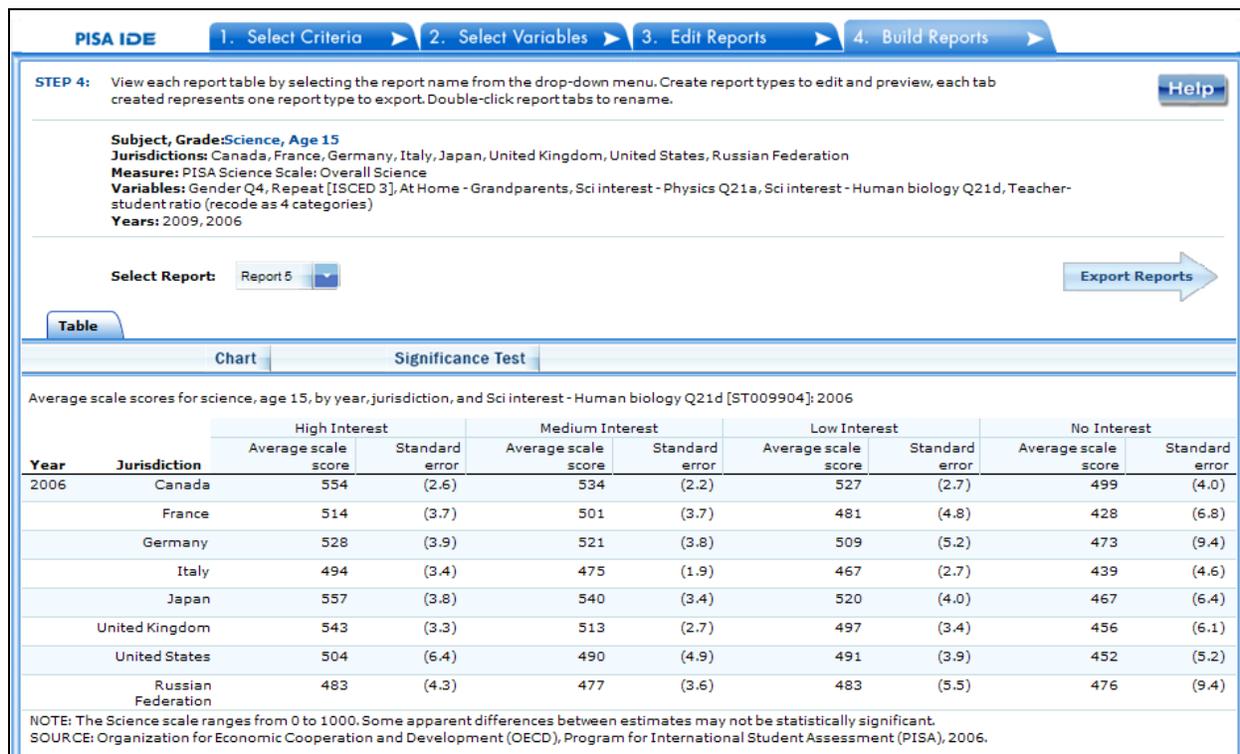
Some queries may take up to two minutes to process.

Please do not hit the "Back" button while processing.

B. View Reports as Data Tables

Once the IDE processes the data for the reports you selected to be built, you will be able to see the data table for the first report (see exhibit 19). Go to **Select Report** to choose the table of interest from the drop-down menu. To change the formatting or statistics options of a table or to generate a table from a report not included in your selection, return to step 3, **Edit Reports**.

Exhibit 19. Viewing reports as data tables



STEP 4: View each report table by selecting the report name from the drop-down menu. Create report types to edit and preview, each tab created represents one report type to export. Double-click report tabs to rename.

Subject, Grade: Science, Age 15
Jurisdictions: Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation
Measure: PISA Science Scale: Overall Science
Variables: Gender Q4, Repeat [ISCED 3], At Home - Grandparents, Sci interest - Physics Q21a, Sci interest - Human biology Q21d, Teacher-student ratio (recode as 4 categories)
Years: 2009, 2006

Select Report: Report 5

Export Reports

Table | Chart | Significance Test

Average scale scores for science, age 15, by year, jurisdiction, and Sci interest - Human biology Q21 d [ST009904]: 2006

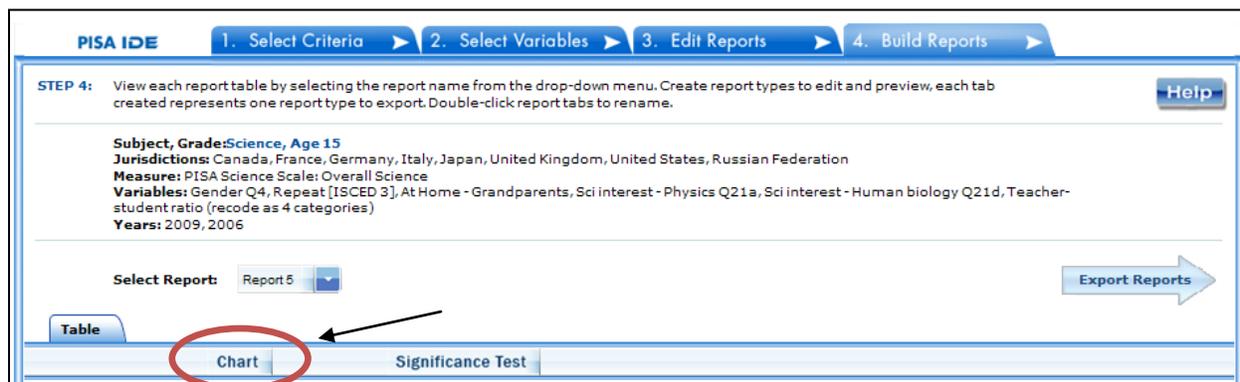
Year	Jurisdiction	High Interest		Medium Interest		Low Interest		No Interest	
		Average scale score	Standard error						
2006	Canada	554	(2.6)	534	(2.2)	527	(2.7)	499	(4.0)
	France	514	(3.7)	501	(3.7)	481	(4.8)	428	(6.8)
	Germany	528	(3.9)	521	(3.8)	509	(5.2)	473	(9.4)
	Italy	494	(3.4)	475	(1.9)	467	(2.7)	439	(4.6)
	Japan	557	(3.8)	540	(3.4)	520	(4.0)	467	(6.4)
	United Kingdom	543	(3.3)	513	(2.7)	497	(3.4)	456	(6.1)
	United States	504	(6.4)	490	(4.9)	491	(3.9)	452	(5.2)
	Russian Federation	483	(4.3)	477	(3.6)	483	(5.5)	476	(9.4)

NOTE: The Science scale ranges from 0 to 1000. Some apparent differences between estimates may not be statistically significant.
 SOURCE: Organization for Economic Cooperation and Development (OECD), Program for International Student Assessment (PISA), 2006.

C. Charts

Go to **Select Report** to choose the report of interest from the drop-down menu, and then click the **Chart** link (see exhibit 20).

Exhibit 20. Viewing reports as charts



STEP 4: View each report table by selecting the report name from the drop-down menu. Create report types to edit and preview, each tab created represents one report type to export. Double-click report tabs to rename.

Subject, Grade: Science, Age 15
Jurisdictions: Canada, France, Germany, Italy, Japan, United Kingdom, United States, Russian Federation
Measure: PISA Science Scale: Overall Science
Variables: Gender Q4, Repeat [ISCED 3], At Home - Grandparents, Sci interest - Physics Q21a, Sci interest - Human biology Q21d, Teacher-student ratio (recode as 4 categories)
Years: 2009, 2006

Select Report: Report 5

Export Reports

Table | Chart | Significance Test

You will be able to create many types of charts, and customize them. Exhibit 21 provides a summary of the custom features, and they are further explained in section E. Create Charts – Chart Options.

Exhibit 21. Chart options

Actions	Description
Chart Options	Select display type (bars, columns, lines, or percentile charts when percentiles are selected as a statistics option) with your cursor. Customize the chart and preview it.
Preview	Change the jurisdiction and other variables as applicable. Also change the pattern and color in your chart.
Color	Change the color of the chart by clicking on one of each type bar so that a small square appears. Click on the small square, and a custom color grid will appear; click on the color of choice.
Pattern	Click the bars to change the pattern.
Grayscale	Available for the discrete (proficiency levels) chart; it will format the chart or map to print in black and white.
Click here to edit this chart	Edits will overwrite your previous version once you press Done . If you wish to produce a different chart based on the same report, begin by clicking Chart again.
Export Reports	After pressing Done for the last report, press the Export Reports button.

If you complete one chart and wish to try a different type of chart, you will need to **Preview** the chart and press **Done** in order to save the chart to export.

D. Create Charts – Data Options

When you click **Chart**, your screen will present **Data Options** pertaining to **Statistic**, **Year**, and **Jurisdiction**. All are selected by default, except that you can have only one statistic (see exhibit 22). Uncheck any of the criteria that you do not wish to chart, as long as you have one selected in each category.

Exhibit 22. Data options for charts

E. Create Charts – Chart Options

Once finished with the **Data Options**, click the **Chart Options** button in the lower left corner.

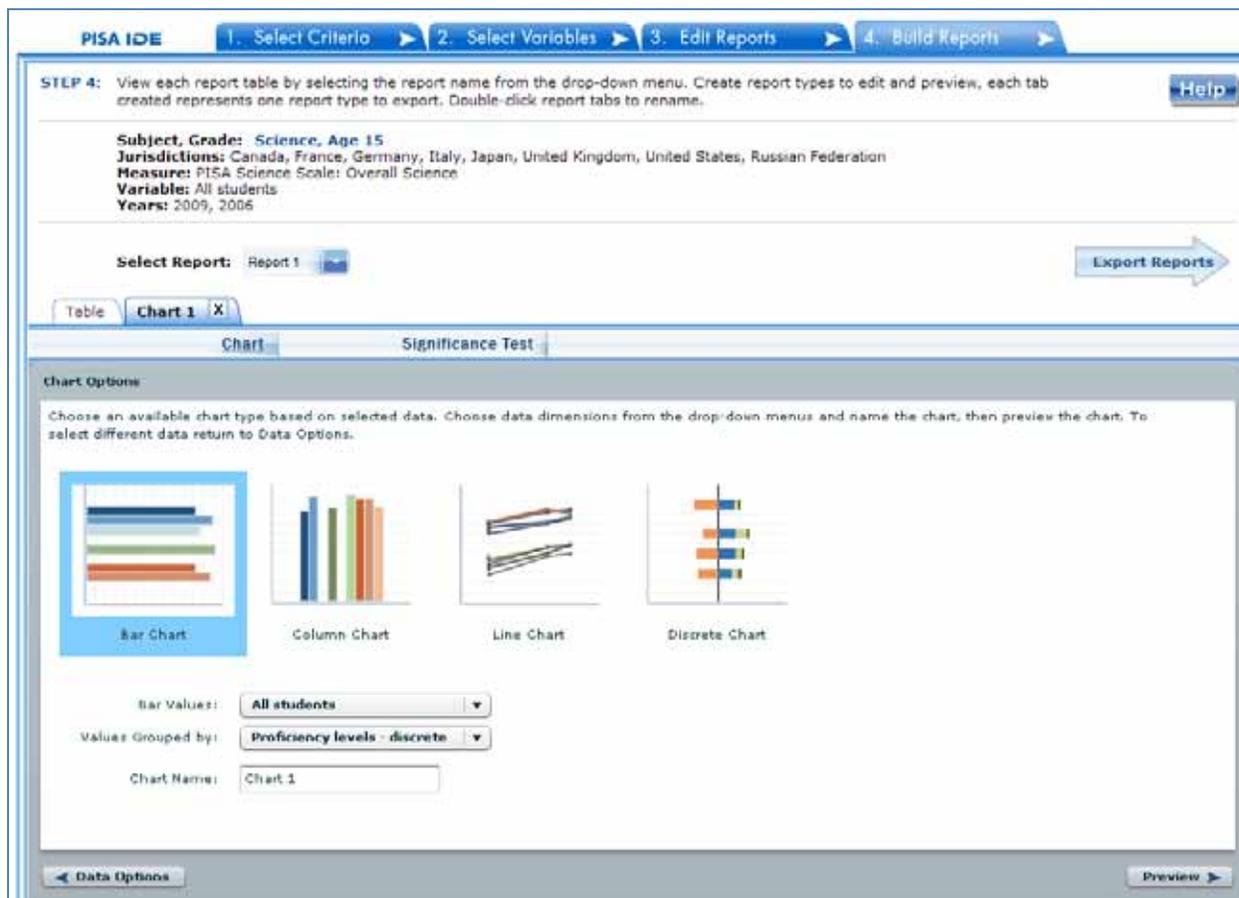
In the **Chart Options** screen, select **Bar Chart**, **Column Chart**, or **Line Chart**. For data on proficiency levels, you also have the option of selecting a **Discrete Chart**, while for percentiles you also have the option of selecting a **Percentile Chart**.

After selecting a chart type, change any data dimensions from the drop-down menus for **Bar**, **Column**, or **Line Values** and **Values Grouped by**. Any new variables that you created at step 3, **Edit Reports**, will be available for selection, but only if you selected the variables (i.e., check mark next to them) and pressed **Done** when you edited the report.

Enter a **Chart Name** limited to 25 characters, using only letters, numbers, spaces, underscores, and hyphens (otherwise, the default is “Chart 1”) (see exhibit 23).

Preview your chart by clicking the **Preview** button in the lower right corner, or go back to the data options and make different selections by clicking the **Data Options** button in the lower left corner.

Exhibit 23. Chart options



While previewing your chart, you can do the following (see exhibit 24 as an example of a **Percentile Chart** and exhibit 25 as an example of a **Bar Chart**):

1. Use the drop-down menus to change the jurisdiction and other variables as applicable. Notice that when you change your selection, the change occurs slowly enough that you get a sense of the size and direction of the change—especially if you didn't previously specify in the data dimensions how you want your values grouped by.
2. Place your cursor over the bars of the chart to see the data points and value label(s).
3. Choose between using colors or patterns for the bars by clicking the alternating Pattern or Color button located just below the Chart tab in the upper left portion of the screen. For the Percentile Chart, choose between Color or Grayscale.
4. Change the color of the bars with a single click on each level in the bars. That click brings a thumbnail of a color chart. Click on the thumbnail to reveal a color grid, and then select the color you desire.
5. Change the pattern of the bars with a single click on each level in the bars. Continuous clicking brings up many patterns to choose from.

Exhibit 24. Preview of percentile chart

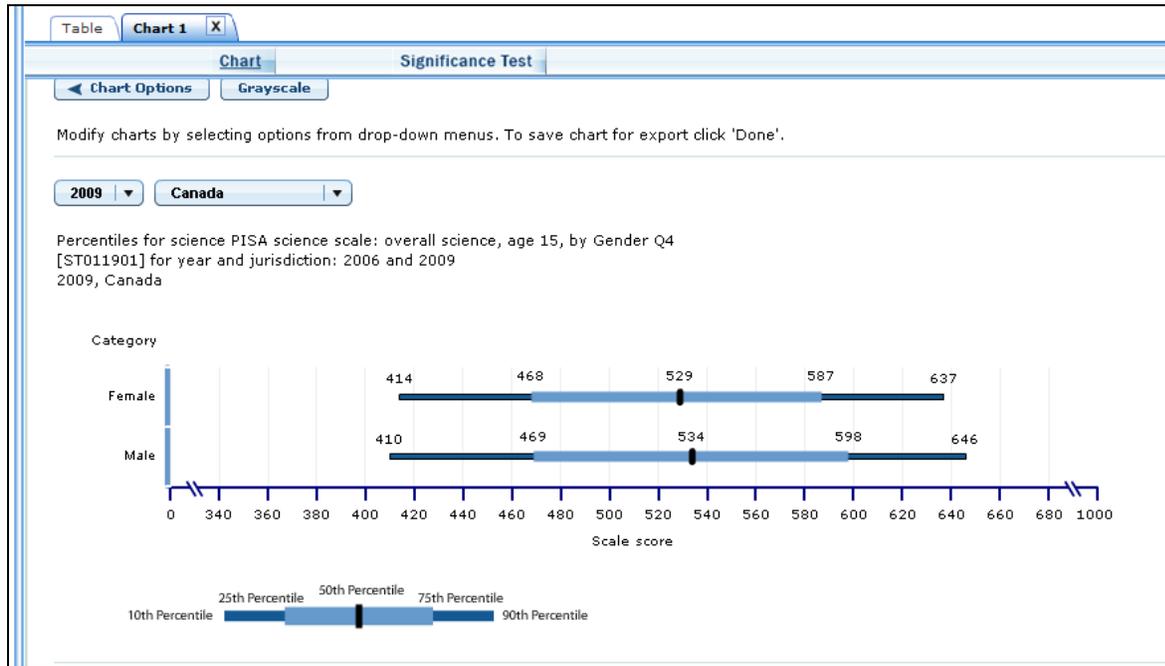
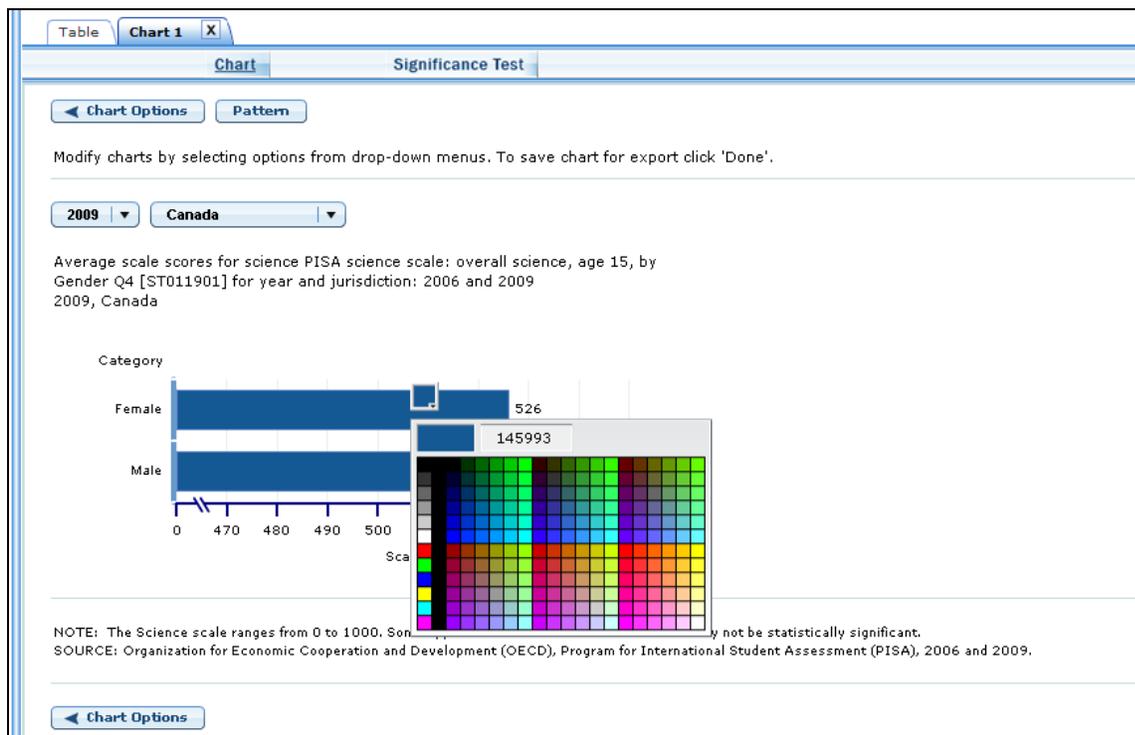


Exhibit 25. Preview of bar chart



Click the **Done** button located on the right side of the screen, or click back to **Chart Options** and/or **Data Options** to change your selection criteria. You must click **Done** if you wish to later save and/or print your chart via the Export Wizard.

Done takes you to the exportable version of the chart, but you can subsequently “**Click here to edit this chart**” (located in the upper left corner, below the **Chart** link) to make more changes. Alternatively, the entire chart area, if clicked, will take you to the edit screen.

To make an additional chart from the same report/table, click the **Chart** link to begin a new chart. It is recommended that you provide a new chart name (the default is Chart 1, Chart 2, etc.). If you don't start the chart process again by clicking the **Chart** link, the new chart will overwrite the previous one.

If you wish to make charts using other reports or additional ones, select another report in the **Select Report** drop-down list. If other reports were not checked in step 3, **Edit Reports**, go back to step 3 and check the ones you want. When you then advance to step 4, **Build Reports**, the reports will appear in the **Select Report** drop-down list. If you need to create new reports, go back to step 1, **Select Criteria**, and/or step 2, **Select Variables**. Remember to export any completed charts you want to save by clicking **Done** and using the **Export Reports** function before leaving the **Build Reports** screen. (For further information, see section G. Build Reports: Export Reports.)

F. Significance Tests

Tests for statistical significance indicate whether observed differences between assessment results are likely to have occurred because of sampling error or chance. "Significance" here does not imply any judgment about absolute magnitude or educational relevance. It refers only to the statistical nature of the difference and whether that difference likely reflects a true difference in the population.

With your report of interest selected, click the **Significance Test** link, which is located towards the middle of the screen, to the right of the **Chart** link. You first need to decide which variable you want to test and the criterion by which you want to test that variable (i.e., within or between variable values). You will compare or "look across" the criterion's range of values, so it must have more than one value. You can look across jurisdictions for a variable, that is, compare between two or more jurisdictions, or you can look across the values within a variable for a single jurisdiction. For example, with the variables shown in exhibit 26 you can choose to compare female scores between countries, or you could choose to compare male and female scores within a country. Once the primary criterion is chosen, all other criteria must be restricted to a single value.

The general steps for running significance tests are as follows (see exhibit 26):

1. In the **Significance Test** window select either **Between Jurisdictions**, **Within Variables**, or **Across Years**.
2. Enter a **Name** limited to 25 characters, using only letters, numbers, spaces, underscores, and hyphens (otherwise, the default is "Sig Test 1").
3. Choose whether the data will be formatted as a **Table** or a **Map** (in order to select **Map** you must select **Between Jurisdictions**).
4. Located under the output type, you can check **Show Score Details** to display the estimates and standard errors for the table cells (only available in Table view).
5. Select **Jurisdiction(s)**, **Variable(s)**, **Year(s)**, and **Statistic(s)**. For the **Between Jurisdictions** option, you must select at least two jurisdictions. For **Within Variables** or **Across Years**, you can select one or more jurisdictions.
6. Click the **Preview** tab located in the upper left corner, or the **Preview** button located in the bottom left corner.
7. Click the **Edit** tab in the upper left corner of the screen if you wish to go back and make changes to the selections you made for running the significance tests.
8. Click the **Done** button in the upper or lower right corner of the screen to run the significance tests.

Exhibit 26. Significance tests options

Significance Test

Edit Preview Cancel Done

1. Select one category to compare significance from the choices available below. Help

Between Jurisdictions Within Variables Across Years

2. Create a name for this significance test. Name: Sig Test 1

3. Select the output type. Table Map

4. Select additional options. Show score details

5. Select available options from each of the columns below, then preview results.

Jurisdiction	Variable	Year	Statistic
<input checked="" type="checkbox"/> All Jurisdictions <input checked="" type="checkbox"/> Canada <input checked="" type="checkbox"/> France <input checked="" type="checkbox"/> Germany <input checked="" type="checkbox"/> Italy <input checked="" type="checkbox"/> Japan <input checked="" type="checkbox"/> United Kingdom	<input checked="" type="checkbox"/> Sci interest - Human biology Q21d <input type="checkbox"/> High Interest <input type="checkbox"/> Medium Interest <input checked="" type="checkbox"/> Low Interest <input checked="" type="checkbox"/> No Interest	<input type="checkbox"/> All Years <input type="checkbox"/> 2009 <input checked="" type="checkbox"/> 2006	<input type="checkbox"/> Average scale scores <input type="checkbox"/> Percentages

Preview Cancel Done

When a table is created, in the significance test matrix you will see the differences and p -values. As shown in the legend of the matrix, it is indicated whether one estimate is significantly lower or higher than another estimate, or if there is no significant difference between them (see exhibit 27). Most comparisons are independent with an alpha level of 0.05, except for two scenarios: 1) within-variable tests for gender where a dependent methodology is used; and 2) significance testing across years where a linking error is accounted for.

The PISA 2000, PISA 2006, and PISA 2009 are linked assessments. That is, the sets of items used to assess mathematics, reading, and science in 2000, 2006, and 2009 include a subset of common items. These common items are referred to as link items. To establish common reporting metrics for PISA, the difficulty of the link items, measured on different occasions, is compared. The comparison of the item difficulties on the different occasions is used to determine a score transformation that allows the reporting of the data on a common scale.

As each item provides slightly different information about the link transformation, it follows that the chosen sample of link items will influence the estimated transformation. The consequence is

an uncertainty in the transformation due to the sampling of link items, just as there is an uncertainty in country means due to the sampling of students.

The uncertainty that results from the link-item sampling is referred to as linking error and this error must be taken into account when making certain comparisons among 2000, 2006, and 2009 data. As with sampling errors, the likely range of magnitude for the errors is represented as a standard error. Significance tests for scores across years within the IDE take into account the linking errors applicable to each subject.

Exhibit 27. Significance test table output

To read the results of these significant tests, read across the rows for each variable. Each cell in the row will compare the variable in that row with the variable in the respective column. The symbol displayed in each cell indicates whether that row variable is significantly higher, significantly lower, or not significantly different from the variable in the respective column. Empty cells indicate that a variable cannot be compared to itself.

Science, age 15, pisa science scale: overall science scale
Difference in Average scale scores Between jurisdictions
for Gender Q4 [ST011901] = Female
2009

	Canada	France	Germany	Italy
Canada		> Diff = 30 P-value = 0.0000	> Diff = 9 P-value = 0.0205	> Diff = 37 P-value = 0.0000
France	< Diff = -30 P-value = 0.0000		< Diff = -21 P-value = 0.0000	x Diff = 7 P-value = 0.0932
Germany	< Diff = -9 P-value = 0.0205	> Diff = 21 P-value = 0.0000		> Diff = 28 P-value = 0.0000
Italy	< Diff = -37 P-value = 0.0000	x Diff = -7 P-value = 0.0932	< Diff = -28 P-value = 0.0000	

LEGEND:

<	Significantly lower.
>	Significantly higher.
x	No significant difference.

NOTE: Most comparisons are independent with an alpha level of 0.05, except for within variable tests for gender where a dependent methodology is used, and comparisons of achievement scores across years where a linking error is used. For more information see the Statistical Notations and Other Notes section in the Help Guide.
SOURCE: Organization for Economic Cooperation and Development (OECD), Program for International Student Assessment (PISA), 2009.

You have the option of viewing significance tests output as a Map, as well. To create a map comparing jurisdictions, you must, within the **Significance Test** window, select **Between Jurisdictions**, create a name for this test, and then select **Map** as your output type. When you select **Map**, the option to **Show score details** will be unavailable since score details are already a part of the map output. Make your selection of **Jurisdictions**, **Variables**, **Years**, and **Statistics**, and then preview your map by using either the preview tab in your **Edit** window, or clicking the **Preview** button at the lower left in the window. Click **Done** to see your finished map.

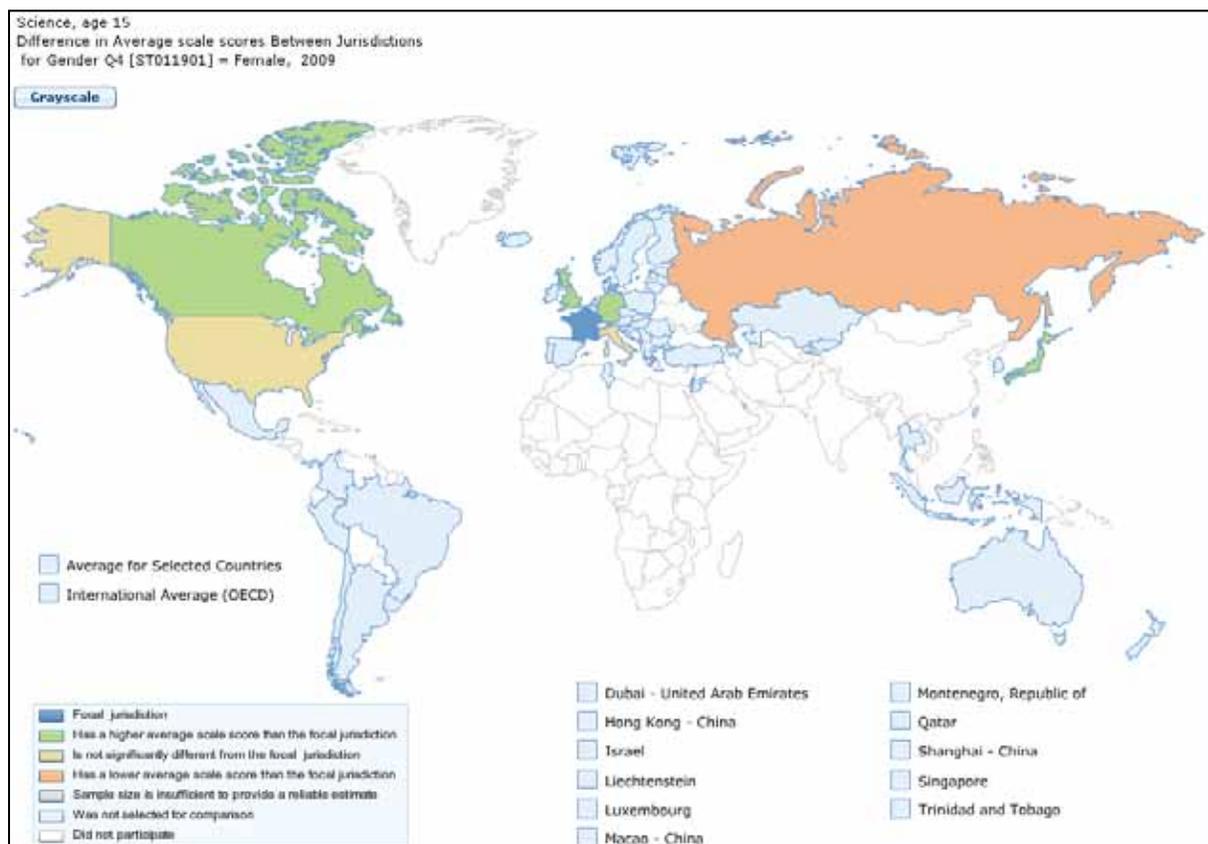
You may edit this map using the drop-down menu, where you can use the statistics you selected earlier, but note that when you change between these statistics, the map automatically refreshes back to the initial country or education system chosen as the focal jurisdiction. The key to the left of the map shows that the focal jurisdiction is blue, and the significance test results (higher, not

different, and lower) are represented by color. Place your cursor over a jurisdiction to show the score details. Change the focal jurisdiction by clicking a new one. All comparisons will immediately be made against this new focal jurisdiction. The **Grayscale** button above the map will format the map to print in black and white.

When you have the map you want, click **Done**. As with Charts, you can click anywhere in the map area, or on **Click here to edit this map**, and you will be returned to edit mode. Be sure to click **Done** when you are finished so that your map will be available to save or print from the **Export Reports** menu.

If you want another view of the same data, go to the **Significance Test** button and start a new map with a new name. Exhibit 28 provides a screen shot of the output of a significance test based on selecting a Map. The focal jurisdiction United States is shown in the exhibit in deep blue.

Exhibit 28. Map of significance tests



Please note that the IDE does not apply adjustments for multiple comparisons. This is consistent with current NCES statistical standards and practice. However, the U.S. PISA 2000 national report published by NCES and the PISA 2000 international report published by OECD did adjust for multiple comparisons in significance testing (Bonferroni method) and, hence, results from significance testing obtained from the IDE may not match those in the NCES and OECD PISA 2000 reports.

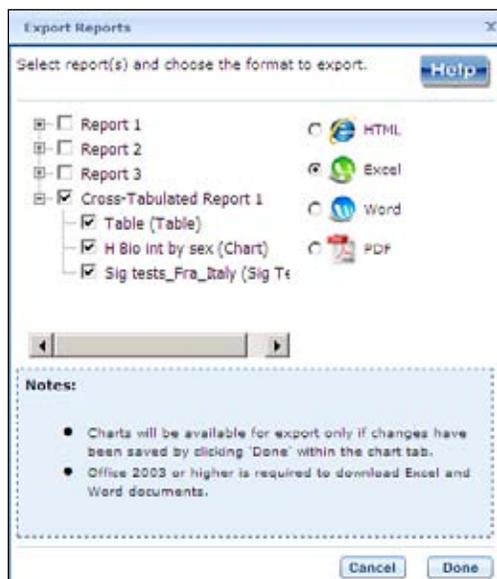
G. Export Reports

Click on the **Export Reports** button/arrow located on the right side of the screen to save or print your tables, charts, and significance tests. The report names that appear in the **Export Reports** window are those that were checked off at step 3, **Edit Reports**.

Check the files you want to export, and select one of the file formats: **HTML** (print-friendly), **Excel**, **Word**, and **PDF** (see exhibit 29). All reports that you select at the same time will be exported in one file. In the Excel format, you will be able to increase the decimal places visible (wherever more precision is available in the database). Because there are many different operating systems in use, you may get an error message with Excel or one of the other formats. Usually, this will not affect your ability to export, so please wait for software "errors" to resolve themselves.

Charts for each report will only be available on this menu if you saved them by clicking **Done** on the last screen when you created them. If a chart that you wish to save or print is grayed out (not available for selection), cancel the **Export Reports** tool, go back to your chart, and be sure to click **Done** on the last screen. After that, it will be available for export.

Exhibit 29. Export report options



If you edited report tables or completed charts that you wish to save or print, remember to do this via the **Export Reports** function before leaving the **Build Reports** screen. Returning to prior screens to edit the report table formats or change variables or criteria will overwrite the report tables and charts.

V. PISA Data Explorer Definitions

This section describes the kinds of criteria and variables that are used to form data queries, as well as the kinds of data available and statistical methods to assess them.

These topics include the following:

- Criteria
 - Subject
 - Years
 - Measures
 - Jurisdictions
- Variables
- Statistics Options
 - Average scale scores
 - Percentages
 - Proficiency levels (discrete)
 - Standard deviations
 - Percentiles
- Cross-tabulations
- Statistical Notations and Other Notes

1. Criteria

Each data query must include at least one selection from three criteria choices: subject, measure, and jurisdiction. Shown below is an outline of these selection criteria followed by a brief description.

1. Subject:
 - Science Literacy
 - Reading Literacy
 - Mathematics Literacy
2. Year:
 - 2009 (Data available for reading, reading subscales, mathematics, and science)
 - 2006 (Data available for reading, mathematics, and science, and science subscales)
 - 2000 (Data available for reading and reading subscales)

3. Measure:

- PISA Reading Scale: Overall Reading
- PISA Reading Subscale: Access and Retrieve
- PISA Reading Subscale: Integrate and Interpret
- PISA Reading Subscale: Reflect and Evaluate
- PISA Reading Subscale: Continuous text
- PISA Reading Subscale: Noncontinuous text
- PISA Mathematics Scale: Overall Mathematics
- PISA Science Scale: Overall Science
- PISA Science Subscale: Identifying Scientific Issues
- PISA Science Subscale: Explaining Phenomena Scientifically
- PISA Science Subscale: Using Scientific Evidence
- PISA Attitude Subscale: Interest in Science
- PISA Attitude Subscale: Support for Scientific Inquiry

4. Jurisdiction:

- International Average (OECD)
- Average for Selected Countries
- OECD
- Non-OECD

Subject

PISA assesses reading literacy, mathematics literacy, and science literacy at each administration; thus, any can be selected as the subject (except for 2000, for which only reading data are available in the IDE at present).

Measures

Although each administration of PISA assesses reading, mathematics, and science, one of these subjects is assessed in depth in each administration. You can choose between the overall scale and/or any of the subject's subscales. However, subscales are only available for a subject area that was a major domain that year. Subscales are constituent parts of the overall subject scale for an assessment. Subscales are specified by the PISA assessment frameworks.

In 2009 and 2000, reading was the major domain, and mathematics and science were minor domains. Therefore, for these years, subscales are only available for reading data; only single composite scales are available for PISA mathematics and science.

In 2006, science was the major domain and mathematics and reading were minor domains. Therefore, for this year, subscales are available for science data, but only single scales are available for PISA mathematics and reading data. The science attitude subscales are not included in the overall science scale.

Years

Currently, data availability in the IDE is dependent on the Measure selected. If the Measure chosen is the overall reading literacy, you can choose one or multiple years between 2009, 2006, and 2000. If the Measure chosen is one of the reading subscales, you can choose 2009 and/ or 2000. If the overall mathematics or science literacy scale is chosen, you can choose either 2009 or 2006, or both. If you choose any of the science subscales, data are available for 2006.

Data analysis within the IDE for mathematics and science for 2000, as well as for reading, mathematics (overall and subscales), and science for 2003 will be available shortly.

Jurisdictions

All listed jurisdictions can be selected for any analyses, provided data are available for the selected year. In 2009, a total of 65 jurisdictions participated: 34 Organization for Economic Cooperation and Development (OECD) countries and 31 non-OECD jurisdictions. Data are not available for some of these 65 jurisdictions for 2006 and 2000, either because they did not participate in that PISA cycle or because their data were suppressed due to reporting standards not being met (for example, PISA 2000 data for the Netherlands and the United Kingdom are suppressed due to international reporting standards not being met). Data are available for 57 jurisdictions (34 OECD and 23 non-OECD) in 2006 and 38 jurisdictions (28 OECD and 10 non-OECD) in 2000. Jurisdictions for which data are not available for a selected year are identified by the icon representing “No Data.” Note that the IDE contains a few U.S.-specific background variables (e.g., race/ethnicity) that, when selected, will not yield information for any other jurisdictions.

Countries listed as OECD countries are those that are currently members of the OECD. In some cases, countries are now members of the OECD, but were not members during a particular administration of PISA. For example, Slovenia is now a member of the OECD, but was not in 2006.

2. Variables

In the PISA IDE, questions from two types of questionnaires (student and school), as well as variables that are derived from background information, are organized into categories that have shared characteristics and can be selected as a group when examining and generating tables.

Content category and subcategory titles may overlap, but specific variables appear only once in a subcategory. Use **Search** in the **Select Variables** step to locate variables.

Note that some variables might be similar in content but not comparable over the years either due to differences in the question asked or differences in their response categories. For example, an index variable indicating the students’ family structure is available in both 2009 and 2000. Each index variable is based on students’ responses to the same question asking who usually lived at home with them. However, these two variables (FAMSTR09 in 2009 and FAMSTR00 in 2000) are not comparable over the two administrations due to differences in response categories

[single-parent family; two-parent family; and other in 2009 versus single-parent family; two-parent family; mixed, and other in 2000]. The icons representing “No Data”——will help in identifying the year for which the variable has data available for analysis.

3. *Statistics Options*

The IDE reports PISA data with several Statistics Options:

- Average scale scores
- Percentages
- Proficiency levels – discrete
- Standard deviations
- Percentiles

Average scale scores

For the PISA assessment, student performance is reported on scales that range from 0 to 1,000.

Scale scores can show the standard error (in parentheses) and are often accompanied by data showing percentages and standard deviations.

PISA scales are produced using Item Response Theory (IRT) to estimate average scores for science, mathematics, and reading literacy for each jurisdiction. IRT identifies patterns of response and uses statistical models to predict the probability of answering an item correctly as a function of the students’ proficiency in answering other questions. That is, student responses to the assessment questions are analyzed to determine the percentage of students responding correctly to each multiple-choice question and the percentage of students achieving each of the score categories for constructed-response questions.

Percentages

Percentages show the percentage of students as a row percentage. For example, if the table cell for Black female students in the United States is 7 percent, then Black females composed 7 percent of the total number of students assessed. By default, percentage distributions do not include those with missing data, though there is an option to include these missing data.

Proficiency levels (discrete)

In addition to average scale scores, achievement results for PISA are also reported using proficiency levels for reading, mathematics, and science. Discrete proficiency levels are reported as the percentage of students performing at each PISA proficiency level. Increasing levels represent the knowledge, skills, and capabilities needed to perform tasks of increasing complexity. As a result, the findings are reported in terms of percentages of the student population at each of the predefined levels. Descriptions have been developed to characterize typical student performance at each level (see below).

Reading literacy results in 2009 were reported using seven proficiency levels: level 1b, level 1a, level 2, level 3, level 4, level 5, and level 6. A eighth level, below level 1b, was established to include students whose abilities could not be accurately described based on their responses. The number of proficiency levels in 2009 differs from the number in 2006 and 2000, where five proficiency levels were used: level 1, level 2, level 3, level 4, and level 5. The cutpoint for level 1a in 2009 is the same as level 1 in 2000; levels 2 to 5 have the same cutpoints for all three years. In order to ensure comparability across years, results are available in the IDE for five proficiency levels: level 1 and below, level 2, level 3, level 4, and level 5 and above. Please note that in 2009 the percentage of students performing at level 1 and below includes students scoring below level 1b; at level 1b; and at level 1a, while the percentage of students scoring at level 5 and above for 2009 includes students performing at both levels 5 and 6.

For mathematics and science literacy, there are six PISA proficiency levels: level 1, level 2, level 3, level 4, level 5, and level 6. A seventh level, below level 1, was established to include students whose abilities could not be accurately described based on their responses. Descriptions, which appear in the following tables, were developed to characterize typical student performance at each level:

Description of PISA reading literacy proficiency levels

Proficiency level and lower cutpoint score*	Task descriptions
Level 1 335	At level 1, tasks require the reader to locate one or more independent pieces of explicitly stated information; to recognize the main theme or author’s purpose in a text about a familiar topic, or to make a simple connection between information in the text and common, everyday knowledge. Typically the required information in the text is prominent and there is little, if any, competing information. The reader is explicitly directed to consider relevant factors in the task and in the text.
Level 2 407	At level 2, some tasks require the reader to locate one or more pieces of information, which may need to be inferred and may need to meet several conditions. Others require recognizing the main idea in a text, understanding relationships, or construing meaning within a limited part of the text when the information is not prominent and the reader must make low-level inferences. Tasks at this level may involve comparisons or contrasts based on a single feature in the text. Typical reflective tasks at this level require the reader to make a comparison or several connections between the text and outside knowledge, by drawing on personal experience and attitudes.

<p>Level 3</p> <p>480</p>	<p>At level 3, tasks require the reader to locate, and in some cases recognize the relationship between, several pieces of information that must meet multiple conditions. Interpretative tasks at this level require the reader to integrate several parts of a text in order to identify a main idea, understand a relationship, or construe the meaning of a word or phrase. The reader needs to take into account many features in comparing, contrasting, or categorizing. Often the required information is not prominent or there is much competing information; other text obstacles could exist as well, such as ideas that are contrary to expectation or negatively worded. Reflective tasks at this level may require connections, comparisons, and explanations, or they may require the reader to evaluate a feature of the text. Some reflective tasks require the reader to demonstrate a fine understanding of the text in relation to familiar, everyday knowledge. Other tasks do not require detailed text comprehension, but require the reader to draw on less common knowledge.</p>
<p>Level 4</p> <p>553</p>	<p>At level 4, tasks involve retrieving information that requires the reader to locate and organize several pieces of embedded information. Some tasks at this level require interpreting the meaning of nuances of language in a section of text by taking into account the text as a whole. Other interpretative tasks require understanding and applying categories in an unfamiliar context. Reflective tasks at this level require readers to use formal or public knowledge to hypothesize about or critically evaluate a text. Readers must demonstrate an accurate understanding of long or complex texts whose content or form may be unfamiliar.</p>
<p>Level 5</p> <p>626</p>	<p>At level 5, tasks involve retrieving information that requires the reader to locate and organize several pieces of deeply embedded information, inferring which information in the text is relevant. Reflective tasks require critical evaluation or hypothesizing, drawing on specialized knowledge. Both interpretative and reflective tasks require a full and detailed understanding of a text whose content or form is unfamiliar. For all aspects of reading, tasks at this level typically involve dealing with concepts that are contrary to expectations.</p>

*In PISA 2009, newly constructed items furnished the description of proficiency levels above and below those established in PISA 2000. Level 6 was developed to better describe the skills and understandings of students the upper end of the reading scale. The cutpoint score for Level 6 is a score greater than 698.32, although students at or above this level are included in the proficiency level “Level 5 and above” in the IDE. Levels 1a and 1b were developed to better describe the skills and understandings of students at the bottom end of the reading scale. The cutpoint score for Level 1a in PISA 2009 is the same as that for Level 1 in PISA 2000, while the cutpoint score for Level 1b is set significantly lower at a score less than or equal to 262.04. Students performing at or below Levels 1a or 1b are included in the proficiency level “Level 1 and below” in the IDE.

Description of PISA mathematics literacy proficiency levels

Proficiency level and lower cutpoint score	Task descriptions
Level 1 358	At level 1, students can answer questions involving familiar contexts where all relevant information is present and the questions are clearly defined. They are able to identify information and to carry out routine procedures according to direct instructions in explicit situations. They can perform actions that are obvious and follow immediately from the given stimuli.
Level 2 420	At level 2, students can interpret and recognize situations in contexts that require no more than direct inference. They can extract relevant information from a single source and make use of a single representational mode. Students at this level can employ basic algorithms, formulae, procedures, or conventions. They are capable of direct reasoning and making literal interpretations of the results.
Level 3 482	At level 3, students can execute clearly described procedures, including those that require sequential decisions. They can select and apply simple problem-solving strategies. Students at this level can interpret and use representations based on different information sources and reason directly from them. They can develop short communications reporting their interpretations, results, and reasoning.
Level 4 545	At level 4, students can work effectively with explicit models for complex concrete situations that may involve constraints or call for making assumptions. They can select and integrate different representations, including symbolic ones, linking them directly to aspects of real-world situations. Students at this level can utilize well-developed skills and reason flexibly, with some insight, in these contexts. They can construct and communicate explanations and arguments based on their interpretations, arguments, and actions.
Level 5 607	At level 5, students can develop and work with models for complex situations, identifying constraints and specifying assumptions. They can select, compare, and evaluate appropriate problem-solving strategies for dealing with complex problems related to these models. Students at this level can work strategically using broad, well-developed thinking and reasoning skills, appropriate linked representations, symbolic and formal characterizations, and insight pertaining to these situations. They can reflect on their actions and formulate and communicate their interpretations and reasoning.

<p>Level 6</p> <p>669</p>	<p>At level 6, students can conceptualize, generalize, and utilize information based on their investigations and modeling of complex problem situations. They can link different information sources and representations and flexibly translate among them. Students at this level are capable of advanced mathematical thinking and reasoning. These students can apply this insight and these understandings along with a mastery of symbolic and formal mathematical operations and relationships to develop new approaches and strategies for attacking novel situations. Students at this level can formulate and precisely communicate their actions and reflections regarding their findings, interpretations, arguments, and the appropriateness of these to the original situations.</p>
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Description of PISA science literacy proficiency levels

Proficiency level and lower cutpoint score	Task descriptions
<p>Level 1</p> <p>335</p>	<p>At level 1, students have such a limited scientific knowledge that it can only be applied to a few, familiar situations. They can present scientific explanations that are obvious and follow explicitly from given evidence.</p>
<p>Level 2</p> <p>410</p>	<p>At level 2, students have adequate scientific knowledge to provide possible explanations in familiar contexts or draw conclusions based on simple investigations. They are capable of direct reasoning and making literal interpretations of the results of scientific inquiry or technological problem solving.</p>
<p>Level 3</p> <p>484</p>	<p>At level 3, students can identify clearly described scientific issues in a range of contexts. They can select facts and knowledge to explain phenomena and apply simple models or inquiry strategies. Students at this level can interpret and use scientific concepts from different disciplines and can apply them directly. They can develop short statements using facts and make decisions based on scientific knowledge.</p>
<p>Level 4</p> <p>559</p>	<p>At level 4, students can work effectively with situations and issues that may involve explicit phenomena requiring them to make inferences about the role of science or technology. They can select and integrate explanations from different disciplines of science or technology and link those explanations directly to aspects of life situations. Students at this level can reflect on their actions and they can communicate decisions using scientific knowledge and evidence.</p>

Level 5 633	At level 5, students can identify the scientific components of many complex life situations, apply both scientific concepts and knowledge about science to these situations, and can compare, select and evaluate appropriate scientific evidence for responding to life situations. Students at this level can use well-developed inquiry abilities, link knowledge appropriately, and bring critical insights to situations. They can construct explanations based on evidence and arguments based on their critical analysis.
Level 6 708	At level 6, students can consistently identify, explain, and apply scientific knowledge and knowledge about science in a variety of complex life situations. They can link different information sources and explanations and use evidence from those sources to justify decisions. They clearly and consistently demonstrate advanced scientific thinking and reasoning, and they demonstrate willingness to use their scientific understanding in support of solutions to unfamiliar scientific and technological situations. Students at this level can use scientific knowledge and develop arguments in support of recommendations and decisions that center on personal, social, or global situations.

NOTE: Information about the procedures used to set the proficiency levels is available in the *PISA 2009 Technical Report*.

SOURCE: National Center for Education Statistics. (2010). *Highlights from PISA 2009: Performance of U.S. 15-Year-Old Students in Reading, Mathematics, and Science Literacy in an International Context*. Washington, DC: Author.

Exact cut scores for the reading proficiency levels in the IDE are as follows:

- level 1 and below, less than or equal to 407.47;
- level 2, greater than 407.47 and less than or equal to 480.18;
- level 3, greater than 480.18 and less than or equal to 552.89;
- level 4, greater than 552.89 and less than or equal to 625.61;
- level 5 and above, greater than 625.61.

Exact cut scores for the mathematics proficiency levels are as follows:

- below level 1, less than or equal to 357.77;
- level 1, greater than 357.77 and less than or equal to 420.07;
- level 2, greater than 420.07 and less than or equal to 482.38;
- level 3, greater than 482.38 and less than or equal to 544.68;
- level 4, greater than 544.68 and less than or equal to 606.99;
- level 5, greater than 606.99 and less than or equal to 669.30; and
- level 6, greater than 669.30.

Exact cut scores for the science proficiency levels are as follows:

- below level 1, less than or equal to 334.94;
- level 1, greater than 334.94 and less than or equal to 409.54;
- level 2, greater than 409.54 and less than or equal to 484.14;
- level 3, greater than 484.14 and less than or equal to 558.73;
- level 4, greater than 558.73 and less than or equal to 633.33;
- level 5, greater than 633.33 and less than or equal to 707.93; and
- level 6, greater than 707.93.

Standard deviations

The standard deviation is a measure of how widely or narrowly dispersed scores are for a particular dataset. Under general normality assumptions, 95 percent of the scores are within two standard deviations of the mean. For example, if the average score of a dataset is 500 and the standard deviation is 100, it means that 95 percent of the scores in this dataset fall between 300 and 700. In the IDE, you may obtain standard deviations as one of your two choices for **Statistics Options in Edit Reports**.

Percentiles

This statistic shows the threshold (or cutpoint) score for the following:

- 10th percentile – the bottom 10 percent of students
- 25th percentile – the bottom quarter of students
- 50th percentile – the median (half the students scored below the cutpoint and half scored above it)
- 75th percentile – the top quarter of students
- 90th percentile – the top 10 percent of students

4. Cross-tabulations

Cross-tabulation is a method of combining separate variables into a single table. Normally each variable has its own table. If you have selected two or three variables (not counting **All Students**), when you go to the **Edit Reports** step, you will automatically get one table for each variable (including one for **All Students**); at the end of that list, you will get one cross-tabulation for the two or three variables selected.

If you have chosen four or more variables (not counting **All Students**), you will get tables for each variable, but you won't get the cross-tabulation.

Be advised that if you go back to add another variable without subtracting one to keep the total under four, you will lose any edits you might have made to the cross-tabulation.

5. Statistical Notations and Other Notes

Statistical notations and other notes are found at the end of a data table, as applicable to that table:

— Not available.

† Not applicable. (For instance, the statistic does not meet reporting standards, so the standard error for that statistic cannot be reported.)

The statistic rounds to zero.

‡ Reporting standards not met. (For instance, the sample size is insufficient to permit a reliable estimate.)

NOTE: A general note pertains to any special characteristics of the data in the table.

SOURCE: Source information is listed for all PISA data and should be cited when data are used in a publication or presentation.

Calculation of OECD averages

The IDE generates the OECD average for the selected Measures and Variables if International Average is clicked under Jurisdiction.

The OECD average generated by the IDE is based on 34 OECD countries in 2009 and 2006 and 28 OECD countries in 2000. Four OECD countries, Estonia, Slovak Republic, Slovenia, and Turkey, did not participate in 2000, and the data for the Netherlands and the United Kingdom¹ were suppressed due to reporting standards not being met.

Please note that there might be differences in the OECD averages generated by the IDE and the OECD averages published for reading literacy in the PISA 2009 OECD and NCES reports.

In the PISA 2009 OECD and NCES reports, the OECD averages used for trend analyses in reading literacy, referred to as *OECD trend scores*, are based on the averages of the 27 countries that participated in both the 2000 and 2009 assessments and that met all technical standards. As a result, the seven current OECD members not included in the OECD averages used to report on trends in reading literacy are Slovak Republic and Turkey, which joined PISA in 2003; Estonia and Slovenia, which joined PISA in 2006; Luxembourg, which experienced substantial changes in its assessment conditions between 2000 and 2003; and the Netherlands and the United Kingdom, which did not meet the PISA reporting standards in 2000.

The 2009 OECD average generated in the IDE includes all the 34 OECD countries, while the 2000 OECD average generated in the IDE includes 28 countries rather than 27 countries. That is, the OECD score for 2000 generated by the IDE excludes Estonia, Slovenia, Slovak Republic, Turkey, the Netherlands, and the United Kingdom; however it does not exclude Luxembourg.

¹ The United Kingdom data for 2000 was suppressed after the release of PISA 2000 results by OECD due to reporting standards. Additionally, United Kingdom data was also suppressed in 2003 since the data did not meet reporting standards.

In addition, the OECD average generated by the IDE might differ from previously published results in OECD and NCES reports using 2000 and 2006 data. The differences might be due to either of two reasons: (1) the composition of the OECD has changed since 2000, with new members joining at various points in time; or (2) reporting standards necessitated revisions of PISA 2000 data for Austria and suppression of PISA 2000 data for the United Kingdom after the release of the PISA 2000 results.

You can choose to generate an OECD trend average for reading literacy with the same country composition as the PISA 2009 OECD and NCES reports by selecting “Average for Selected Countries” under Jurisdiction and manually clicking on the 27 OECD countries.

There will be differences in the OECD trend averages published in the 2009 OECD and NCES reports for mathematics literacy as well:

The OECD trend averages for mathematics literacy in the PISA 2009 OECD and NCES reports are based on 29 OECD countries that participated in all three administrations of PISA 2009, 2006, and 2003 assessments and that met all technical standards. As a result, the OECD trend average excludes Chile, Estonia, Israel, and Slovenia, which did not participate in 2003, and the United Kingdom, which did not meet PISA reporting standards for the 2003 assessment.

The OECD averages in mathematics that are generated by the IDE include 34 countries in 2009 and 2006.

You can choose to generate an OECD trend average for mathematics literacy with the same country composition as the PISA 2009 OECD and NCES reports by selecting Average for Selected Countries under Jurisdiction and manually clicking on the 29 OECD countries (i.e., all OECD except Chile, Estonia, Israel, Slovenia, and the United Kingdom).

6. Glossary

Below is a list of technical and PISA-specific assessment terms used in the IDE.

A. Student and Family Characteristics

ISCED – The International Standard Classification of Education (ISCED) is an internationally comparable method for describing levels of education across countries, created by the United Nations Educational, Scientific and Cultural Organization (UNESCO). ISCED levels are defined as follows:

Level 0 – the initial stage of organized instruction, designed primarily to introduce very young children to a school-type environment. ISCED level 0 programs can either be center- or school-based. Preschool and kindergarten programs in the United States fall into the level 0 category.

Level 1 – consists of primary education, which usually lasts 4 to 6 years. ISCED level 1 typically begins between ages 5 and 7, and is the stage where students

begin to study basic subjects, such as reading, writing, and mathematics. In the United States, elementary school (grades 1 through 6) is classified as level 1.

Level 2 – also known as lower secondary education, students continue to learn the basic subjects taught at level 1, but this level is typically more subject specific than level 1 and may be taught by specialized teachers. ISCED level 2 usually lasts between 2 and 6 years, and begins around the age of 11. Middle school and junior high (grades 7 through 9) in the United States are classified as level 2.

Level 3 – also known as upper secondary education, student coursework is generally subject specific and often taught by specialized teachers. Students often enter upper secondary education at the age of 15 or 16 and attend anywhere from 2 to 5 years. ISCED level 3 can prepare students for university, further schooling, or the labor force. Senior high school (grades 10 through 12) is considered level 3 in the United States.

Level 4 – consists of primarily vocational education, and courses are taken after the completion of secondary school, though the content is not more advanced than the content of secondary school courses. ISCED level 4 programs in the United States are often in the form of 1-year certificate programs.

Level 5 – divided into levels 5A and 5B, this level focuses on tertiary education. ISCED level 5A refers to academic higher education below the doctoral level. Level 5A programs are intended to provide sufficient qualifications to gain entry into advanced research programs and professions with high skill requirements. In the United States, bachelor's, master's, and first-professional degree programs are classified as ISCED level 5A. ISCED level 5B refers to vocational higher education. Level 5B programs provide a higher level of career and technical education and are designed to prepare students for the labor market. In the United States, associate's degree programs are classified as level 5B.

Level 6 – refers to the doctoral level of academic higher education. Level 6 programs usually require the completion of a research thesis or dissertation.

Grade level – Students were asked, “What grade are you in?” Students’ responses in PISA 2000, 2006, and 2009 were re-coded as follows: 7th grade – 1; 8th grade – 2; 9th grade – 3; 10th grade – 4; 11th grade – 5; 12th grade – 6.

Family Structure – In PISA 2000 and PISA 2009, students were asked to report who lives at home with them. This restricted response question provided students with the following choices:

PISA 2000

Birth of adoptive mother
 Stepmother or foster mother
 Other female guardian
 Birth or adoptive father
 Stepfather or foster father
 Other male guardian
 Grandparent(s)
 Brother(s) – Includes stepbrothers
 Sister(s) – Includes stepsisters
 Others

PISA 2009

Mother – Includes stepmother or foster mother
 Father – Includes stepfather or foster father
 Brother(s) – Includes stepbrothers
 Sister(s) – Includes stepsisters
 Grandparent(s) – Maternal and/or paternal
 Others – e.g., cousins

The response options were grouped into the following categories:

Single-parent family – students living with one of the following: mother, father, male guardian, female guardian

Two-parent family or nuclear family (PISA 2000) – students living with a mother and a father

Two-parent family (PISA 2009) – students living with a father or step/foster father and a mother or step/foster mother

Mixed family (PISA 2000 only) – students living with a mother and a male guardian, a father and a female guardian, or two guardians

Other – other response combinations

The index FAMSTRUC is derived differently in PISA 2009 than it was in PISA 2000. In order to make the indices comparable you will need to combine PISA 2000 categories “Two-parent family” and “Mixed” into one category which then can be compared to PISA 2009 category “Two-parent family.”

White/Blue Collar – Students were asked to report their mothers’ and fathers’ occupations. The open-ended responses for occupations were then coded in accordance with the International Standard Classification of Occupations (ISCO 1988). The variables on the occupations of students’ fathers and mothers were then transformed into four socioeconomic categories defined as follows:

White-collar high-skilled – legislators, senior officials and managers, professionals, technicians and associate professionals

White-collar low-skilled – service workers, shop and market sales workers and clerks

Blue-collar high-skilled – skilled agricultural and fishery workers and craft and related trades workers

Blue-collar low-skilled – plant and machine operators and assemblers and elementary occupations

B. School Composition and Organization

National modal grade for 15-year-olds – Each of the participating countries in PISA selects a nationally representative sample of 15-year-olds, regardless of grade level. This generally corresponds to 10th grade in the United States, but grade levels vary across countries.

Grade 13 – while schools in the United States generally end at grade 12, students in some countries begin school at an earlier age and consequently have 13 years of primary and secondary schooling.

Ability grouping within school – Some countries have comprehensive school systems with no, or only limited, institutional differentiation. Other countries group students through tracking or streaming either between schools or between classes within schools with the aim of serving students according to their academic potential and/or interests in specific programs. In many countries, combinations of the two approaches occur. This index is made up of SC08Q01 and SC08Q02 (see below).

Streaming between classes (SC08Q01) – Grouping of students into different classes within a school, by perceived or measured academic potential and/or interests in specific programs.

Streaming within classes (SC08Q02) – Grouping of students in the same class, by perceived or measured academic potential and/or interests in specific programs.

School size – Principals reported the number of students in attendance at their schools. Their open-ended responses in PISA 2009 and 2006 were re-coded as follows: 0 to 500 – 1; 501 to 1000 – 2; 1001 to 1500 – 3; More than 1500 – 4.

School community – In PISA 2000, 2006, and 2009, school principals were asked to best describe the community in which their school was located. This restricted response question provided school principals with the following choices:

PISA 2009 and 2006	PISA 2000
1. A village, hamlet or rural area (fewer than 3,000 people)	1. A rural area (fewer than 3,000 people)
2. A small town (3,000 to about 15,000 people)	2. A small town (3,000 to about 15,000 people)
3. A town (15,000 to about 100,000 people)	3. A town (15,000 to about 100,000 people)
4. A city (100,000 to about 1,000,000 people)	4. A city (100,000 to about 1,000,000 people)
5. A large city (with over 1,000,000 people)	5. Close to the center of a city with over 1,000,000 people
	6. Elsewhere in a city with over 1,000,000 people

In order to make this variable comparable over PISA 2009, 2006, and 2000, the variable in PISA 2000 data was recoded to match the values in PISA 2009 and 2006. In the IDE, the PISA 2000 responses 5 and 6 (“Close to the center of a city with over 1,000,000 people” and “Elsewhere in a city with over 1,000,000 people”) were collapsed into a single category renamed “Large City.”

Free Lunch (For U.S. only) - The National School Lunch Program provides free or reduced-price lunch for students meeting certain income guidelines. The percentage of students receiving such lunch is an indicator of the socioeconomic level of families served by the school. Data are for U.S. public schools only. Data reported from principals from 2009 and 2006 have been recoded into the following 5 categories: Less than 10 percent, 10 to 24.9 percent, 25 to 49.9 percent, 50 to 74.9 percent, 75 percent or more. Note that the free or reduces price lunch data was not collected in 2000.

Teacher-student ratio– Principals reported the ratio between the number of teachers and the number of students in the school. Their open-ended responses in PISA 2009 and 2006 were re-coded as follows: 1 to 10 – 1; 11 to 15 – 2; 16 to 20 – 3; More than 20 – 4.