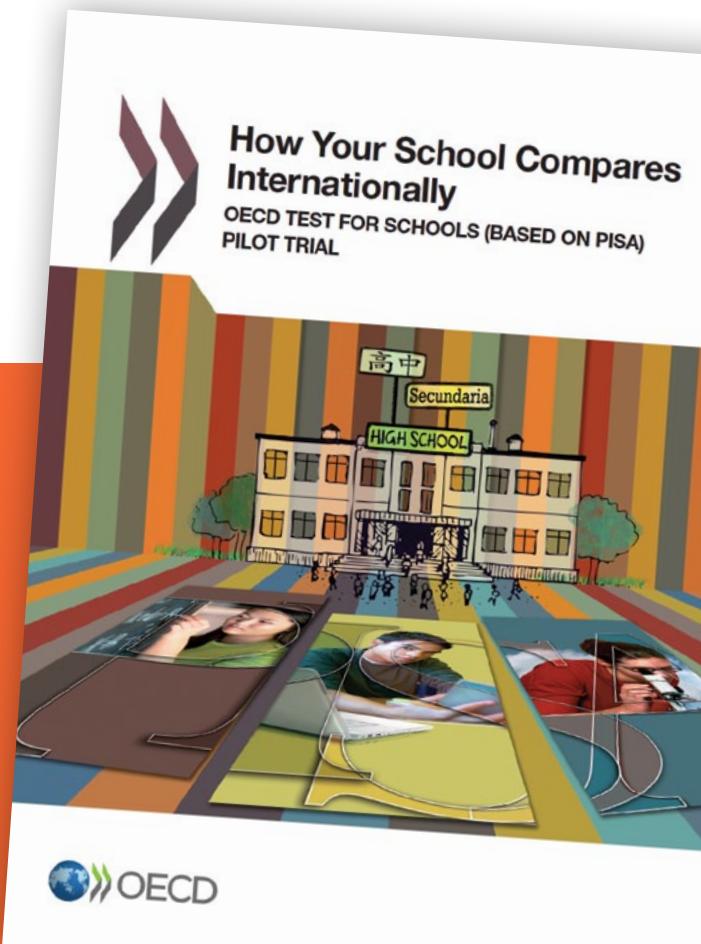




OECD Test for Schools Implementation Toolkit

Prepared by EdLeader21
Valerie Greenhill & Jonathan Martin

With the generous support of the William and Flora Hewlett Foundation



About EdLeader21

EdLeader21 is the nation's first professional learning community dedicated to helping district and school leaders enhance the 4Cs (critical thinking, communication, collaboration and creativity) in education systems, preparing students to be college, career and life ready in the 21st century.

We have over 130 members in 33 states representing over 2 million students.

See www.edleader21.com for more.



With the generous support of the William and Flora Hewlett Foundation

contents

<u>Introduction</u>	4
<u>Leading Your OECD Test Program</u>	6
<u>Communicate Vision and Build Consensus</u>	6
<u>Plan and Execute</u>	11
<u>Use the Results to Build Your Team's Capacity</u>	12
<u>Act to Improve</u>	14
<u>Interpreting Your School Results</u>	18
<u>Avoid Common Mistakes</u>	18
<u>Organize the Data: Three Recommended Buckets</u>	21
<u>Identify Compelling Data Points</u>	22
<u>Use Guiding Questions</u>	23
<u>Case Studies</u>	27
<u>Teacher Leadership: Lucia Mar Unified School District</u>	28
<u>Equity: Chantilly High School</u>	29
<u>Leveraging Data: Mount Vernon High School</u>	30
<u>Competition: Oakton High School</u>	31
<u>Treasure-Trove: North Star Academy</u>	32
<u>21st-Century Skills and Global Data: Herricks Public Schools</u>	33
<u>Additional Resources</u>	34
<u>Sample Parent Letter</u>	35
<u>Implicit Consent Form</u>	36
<u>Superintendent's Checklist</u>	37
<u>OECD Test for Schools Project Manager Checklist</u>	38
<u>Principal's Checklist</u>	39
<u>Teacher's Checklist</u>	40
<u>FAQ: Administrators and Teachers</u>	41
<u>FAQ: Parents</u>	44
<u>For Additional Study</u>	45
<u>Appendix: Deeper Learning and PISA – A Brief Primer</u>	49
<u>Acknowledgements</u>	59
<u>Works Cited</u>	62

Introduction

Congratulations! Your school or district has made the exciting, bold, and meaningful decision to participate in the OECD Test for Schools (based on PISA™). You now have the opportunity to use the best international test available to help ensure your students are prepared for the competitive global workforce demands and the critical citizenship challenges of the 21st century.

The OECD Test for Schools (based on PISA) is an excellent tool in many ways:

- 1 | It helps you know how your students compare to same-age students in more than 70 other countries and economies;**
- 2 | It assesses the kind of critical thinking, problem-solving and written communication skills that matter most for success;**
- 3 | It provides an extraordinary amount of additional information on student attitudes, the teaching and learning environment at school, reading strategies and more.**

Unlike many commercially available tests, the OECD Test for Schools (OECD TFS) measures how well a student can apply content knowledge. Put another way, this test can help you understand whether the 15-year-olds in your high schools can think critically and solve problems as compared to their peers around the world and in the U.S. (and even among schools within your district).

In her 2013 book, “The Smartest Kids in the World,” Amanda Ripley argues that “Tests usually quantified students’ preparedness for more schooling, not their preparedness for life. None measured teenagers’ ability to think critically and solve new problems in math, reading, and science. The promise of PISA was that it would reveal which countries were teaching kids to think for themselves.” (Ripley, p. 15)

PISA’s purpose is to measure the knowledge and skills that matter most. The 2009 PISA Assessment Framework declared that “Certain broad, general skills are essential for students to develop. They include communication, adaptability, flexibility, problem-solving and the use of information technologies. These skills are developed across the curriculum and an assessment of them requires a broad cross-curricular focus.” (PISA 2009 Assessment Framework, p. 12)

Competencies are defined in each of the three major subject domains—reading, mathematics and science—as that domain’s core literacy. The PISA literacies are a carefully crafted set of skills that align closely with the 21st-century learning outcomes many schools and districts have

embraced as essential for their graduates, and can serve as a model for educators looking to define what is required in each subject domain. Some of the 21st-century skills most closely aligned with PISA domains include critical thinking, problem-solving and written communication, and intrapersonal competencies such as motivation, self-efficacy and learning strategies.

To quote Jim Hogeboom, superintendent of the Lucia Mar Unified School District in California, “Most of the assessments we currently have don’t assess what we want students to know and be able to do. We have adopted the 4Cs (critical thinking, communication, collaboration and creativity) in our district, and when we heard about PISA and the OECD Test for Schools, we said, ‘Let’s get data on how our kids are doing on robust assessments of critical thinking in particular.’” (Interview)

This guide and toolkit are provided for superintendents, district leaders, principals, curriculum directors and teachers to make the most of the OECD Test for Schools experience. Let us underscore the “and” in the previous sentence; our research reveals that implementations are most effective when district officials and school leaders collaborate closely, each playing a critical and complementary role to serve students.

We hope this toolkit will provide helpful answers to the questions you may have, such as:

- **How should district and school leaders launch an effective use of the OECD Test for Schools?**
- **What are the most effective tactics for administering the test in my school and communicating to constituencies about the test?**
- **How do I best glean meaningful insights from the comprehensive report that my school receives?**
- **What are effective strategies to best exploit OECD test results in order to improve student learning?**
- **What can be learned from the experience of participants in the OECD TFS pilot?**
- **What resources, such as checklists, sample forms and FAQs, are available to simplify and deepen my implementation of this program?**

This free guide and toolkit, generously funded by the William and Flora Hewlett Foundation, covers these topics in detail. For a greater understanding of the OECD Test for Schools, the PISA frameworks on which it is developed, and the relationship to deeper learning competencies such as critical thinking, see the appendix in this document ([page 49](#)).

Enjoy the experience and make the most of it. Nearly every superintendent and principal consulted while researching this publication reported that this work has been entirely worthwhile—a highlight of their professional experience—and that the data and resources they are receiving are going to serve them greatly in improving the 21st-learning outcomes of their students. Let’s get started.

¹ The Programme for International Student Assessment (PISA) is a worldwide study by the Organisation for Economic Co-operation and Development (OECD) in member and non-member nations of 15-year-old school students' scholastic performance on mathematics, science, and reading.

Leading Your OECD Test Program

Making the OECD test meaningful demands visionary leadership. EdLeader21 pilot users in every district consistently reported that in order to be successful, the superintendent and the principal must communicate to every constituency their personal investment in the initiative, the importance of PISA and the OECD Test for Schools, and the reasons for the work.

We recommend using the action steps in this section to establish your leadership team's vision and work plan for your OECD test program.

The OECD Test for Schools' main purpose is to improve student readiness for college, career and life. For district and school leaders, the PISA-comparable results are meaningless unless they translate into actions that strengthen teaching and learning. This section's recommendations support that ultimate goal.

Communicate Vision and Build Consensus

Successful use of OECD Test for Schools relies most heavily on leaders who establish a clear vision for why it is important and consistently build consensus around the use of the results for improvement work. This is not the work of self-reliant lone rangers. It must be done collaboratively. The best programs draw in and include a wide array of constituents and colleagues in the process.



To establish the vision and create consensus, our leaders recommend the following steps:

1

Communicate the VISION and PURPOSE of the program.

The OECD Test for Schools is a new and potentially challenging tool: Your fellow educators, parents and students alike will hesitate if its purpose and goals aren't clearly understood. Leaders need to explain in multiple forums, and again and again, to all constituencies why they are leading this particular charge. It is critical that leaders connect OECD TFS with the vision of the district/school and show how it aligns with the district or school's vision for student learning. Leaders must do more than communicate. They must also demonstrate their personal commitment—i.e., walk the talk, show the flag—to the program and their intent to support it.

TIP for SUPERINTENDENTS

In New York state's **Herricks Public Schools**, nobody is confused about who decided on PISA testing or why it is being administered. Senior district administrators and elementary school teachers understand it is a priority of the superintendent, **Jack Bierwirth**, whose focus is to prepare students for the globally complex demands of the 21st century.

As one Herricks educator explained in an interview, "He speaks about PISA a lot, demonstrating incredible leadership. He talks about it in many different contexts; he refers to it in public and parent meetings; he is out there on it with local media; and he explains, clearly and convincingly, the purpose and value of PISA. As a result, PISA is widely referenced in the district. Even elementary teachers have heard about it and can speak about it with confidence. He has made just it a regular part of the learning conversation in our district."

One common motive expressed by many EdLeader21 members is preparing students for a globally complex (and competitive) world. In Lucia Mar, Superintendent Hogeboom explained that he wasn't content to settle for local and state expectations. He knew his graduates would have to compete on a global stage, and he needed to know how his students were doing compared to students outside California. (Interview)

INTERNATIONAL BEST PRACTICE

This is entirely aligned with an important point in the PISA 2011 Lessons for the US report. "A strong and consistent effort both to do disciplined international benchmarking and to incorporate the results of that benchmarking into policy and practice is a common characteristic of the highest-performing countries." (p. 253)



Similarly, at Oakton High School (Va.) Principal John Banbury said, "I wanted to be able to say once and for all we're preparing kids to be best in the world." (Interview)

Students in particular need to understand why they're being asked to commit their time and energy to this work. Some choose to appeal to their students' competitive spirits. One school in Kansas took a playful spin on the competition by using the Twitter hashtag #BeatFinland on testing day, a meme that is used regularly throughout the school district.

Clarifying your district or school's goals for the test allows students to understand how this one-of-a-kind assessment will better prepare them and their peers for brighter futures. Consider providing interviews to

the student newspaper. Or even better, make it the centerpiece of a school assembly, with teachers or the principal participating in contests using sample assessment questions, such as ‘As are you better prepared for 21st-century citizenship than the average 15-year-old?’

TIP for PRINCIPALS

In several schools that administered the pilot, principals said that they personally welcomed students to the test administration and gave them personal messages about its importance. Chantilly High School (Va.) Principal Teresa Johnson explained: “I made my own appearance as principal, greeted kids, told them to work hard and showed them how important this was to me by being present.” These leaders aren’t delegating; they are showing up and digging deeply into the data alongside every other participant in the process. (Interview)

INTERNATIONAL BEST PRACTICE

As explained in the 2011 PISA Lessons for the US report, the highest-performing nations regularly have principals “selected more for their instructional leadership than administrative capacity.” Their chief responsibilities include “implementing thoughtful assessments to help students reach high standards.” (p. 239)



2 Practice effective collaboration and coordination between the district office and individual schools.

One of the most striking things we learned from the pilot was the importance of collaboration between district and school leaders. In places where the team included both principals and central office leaders, there was a much more cohesive and compelling approach to the test and its results.

Think of this example we overheard from the pilot as something you’d like to avoid: One principal, who was on a conference call to discuss the school’s administration of the test, said, “I was told by central office we’re doing this—but I have no idea why.” Obviously this isn’t the kind of collaborative approach we would recommend.

It’s important for site leaders to “own” the administration of the test and help lead the continuous improvement work of the school based on the results. Principals and other site leaders must be given the support and autonomy to lead the work in the building.

From a system perspective, however, active collaboration between central office leaders and site leaders is critical. During the pilot, we found that most EdLeader21 principals benefited from the helpful role their

district offices played—from vision-setting to logistics to analysis to reflection to action. Especially in districts with multiple high schools, the advantage of collaboration among the central office and the site-based teams leads to powerful action.

Intentional, planned, purposeful collaboration at all levels—that's key.

INTERNATIONAL BEST PRACTICE

An important message from the 2011 PISA Lessons for the US report is that high-performing countries are actively working to “rebalance their systems” to provide “more discretion to school heads and faculties combined with accountability systems.” (p. 240)



3 Promote trust and safety for participants.

One of the test’s strengths—its ability to tell you where your students rank on an aggregate level when compared to their peers across the country and the world—can also be its biggest liability. If principals, teachers and students believe the results will be used to assign rewards or to issue punitive judgments—rather than as part of a formative, continuous improvement effort—the initiative will be inadequate as a lever for change.

The OECD guidelines insist that the test results should not be used for marketing purposes. It is not intended to provide a “gold star” or “black mark” for any school. We strongly recommend that superintendents, principals and other leaders of this work focus on creating an atmosphere of transparency, trust and safety in using the results to benefit your students.

4 Provide appropriate time and resources for your team.

The OECD TFS report is long and detailed, and bears fruit only upon extensive exploration and examination. Leaders should not expect overnight understanding or immediate actions based on these data; rather, leaders should allocate the time necessary to reflect on the report and the results. In one high school, every Friday afternoon for several months was reserved for studying the report. In another, an administrator reported that it took two weeks

TIP for SUPERINTENDENTS

In **Fairfax County (Va.)** and elsewhere, the message from the superintendent to participating schools has been loud and clear: This will not be used for rating and ranking schools, and nobody will be punished or rewarded for results. Indeed, it is an explicit and emphatic OECD PISA “guideline for use” that this testing not be used in such ways. As a result, schools are reporting much greater comfort and confidence in examining their results with an eye to improvement, not self-protection and defensiveness.

to begin to absorb it all. In a third district, the academic leadership scheduled eight two-hour sessions for comprehensive inquiry into the report.

5 **Include teachers in every step.**

Including your teachers in this work is a critical part of making sure you have systemwide understanding and consensus. In many cases during the pilot, teachers commented that just reviewing some of the sample items was an effective professional learning experience. Understanding how questions like the ones in PISA and the OECD Test for Schools can lead to deeper levels of student performance is helpful and important for all education leaders, especially teachers.

Teachers are some of the best advocates for why the OECD Test for Schools can support change. They are important partners to cultivate early and often.

TIP for PRINCIPALS

One district, California's **Lucia Mar Unified School District** ([see case study](#)), explains that teacher leadership from the very beginning has been critical to the acceptance, even embrace, of the value of PISA-based testing by the faculty. "If the district leadership had done it, the teachers would have said we already have enough testing, we can't do more," then-teacher **Hillery Dixon** explained in an interview. Another principal explained that she has seen the number of teachers in her school who are deeply engaged in the data grow considerably since she adopted a more inclusive approach to studying student-testing results, including the OECD test report.

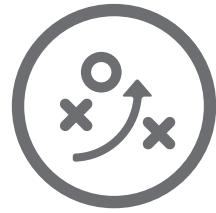
INTERNATIONAL BEST PRACTICE

In its 2011 Lessons for the US report, OECD explains that high-performing nations consistently engage and empower teachers in school accountability data collection, with the remarkable success story in Ontario being a prime example. "Rather than relying on methods of informed prescription advocating particular uses, the emphasis was placed on creating partnerships with teachers and schools to identify good practices." (p. 245)



Plan and Execute

Planning for and administrating the test is also a significant effort. Below are key tips for a successful process.



6 Establish the team and assign clear roles and responsibilities.

The checklists included in this toolkit will help you clarify roles, responsibilities and tasks. We recommend assigning one point person—in the pilot, this was often the head of Innovation/PD/Capacity Building for the district or school—who can provide day-to-day communication and management.

A [checklist](#) for the test program administrator is provided in the Additional Resources section of the toolkit.

7 Focus on the schedule, as well as student and parent buy-in.

Because the sample of students is randomly selected, it is important that the ones who are selected have parental permission and show up to take the test. It is important to select a time frame for the test that does not interfere with other high-stakes moments for students (e.g., A.P., I.B. or state testing).

Student motivation should also be considered. Think about how to encourage students and how to reward them for their participation; some schools even have a pep rally or a “Pizza for PISA” party for students.

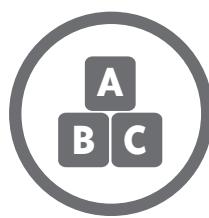
A [checklist](#) is provided in the Resources section of the toolkit for the test program administrator. See this and the sample parental permission forms and other [resources](#) in this toolkit for more details about this part of the process.

STUDENT PERSPECTIVE

How is this test different from other standardized tests?

“ My advice for other students is that this is not going to be the same as a regular test: you’re not going to be able to just know it or not know it or guess and put down your best answer. You’ll have to actually take what you do know and apply it to show that you have some idea of what you’re talking about. You have to read everything, go slower, take more time, and definitely make sure you analyze it and get your point across.”

— Student from Lucia Mar (Calif.) Unified School District



Use the Results to Build Your Team's Capacity

We will continue to repeat the main point of this toolkit: The real work begins when you receive your results. It's an exciting and energizing experience to consider how your results can be leveraged to create real improvements in your teaching and learning systems.

8 Study—REALLY STUDY—your results report.

Receiving your OECD report is a huge moment in your program of test administration. For some it feels like Christmas morning, unwrapping this comprehensive overview of your school's results. There are many common mistakes made when schools read their reports, and it is important to avoid them, understand what the key components of your data are, and ask the right questions about your school's performance. So important and extensive is this step that we've given it its own section. [See pages 18-20.](#)

9 Build assessment literacy.

The OECD report, which includes dozens of tables and graphs, employs sophisticated and sometimes unfamiliar elements in its reporting. It is important to take the time to build the foundation for improved understanding of what is revealed by the data by supporting assessment literacy for all users of this data. Principals have reported the need to explain how to read a scatterplot, how to differentiate norm groups and how to define a standard error and a confidence interval.

10 Provide data visualization

The difficult work of visualizing data is already done for you by the school report. The OECD staff is highly regarded internationally for this work, and educators are encouraged to view online videos of PISA testing leader Andreas Schleicher's way of illustrating his analysis with data visualization. ([One example: http://www.ted.com/talks/andreas_schleicher_use_data_to_build_better_schools.html](http://www.ted.com/talks/andreas_schleicher_use_data_to_build_better_schools.html))

When sharing your results with wider audiences, consider limiting the use of raw numbers or tables and instead exploit the graphs and charts provided for greater comprehension of what really matters to your constituencies, and most especially to your teachers, who will do the heavy lifting of translating data to action. Assessment coordinators and literacy coaches in various districts report making a special effort to use the graphs provided when educating faculties on their students' OECD Test for Schools performance.

11 Involve teachers in data analysis, action research and program development.

Every experienced educator knows that learning is deepened by involvement, and the same applies when promoting teacher understanding and application of PISA-based results.

INTERNATIONAL BEST PRACTICE

"Some countries, notably Shanghai-China and Finland, provide teachers with the research skills needed to enable them to improve their practice in highly disciplined ways ... methods for improving their education system rely on research performed by teachers." (PISA 2009 Lessons for the US, p. 237)



12 Use data protocols to study information.

In Fairfax County, leaders use multiple protocols when studying data: Making Predictions and Checking Assumptions; Analyzing the Data: Just the Facts; Organizing for Further Research and Integrating into Action Plans. Lucia Mar administrators and teachers are also using carefully refined protocols.

13 Take the test and align school/classroom level assessment with the PISA-based framework and assessment methodology.

Many schools and districts report that they are placing a priority on familiarizing their educators—and other constituencies—with the test itself, even asking them to answer sample questions. Fairfax County Public Schools began its eight-week study of the OECD report with an experience titled "Are You Smarter Than a 15-Year-Old?" ([FCPS OECD TFS website](#)) Other are sharing stories of papering the walls inside or outside their meeting rooms with sample questions and asking attendees to practice their own problem-solving.

These aren't just activities to engage participants; they are intended to improve the quality of classroom-level testing so that students are more familiar with, more proficient in and, ultimately, more accomplished in the kind of complex, higher-order thinking skills the PISA-based tool assesses and that college and career readiness demands.

TIP for PRINCIPALS

Pose driving questions, encourage pair/share activities, solicit wide input and promote deep study. Schools often report that they are embedding PISA data study into their PLC work, or forming educator action research groups to develop and test hypotheses for improved outcomes.

STUDENT PERSPECTIVE

“ This test was much more interesting than a regular test: all these documents are like what you'd see on a day to day basis.”

— Student from Lucia Mar (Calif.) Unified School District

TIP for TEACHERS

Some schools ask teachers to compare their classroom tests with PISA test questions. Others put the emphasis on contrasting current state-level testing with OECD testing in order to get a better sense of the value of adding it to the mix. Many district officers have explained that the PISA test questions are also far more similar to the forthcoming “next-generation” Common Core testing, and thus provide models for better student preparation for those high-stakes exams arriving in 2015.

INTERNATIONAL BEST PRACTICE

These practices are similarly aligned with the practices in the best-performing nations. From the PISA 2011 Lessons for the US report: “Examinations in most (high-performing) countries rely little, if at all, on multiple choice computer-scored tests, which educators in those countries believe cannot properly measure higher-order thinking skills. In some countries, when the exams are over, newspapers publish many of the exam questions, and publish examples of answers that earned top grades. In this way, students, parents and teachers alike all learn what is considered to be top-quality student work.” (p. 234)



Act to Improve

Effective implementation of the OECD testing for improved student outcomes requires action to improve teaching and learning.



Because every school’s results are unique, it is impossible to list a common set of action steps that all leaders should follow. Schools and districts should consider the guidelines and examples below when moving from report to action. Please also refer to the Essential Questions and other checklists later in this toolkit, as well as in the [appendix](#), for more resources in this area.

14

Study international practices in high-performing PISA nations.

Don’t feel limited to the report provided, however; the OECD website includes many highly detailed, free reports for further research. Educators might also consider books such as “Finnish Lessons” by Pasi Sahlberg, “The Smartest Kids in the World” by Amanda Ripley and “The Allure of Order” by Jal Mehta for more information about comparative international practices. (See the Additional Resources section for more information.)

INTERNATIONAL BEST PRACTICE

It is not enough to know how your student performances compare internationally; becoming a globally competitive school demands you seek out understanding of how your school practices compare to those of the highest-performing nations. Developing rich insights from international benchmarking is itself a mark of high-achieving systems. Teams and committees can use their report, which includes many boxed/shaded sections reporting on practices in Shanghai, Hong Kong, Finland, Ontario and elsewhere, to determine how their educational initiatives align. Lucia Mar Unified School District (Calif.) has prepared a comprehensive PowerPoint for its community demonstrating how it is applying the best practices of Shanghai, for instance, to guide improvement programs. (OECD TFS Sample Report, Interview)



15 Consider policies and practices identified as having highest impact on improved student outcomes on PISA testing.

This is one step beyond studying practices in high-performing nations; this is taking guidance from the OECD researchers on what practices they've determined from their aggregated testing have the greatest impact. Various OECD reports can be used to understand such practices, including "Lessons for the US" documents (2011 and 2013) and the 2013 "PISA 2012 Results: What Makes Schools Successful?"

16 Focus on departmental data analysis and responsive action.

The OECD Test for Schools reports student proficiency in three domains: reading, math and science. Many schools and districts are finding that the PISA-based testing data provided is especially well suited for coordinated departmental action. Department chairs are assuming new responsibilities for assessing the effectiveness of their disciplines and collaborating with their colleagues in other schools across their district or region to compare results and identify opportunities for improvement.

Reading has been the focus in Fairfax County (Va.). After connecting the dots between student achievement and the student survey, English departments across the district are implementing new initiatives in reading for pleasure and reading strategies. In the North Star Academy Charter School of Newark (N.J.), attention has centered on science. After noting that its graduates were not pursuing STEM in the numbers desired, and noting that its OECD Test for Schools science results were less than hoped for, teachers studied the student survey data and found a problematic lack of instrumental motivation for science. As a result, science teachers are advancing multiple programs to provide students more exposure to, and even immersion in, scientific laboratory research and internships.

Mathematical problem-solving is a priority for the educators in the Lucia Mar Unified School District, and the mathematics department is drawing upon OECD test data as benchmarks and for making goals for student

improvement. The department is also taking a particular interest in the form of PISA-based mathematics unit questions, and working to replicate them in classroom assessments and instruction.

17 Integrate into school improvement plans and align with other initiatives.

Every school already has multiple ongoing initiatives and school-improvement planning processes; every educational leader already knows that the more synergy that can be created among them, the better. In Fairfax County Public Schools (Va.), they've determined that critical thinking and critical reading are multiyear district priorities for student learning, and they are carefully integrating into the existing program not just the data but also the assessment techniques and international best practices from the OECD Test for Schools pilot.

18 Elevate middle school leaders as action partners.

OECD testing is set internationally for students at age 15. As every high school principal knows, most 15-year-olds have not been in high school very long. PISA and the school-level OECD test results not only exclusively inform about the educational practices of the high schools where it is administered, but also about the preparation in middle school and even elementary grades.

Accordingly, it is essential to include in study, deliberation and action formation/implementation the school leaders and faculty members of the middle and elementary schools that feed into the high school where the test has been given and which receives the results.

19 Establish action-oriented communities of practice.

Many school-level leaders reported the excitement and insights they derived when first sitting with their colleagues from similar schools to compare results and discuss potential future actions. Often, the results became most meaningful to them when they could see how their students performed on the different domains and topics, including student self-efficacy and teacher-student relations, in comparison to students in similar schools.

This happens best in an environment of trust and mutual support, but a little competition doesn't hurt: Oakton High School (Va.) Principal John Banbury says that he jumped at the chance to participate because he loves to put his students up against others in similar schools and see how they do on the academic assessment just as much as they do on the gridiron or hardwood.

This is true for all kinds of schools: Mount Vernon High School (Va.), which has a less affluent socioeconomic population than most schools in its district, was excited to participate in order to find socioeconomically comparable schools around the country with whom results can be shared and insights gleaned.

These communities of practice can occur at multiple levels and shouldn't be limited to superintendents and principals. One idea emerging in Fairfax County is studying OECD test results in countywide meetings of academic department heads, where the science chairs, for instance, could collaborate to examine their discipline's results. In Herricks, Superintendent Bierwirth says he can't wait to send his English department chair to whatever school in his region bests him in that domain to discover what it does differently.

TIP for PRINCIPALS

At **Chantilly High (Va.)**, the principal has spent considerable time meeting with her “pyramid” principals, showing them the report, explaining its format and facilitating meaningful work in response to its implications.

In each case, there is a focus on analysis and reflection—but in ways that lead to practical changes for all leaders in the system: central office leaders, principals, department heads, teachers, specialists and students.

20 Be choosy and hold yourself accountable.

Nearly everything that has come before this action is about setting the stage for improvement in student outcomes. But this last step is most essential: Pick an area for improvement—and be choosy and specific. Make a meaningful instructional change informed by your study, which you predict will improve your intended outcomes. Then hold yourself accountable, using subsequent years’ OECD test data and other sources. Progress? Continue. Not so much progress? Make a new plan, implement and assess success. Onward!

TIP for SUPERINTENDENTS

In Long Island’s Nassau County, PISA pioneer Superintendent **Jack Bierwirth** of the Herricks Public Schools district knows his district’s participation will be far less meaningful if done in isolation. Accordingly, he has networked vigorously with his colleagues in EdLeader21 as well as in his neighboring districts to encourage their joint participation.

“The discussions coming out of the OECD testing experience can be incredibly fun. They give educators a chance to work collaboratively on really meaningful instructional issues, something we get to do all too infrequently.”

— Jack Bierwirth, Superintendent, Herricks Public Schools

Interpreting Your School Results

The OECD Test for Schools report provided to participating schools is extraordinarily comprehensive and detailed. It can be challenging to determine where to begin. This section provides guidance, based on EdLeader21 member experiences in the pilot, on how to best get started with understanding a school-level report.

We offer four guidelines in this section:

- 1 | Avoid Common Mistakes**
- 2 | Organize the Data**
- 3 | Identify the Most Compelling Data**
- 4 | Use Guiding Questions**

Avoid Common Mistakes

In the following pages, guidance is offered for the best ways to study and understand an OECD Test for Schools report. But before you jump in, it is important that you note the most common mistakes when studying a school's results.



We've compiled some of the most common (and tempting) "dead ends" that can occur when you begin analyzing your results. These courses of action can prevent or hamper your team's ability to develop useful insights about school and district improvement for the 4Cs.

- 1 Looking only at, or overly emphasizing, your school's average performance.**

Your school's mean score is a natural starting place and it occupies a prominent place at the beginning of the report. It allows for immediate international and national benchmarking. But OECD's purpose is to inform schools on so much more, and it would be a shame—and

Figure A ■ Your school's mean performance in reading, mathematics and science

READING		MATHEMATICS		SCIENCE	
Mean performance score	S.E.	Mean performance score	S.E.	Mean performance score	S.E.
508	14.3	522	13.8	520	12.8

S.E.: Standard error.

How Your School Compares Internationally: OECD for Schools Pilot Trial Sample Report, © 2012, Organisation for Economic Co-operation and Development (OECD), Paris.

a disservice to the exercise—to stop here. There is far more value to be gained from the details of student performance and the factors associated with them that are described later in the report in much more detail.

2 Managing an OECD testing program without close collaboration with the district leadership.

OECD has designed this program in a way that affirms the autonomy of the individual school. School administrators could choose to run this program without the close collaboration of district leaders, but we believe that would prove limiting. Schools participating in the pilot report finding great value in having district support for testing administration, resources for report analysis, collaboration opportunities for comparing results with other schools in the district, and time and resources for using OECD test results for capacity-building among their faculty members.

3 Stopping after self-congratulation for good performance.

The OECD test isn't a beauty pageant to declare who's the fairest of them all. It is a vehicle engineered to provide all schools and districts—even the highest-performing ones—valuable information for improvement because we believe the ultimate determinant of a school's excellence is the depth of its commitment to continuous improvement.

4 Misunderstanding to whom your students are being compared in the report.

Many different comparison sets are provided to help you understand the performance of your students, and it is important to carefully identify the norm group for each graph and table.

Note that national and international norms are composed of carefully assembled, nationally representative, cross-section samplings of students who participated in the most recent administration of the international PISA study. They are not defined by the particular set of students participating in the OECD Test for Schools, which comes from a set of self-selected schools and would probably not be accurately representative. It is important to be familiar with and understand the national-level results of PISA in order to better put your school's results in context.

5

Looking only at the numbers and charts and skipping proficiency scales and case studies.

Figure 2.4 ■ The six levels of reading proficiency in PISA

Level	Lower score limit on PISA scale	What students can do at this level of proficiency
6	698	Students at Proficiency Level 6 are highly skilled readers. They can conduct fine-grained analyses of texts, which require detailed comprehension of both explicit information and unstated implications, and they can reflect on and evaluate what they read at a more general level. Students at this level have successfully completed most of the tasks presented to them in the reading assessment, demonstrating that they are capable of dealing with many different types of reading material. Hence, they are diversified readers who can assimilate information from unfamiliar content areas presented in atypical formats, as well as being able to engage with more familiar content with typical structures and text features. Another characteristic of the most highly developed readers is that they can overcome preconceptions in the face of new information, even when that information is contrary to expectations. Students at this level are capable of recognising what is provided in a text, both conspicuous and more subtle information, while being able to apply a critical perspective to it, drawing on sophisticated understanding beyond the text.

How Your School Compares Internationally: OECD for Schools Pilot Sample report, © 2012, Organisation for Economic Co-operation and Development (OECD), Paris.

There is more value to this report than just the numbers and graphs. The proficiency scales for each academic domain have been built by the PISA designers over the past 15 years. They provide a detailed and richly descriptive rubric for what does and doesn't constitute effective literacy in reading, math and science in the 21st century.

These sections alone are worth examining with academic leadership teams in schools and districts, perhaps even before administering the OECD test. Schools are also reporting that they find the boxed and shaded case studies describing educational practices in high-performing nations, fascinating and applicable to their work.

6

Discounting the value of the student survey data.

In addition to the performance results in the three academic domains, schools are provided results of the student survey on topics such as reading preferences, classroom discipline, teacher-student relations and self-efficacy, which many districts find illuminating and especially pertinent to reflecting upon teaching practices.

7

Thinking you can study it and digest it quickly or alone.

These reports are not designed for immediate consumption. School administrators report that it takes concentrated and extended attention to mine the most important nuggets, and that the best learning comes through collaborative review with teams composed of both teachers and administrators.

Organize the Data: Three Recommended Buckets

Schools receive a large amount of data in the report about their students' performance, so much that it can seem overwhelming.



One way to simplify your analysis is to organize student performance results into three categories:

- 1 | Domains, competencies and attitudes that are being measured and reported on**
- 2 | Details of information about performance**
- 3 | The norm groups with which your students are compared**

With this framework, you can decide what your priorities are for preliminary review and what might be of greater or lesser interest for further study. Here is a table that provides examples of what each of these categories represents:

DOMAINS	DETAILS OF PERFORMANCE	COMPARISON SETS
Reading	Mean performance	U.S./national
Math	Proficiency scales below level 1 to 6	U.S. socioeconomic
Science	Distribution of proficiencies	U.S. gender
Student Survey: Reading Type, Disciplinary climate, Teacher-Student Relations, Student Motivation Self-Efficacy	(Note: there is no reporting of individual student performance in the OECD Test for Schools. This is intended for systemic analysis of school performance, not for guiding individual student improvement.)	U.S. public vs. private Specific high- and low-performing countries International/OECD nations

STUDENT PERSPECTIVE

“It is a really good test for schools to use because it really separates the kids who just study the facts from those who can really apply the knowledge.”

— Student from Lucia Mar (Calif.) Unified School District

Identify Compelling Data Points



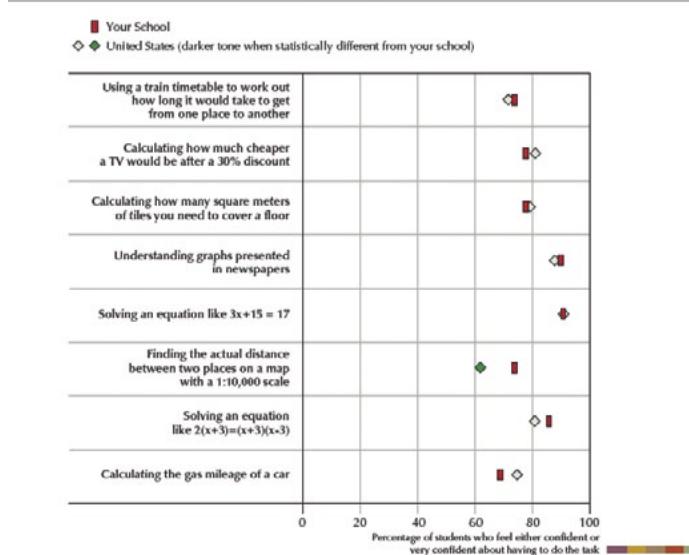
While the OECD Test for Schools report contains many areas of information, pilot participants recommend the following as being the most useful for their school and district improvement work.

- **Your school's mean performance in the three domains: reading, mathematics and science.**
- **Levels of proficiency of students at your school**
- **Reader profiles at your school and in the U.S.**
- **Teacher-student relations at your school**
- **Students' instrumental motivation in math and science**
- **Students' self-efficacy in math and science**

It is also important to look beyond the mean of student performance. The distribution of proficiency is far more critical to your work for improving student outcomes. Use these sections of the report to study more closely this distribution.

- **The six levels of proficiency described for each domain: reading, mathematics and science**
- **How proficient are your students, nationally, in each domain?**
- **How does the distribution of your students compare with student performance, nationally and internationally, in each domain?**

Figure 3.9 ■ Students' self-efficacy in mathematics at your school and in the United States in PISA 2003





Use Guiding Questions

As you reflect on your results, the most essential question is not “How did my school or district rank?” It is:

“What can we learn from this report to improve student-learning outcomes?”

This has been the practice being emphasized among EdLeader21 OECD TFS pilot participants. They recognize that PISA and OECD testing is designed to support improvement of student learning, not to serve as a summative report card, rating or ranking.

In Fairfax County, Assistant Superintendent Terri Breeden said in an interview that “It became of the utmost importance to communicate and underscore to all our participating schools there’d be no punishment. The superintendent gave us permission to relax about results; that it was about learning. We took the approach that we’re not sure how we’ll do, but (we will) share and tell you what we’re doing in an environment of low risk and learning.”

As you read and review your results, consider these guiding questions, which we have found most useful:

8 What proportion of your students are high-performing, proficient or below proficiency?

Perhaps the single-most important mistake to avoid in reviewing your report is to put too much emphasis on mean performance and not enough on the distribution of performance. Take the time to deeply analyze the proficiency levels of your students. These are arguably the most important three tables in the report.

Successful schools don’t just log above-average mean performances: they are elevating a healthy portion of their students to high proficiency and leaving very few, if any, children behind.

One district tells us that “the things that helped us the most—looking at levels of reading, math, science, really breaking them out—was how few children we had performing at the highest levels. Our kids are really good at the state achievement tests and they do well at the middle levels of proficiency. But when you look at the top levels, very few kids are operating at that level of thinking and critical thinking skills.”

9 Which results affirm expectations; which results surprise?

One district reports that it sought to triangulate student OECD test performance data with the PSAT so it could get a broader and more balanced view of how district students were doing.

Another district found that the academic domain performances “fell in line with scores we have for state tests and SATs.” But what it found most surprising, and thus most useful for further action, were the student survey results.

Working in groups with these data, assessment leaders can choose certain categories (reading, science, self-efficacy), ask participants to speculate on how well their students will perform in certain norm groups, and then compare actual results to expectations. The resulting gaps offer fruitful areas for exploration.

10 How do you compare socioeconomically?

The OECD test is committed to examining and reporting on the critical performance differentiation resulting from socioeconomic differences. As much as you should be interested in your average performance and its range, be sure to consider the influence of the makeup of your student body.

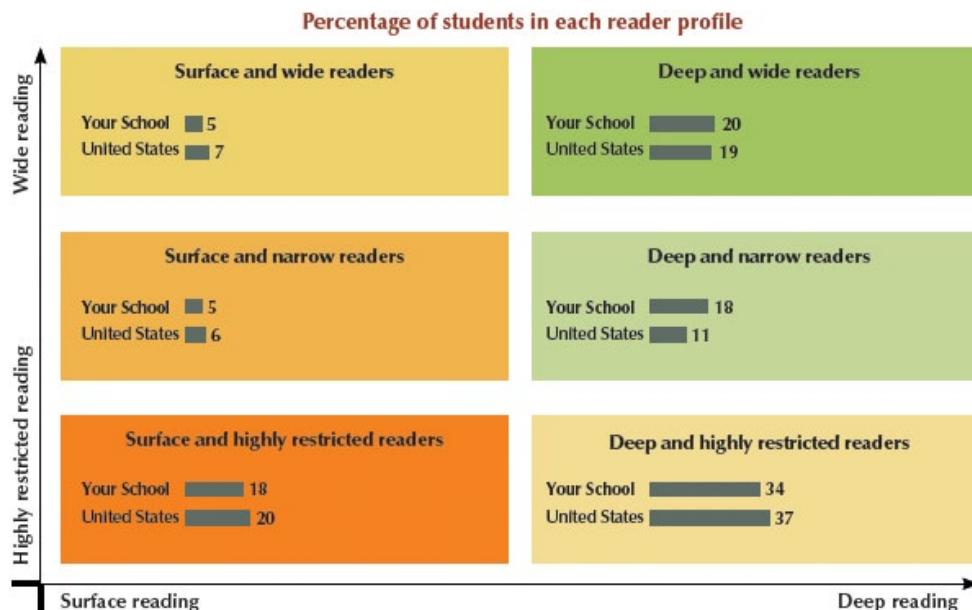
When examining a socioeconomic comparison scatterplot, consider how your red dot compares to other bubbles in the vertical green bar and whether it is above or below the highly significant diagonal line: Are you exceeding the norm of your socioeconomic peers or are you underperforming?

One district reports how important it became to factor this data into the findings: “Although our students performed below the international mean, we were a standard deviation to the left on the socioeconomic norms, and performed significantly higher than other schools with similar student bodies.”

11 What kind of readers are your students?

Rich insights can be developed about what kind of readers your students are, how their reading practices compare to other students nationally and internationally, and the difference that reading preferences and strategies make in reading performance.

Figure 3.6 ■ Reader profiles at your school and in the United States in PISA 2009



How Your School Compares Internationally: OECD Test for Schools Pilot Trial Sample Report, © 2012, Organisation for Economic Co-operation and Development (OECD), Paris.

One district leader explains that “We were stumped on how to raise our students’ critically important reading scores—their reading wasn’t as high as on math—and the additional information (in) the reader profile reports provided us an extremely welcome fresh approach.”

12 Are your students appropriately motivated and confident in their own abilities—and what can you do about it?

Of great value for student success is that they have an understanding of the purpose and value of what they are studying, and that they have the mindset that they can do this. The report provides useful data about student self-reported instrumental motivation and sense of self-efficacy. This is a useful place to spend time, deeply understand the data and take it to your educators.

Instrumental motivation is defined as being “the sense of how important students see mathematics or science in their own life as they move on to further studies and the labor market. Instrumental motivation has been found to be an important predictor for course selection, career choice and job performance.”

Self-efficacy is defined as students’ “confidence in their ability to solve tasks related to mathematics or science. ... Self-efficacy is one of the strongest predictors of their performance, explaining on average 23 percent of the variance in mathematics performance across OECD countries.”

One district leader noted that in regard to “confidence and self-efficacy, we had an achievement gap; that our lowest-level kids scored low on achievement AND had a low confidence gap was significant. When we noticed that, it helped us focus on serving kids in the middle, not the high fliers, but the middle range—this was a really useful data point.”

13 What country case studies are most relevant and applicable to inform your improvements in practice?

The report includes boxed essays sharing research about practices in high-performing nations, including Korea, Canada, Shanghai-China, Singapore and Finland. Says one district leader: “We really enjoyed seeing what students can do with math, reading, science in other countries and the types of thinking and problem-solving they are doing. We definitely learned from the best practice schools are doing.”

Educators can also find excellent videos about exemplary international practices—suitable for screening with school boards and committees, leaders and administrators, and faculties—at <http://www.pearsonfoundation.org/oecd/>.

One district, when sharing OECD test results with teachers, declared its commitment to improved student performance in the areas measured by the test and carefully tied instructional initiatives to the practices of high-performing entities such as Shanghai. In another district, academic leaders were invited to consider faculty collaboration practices in high-performing Asian nations and to explore the “so what” and “now what” implications for district planning.

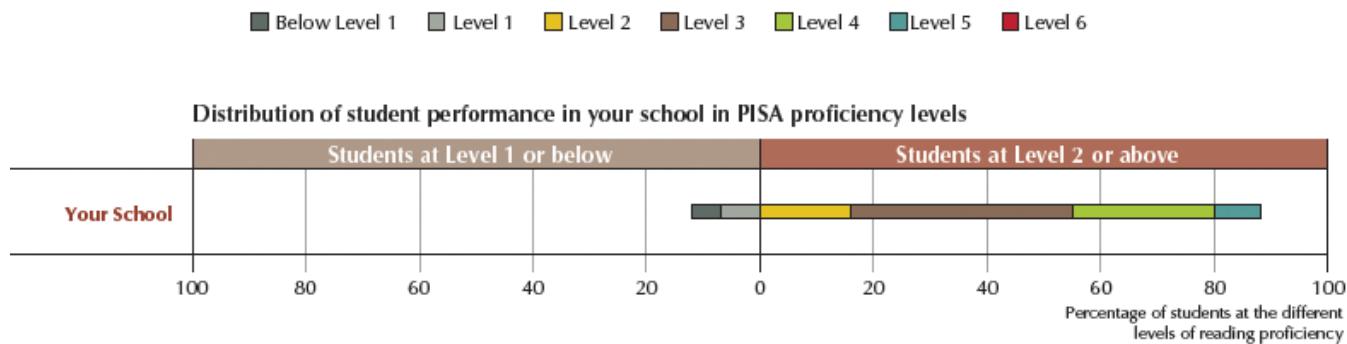
14

How strong is your performance in developing the deeper learning outcomes?

As we've seen, the OECD test assesses student critical thinking, written communication and the ability to transfer previously accumulated skills and knowledge to novel problems (a core component of deeper learning) better than any other similar test or assessment. Although the 4Cs and particular skills/proficiencies are not independently reported upon in the data, there are many ways you can use the report to measure your progress.

- Are you above or below the diagonal line in each academic domain when comparing your school results to similar U.S. schools nationally, similar being defined socio-economically?
- Deeper learning is especially demanded for the highest levels of proficiency, as can be seen when reading the proficiency level descriptors. Take time to evaluate carefully: Do you have a greater or lesser percentage of students performing at the top three (four, five and six) proficiency levels than other schools nationally and internationally? This can be a key place to focus your efforts and set your benchmarks for improvement in a deeper learning initiative.
- Student self-direction—composed, in part, of reading preferences and strategies, motivation and self-efficacy—is generally an invaluable attribute for 21st-century learners. Compare your students to others in each of these criteria.

Figure 5.5 ▪ How the distribution of student performance at your school compares with student performance in selected countries and economies in reading in PISA 2009



Case Studies

This section of school and district case studies describes some of the lessons learned from districts and schools that participated in the OECD Test for Schools pilot. Information for case studies was gathered through interviews on site (see the Acknowledgements section for interview sources), from material posted on school and district websites, and from documents provided by the school or district.

- [**Teacher Leadership: Lucia Mar Unified School District**](#)
- [**Equity: Chantilly High School**](#)
- [**Leveraging Data: Mount Vernon High School**](#)
- [**Competition: Oakton High School**](#)
- [**Treasure-Trove: North Star Academy**](#)
- [**21st-Century Skills and Global Data: Herricks Public Schools**](#)

“

I wanted to be able to say once and for all we're preparing kids to be the best in the world.”

— John Banbury, Principal, Oakton High School

CASE STUDY #1: Teacher Leadership: Lucia Mar Unified School District

Lucia Mar Unified School District is located in Arroyo Grande, California and serves a student population of approximately 10,500.

Teacher leadership has been the secret to the success of OECD test implementation in one California district, and the fruitful collaboration occurring there is advancing its progress in becoming a model for 21st-century deeper learning.

Lucia Mar Unified School District Superintendent Jim Hogeboom had intended to attend the 2011 annual meeting of EdLeader21, seeking new tools and techniques for assessing the 4Cs. Events intervened and he couldn't travel that week to Dallas for the meeting. But rather than have the district drop out altogether, Hogeboom decided to send two teachers—and what began as an accident became an opportunity.

When the two high school teachers learned about the new OECD Test for Schools, and in particular its focus on critical thinking and problem-solving, they jumped at the chance to participate. Immediately upon their return from the conference, they championed it to their colleagues, explaining that it was an obvious fit with their district's learning goals.

That the drivers of this new assessment were faculty members made a big difference. "If the district leadership had done it, the teachers would have said we already have enough testing, we can't do it more," then-teacher Hillary Dixon explained. Superintendent Hogeboom agreed that it was crucial to have teachers say this is the right thing to do. "Teacher leadership has been so important to the success of our PISA-based program."

He said the deepest resonance for staff came when the test was linked to the new Common Core State Standards and the related assessments. "The PISA reading literacy piece was only of limited value because many of our current literacy assessments ask for similar things. But the math and science units really get at areas of Common Core that are new to our teachers, asking students to use content information in an applied way and also do writing, problem-solving and explaining their answers. Reviewing the report has been really meaningful for our science and math teachers."

The student survey data was also found to be especially useful. Said Dixon: "We shared with everybody and found much of value. One was the positive findings, such as where students reported that their math classrooms had high levels of focus. That was great to see; that was about focus on learning objectives. But on confidence and self-efficacy, we had an achievement gap: that the lowest-level kids scored low on achievement AND had low-confidence gap was significant. When we noticed that, it helped our staff development toward really robust conversation about serving kids in the middle, not the high fliers. This was a really useful data point."

Connecting PISA assessment questions to local testing has become an important area of development for the district. "We did a lot of work after analyzing data looking at released questions and considering how we could model our deeper-learning assessment on those questions, and all of our high schools are now starting to capitalize on this model: This is what a GOOD standardized question looks like. Teachers are now using this inspiration to ask themselves how they can write their own parallel questions. PISA has given us a benchmark for sophomores on critical thinking, and we are working with teachers to develop the assessments and use these excellent rubrics for assessing and teaching the critical thinking that is so important for their future."

CASE STUDY #2: Equity: Chantilly High School

Chantilly High School is in the district of Fairfax County Public Schools which is located in Fairfax County, Virginia and serves a student population of approximately 184,625.

Promoting equity of academic achievement is a high priority for the new principal of Chantilly High School, Teresa Johnson, who finds the OECD Test for Schools valuable for this mission.

She is deeply committed to all students and wants to make her mark by ensuring that no student is overlooked in developing the skills necessary for success. “Critical reading and critical thinking is our focus—and our OECD report confirmed our students weren’t reading widely or deeply enough to develop these skills. That 10 percent of our kids were not proficient in reading pushed me to do more! These data are prompting us to collect more information on our underperforming kids, such as an additional reading test, the SRI, so we help them more.”

She was also surprised that boys did better than girls in the PISA science domain despite recent efforts to involve more girls in STEM, even providing a girls-only engineering course. This revelation has sparked her to broaden her analysis and collect more data on gender in other areas, such as course enrollment. “We took the data and communicated it back to the middle schools and in our pyramid, and shared the data with everyone. We are not going to let up on advancing equity for all our students.”

She explains that it was especially useful comparing results to a nearby school, which is similar socioeconomically and yet doing a bit better. “I’d like to see more, and study closely, the data of very similar schools. It would be so valuable to send our English chair to that school, where the demographics are the same and the curriculum is the same and they are doing better, and ask, ‘What are you doing differently?’”

Johnson is excited about the multiple instructional initiatives that have been launched or advanced by the use of her OECD test results, and is moving forward to strengthen teacher-student relationships, “academic conversations” and pleasure reading for students. “We very much want to do it again. This supported what I think but I didn’t have the data to prove it. We were doing fine on reading for our state tests (SOLs) and SAT, but we knew there was more opportunity to do better—particularly to close the gaps—and this confirmed it.”

She says she can’t wait for the second report: “I’ll read it and read it and read it, and take notes. Next time I’ll present results to teachers not in a whole faculty meeting but in small groups so I can have even greater impact on teacher practice.”

CASE STUDY #3: Leveraging Data: Mount Vernon High School

Mount Vernon High School is in the district of Fairfax County Public Schools which is located in Fairfax County, Virginia and serves a student population of approximately 184,625.

“I love data,” Mount Vernon Principal Nardos King says, and “I love this OECD test data. It is unbiased and gives me the solid information I can use to make a difference for kids. We had the largest number of participating students of any regional pilot participant, and we allowed no opting out. We want data and we want to make good decisions based on good data.”

Her enthusiasm for data and benchmarking is infectious—her staff is catching on, too. Literacy Resource Teacher Monica Brown and others are increasingly excited about data, asking for more and more of it to support their instructional improvement efforts.

Deciding to participate wasn’t without its drawbacks. Mount Vernon is not an especially high-performing school. It is usually among the lowest in its district and sometimes gets tough feedback about its scores. Why, in that context, would the school welcome more testing?

“This is worth doing nonetheless,” King says. “Because it is a global test, Mount Vernon will get back data on how we’re doing compared to schools like us, demographically, across the U.S. It’ll show how we’re doing (compared to) global competitors, and demonstrating 21st-century and critical-reading skills. And it is well aligned with our IB program.”

As expected, the Mount Vernon results were below the district’s norms, “But after quickly processing the disappointment, we moved on to where do we go from here?” King says. To convey the data generated by the test, the principal and her assessment assistant generated a set of charts to display: “You’ve got to make it visual in order to discuss data meaningfully and create lasting understandings.”

Most disappointing in the data was the relationship piece. “We try so hard to cultivate relations with kids and our numbers were not great,” King says. “We realized we needed to get a better handle on this, and we are doing follow-up, wider surveys and focus groups on these topics.”

Also eye-opening were the student reading profiles: Despite being above the national average in some areas, Mount Vernon students weren’t reading nearly as widely or as deeply as educators wished. So they are responding by bringing in a wider range of books, exposing students to more reading opportunities and implementing a new schoolwide literacy initiative.

CASE STUDY #4: Competition: Oakton High School

Oakton High School is in the district of Fairfax County Public Schools which is located in Fairfax County, Virginia and serves a student population of approximately 184,625.

Competition motivates and drives Oakton Principal John Banbury, who met with researchers after having just arrived on a red-eye flight from California, where he'd been hunting with his brother, squaring off to see who could bag the biggest game.

"My first reaction on hearing about the PISA-based Test for Schools opportunity was to think: This is another way I can compete with demographically similar high schools and find out how well we do and where we stand. Now, having done it one time, I'm calling everyone I know at similar schools to persuade them to participate also, so there will be even more schools with which I can compete and, ultimately, learn from their comparable data and experiences."

It wasn't just similar U.S. schools he wanted to compete with. "I know how well we do on Virginia tests and nationally, but I don't know how we do competing on an international stage. The fear that we weren't going to do well at first didn't worry me because I knew it'd be an opportunity to do better in the future. I want to be able to say once and for all we're preparing kids to be best in the world."

Banbury is also excited to be competing with himself, in a sense. So confident is he in the OECD testing data that he has chosen to use improvement in the "relationships with teachers" part of the student survey as a core component of his own annual goals and evaluation.

CASE STUDY #5: Treasure-Trove: North Star Academy

North Star Academy is a charter school located in Newark, New Jersey that serves a student population of approximately 2,800.

“We’ve always been pretty data-centric,” North Star Academy Principal Michael Mann explains. “Indeed, we wrote the book on it,” he says, referring to the highly regarded “Driven By Data” authored by his colleague Paul Bambrick-Santoyo.

“But when we first received the PDF report of our OECD TFS pilot, several of us stayed up all night reading it. We’d never seen anything so detailed, so rich, so chock-full of stuff: a true treasure-trove. The sidebars, the annotated articles, the comparison data, all embedded in the same narrative—it was so impressive, and a more fascinating combination of information than we’d ever seen before.”

“We’d been having internal debates about our strengths and weaknesses, and everyone brought their own opinion to it. OECD, however, brought data to the picture, helping us settle our disputes and allowing us to coalesce around our improvement plans.”

It was particularly valuable to be able to line up the achievement data with the student self-perception numbers. “We’d been doing less well than we’d like on our AP science testing, and we knew our students were not going into STEM—one study we did showed only 6 percent of our graduates pursuing STEM,” Mann says. “When we saw the data on our PISA science proficiency, we knew there was something more we could do with our science education. And this lined up with the students’ self-reported affinity for science, which is so relevant for future careers in the field. This was particularly true for their instrumental motivation, which was way below where we thought it should be.”

This created a powerful epiphany for the educators at North Star. “When we saw that, we said, ‘Oh for god’s sake, this is why we’re not doing better.’ Even though we’re teaching our AP math and science courses well, our students don’t see the relevance or the connections: They are being compliant but not engaged.” The problem they’d discovered only became clearer when they were able to compare North Star to another OECD TFS pilot participant, Denver Charter Science and Math, and learned that that school had higher survey results on science motivation.

“PISA-based testing struck such a big chord for us, as if a big gong went off,” Mann says. “It allowed us to gather around and to paint a picture of what we needed to do. It is not like we only used OECD TFS, but it was so compelling in its thoroughness and it aligned with our other data. It helped us settle disputes and move to action.”

For North Star, the next step is to advocate its use in similar schools, both inside its network and in other comparable charter networks, and then to do more comparative analysis among the many users, asking questions such as, “How is it you are doing so well in that area?” and “Can we do this?”

CASE STUDY #6: 21st-Century Skills and Global Data: Herricks Public Schools

Herricks Public Schools is located in Nassau County, New York and serves a student population of approximately 4,200.

For Herricks Superintendent Jack Bierwirth, the OECD TFS is what he's been long waiting for. "It is especially well aligned with 21st-century skills; it is a quick and easy test to administer; it offers national and international comparison; there is hardly any criticism of its validity or reliability, even with its internationalism; and everyone agrees it is reasonably fair."

PISA-based testing offers the bridge for these conversations, not just within a district or a state but across states, cultures, even countries. Bierwirth foresees a not-too-distant future where these conversations can happen among schools and districts in a global context: "Let's seek international conversations, Pacific Rim, say, about OECD Test for Schools results. We have no idea of kids' ultimate capacity. We can learn from each other. We all have ideas out there worth stealing."

One question put forward by Herricks schools was whether they were as good as they thought were. "Without data, how would we know what we did well?" The district also was getting a push from immigrant families with children in its schools about how the district compared with international education. "They liked some pieces of it, like being asked to think, but still they were concerned about their kids' level of knowledge," Bierwirth says. "They wanted both: times-tables mastery and an understanding of how to apply multiplication to solve real-world problems. But we had nothing to benchmark ourselves against for the latter."

Herricks' parents loved hearing about the positive OECD testing results because it fit with parental hopes and ambitions. They appreciated that it was about students' ability to think critically, do research and communicate the research to others. "This put student learning in a global context, which was huge for them, because so many of them conduct business internationally," Bierwirth says.

“ We can learn from each other. We all have ideas out there worth stealing.”

— Jack Bierwirth, Superintendent, Herricks Public Schools

Additional Resources

In the following pages you can find a wide variety of resources to use in your OECD Test for Schools program. Feel free to copy them and amend them in any way you see fit to assist your program.

- [Sample Parent Letter](#)
- [Implicit Consent Form](#)
- [Superintendent's Checklist](#)
- [OECD Test for Schools Project Manager Checklist](#)
- [Principal's Checklist](#)
- [Teacher's Checklist](#)
- [FAQ: Administrators and Teachers](#)
- [FAQ: Parents](#)
- [For Additional Study](#)

STUDENT PERSPECTIVE

How is this test different from other standardized tests?

 The test required us to use much more critical thinking and required us to look more in-depth to the problem rather than just responding to the surface-level basic question.”

— Student from Lucia Mar (Calif.) Unified School District

Sample Parent Letter

Graciously shared by Ocean Lakes High School (Va.), this sample letter and permission form is provided for you to copy and modify for your purposes.

Dear Parent or Guardian,

This letter is to ask you to allow your child to take part in an important assessment of student learning that will allow your child's school to benchmark its performance internationally.

The assessment is called the **OECD Test for Schools (Based on PISA)** and it is a school-level assessment based on the internationally recognized Programme for International Student Assessment (PISA). It will provide school-level results that can be benchmarked against other participating schools across the country and internationally, and allow for appropriate comparisons with international results from the 2009 PISA assessment. Unlike assessments used by states for accountability purposes, the OECD Test for Schools is not intended as a high-stakes test used to judge schools' performance on a set of curricular or performance standards. It aims to provide a school-level measure of students' performance in the higher-order skills in reading, mathematical, and scientific literacy necessary for their future success and ability to compete in a global economy.

The organization responsible for the assessment is the Organization for Economic Co-operation and Development (OECD), of which the U.S. is an important member.

Your child's school has accepted an invitation to take part in the OECD Test for Schools (based on PISA) trial in 2012, and your child is one of approximately 100 to 150 students who have been invited to take part in their school. **It is important that each student selected take part in the assessment. Each time a selected student does not participate, the accuracy of the results for the school may suffer. I urge you to support this effort by allowing and encouraging your child to take part.** The enclosed Question and Answer sheet provides some background information on the assessment, explains what is involved for each student, and gives a contact phone number and email address where you can get answers to any questions you might have.

It goes without saying that all of the information collected is completely confidential. In fact, the study is required to do so by law. So, **students are never identified in any reports.**

If you are willing to allow your teenager to participate, you do not need to return the attached form. If for any reason you object to your teenager's participation, please fill out the enclosed form and return it to the Main Office by September 28. The test date will be Thursday, October 4, at 7:15 a.m. Students will miss their 1A and 2A classes.

Thank you for taking the time to think about this study. If you should have any questions, feel free to reach out to the contact persons indicated in these materials.

Sincerely,

Cheryl Askew, Principal

Implicit Consent Form

Below is the parent permission form shared by OECD.

OECD TEST FOR SCHOOLS TRIAL IN THE U.S. IN 2012 PARENT PERMISSION FORM

Your child's school has accepted an invitation to take part in the **OECD Test for Schools** trial in 2012, and your child is one of approximately 100 to 150 students who have been invited to take part in their school.

The assessment is a school-level assessment based on the internationally recognized Program for International Student Assessment (PISA). The OECD Test for Schools (based on PISA) will provide school-level results that can be benchmarked against other participating schools across the country and internationally, and allow for appropriate comparisons with international results from the 2009 PISA assessment. Unlike assessments used by states for accountability purposes, the OECD Test for Schools is not intended as a high-stakes test used to judge schools' performance on a set of curricular or performance standards. It aims to provide a school-level measure of students' performance in the higher-order skills in reading, mathematical, and scientific literacy necessary for their future success and ability to compete in a global economy.

The organization responsible for the assessment is the Organization for Economic Co-operation and Development (OECD), of which the U.S. is an important member.

IF YOU GRANT YOUR PERMISSION FOR YOUR TEENAGER TO PARTICIPATE IN THE ASSESSMENT, YOU DO NOT NEED TO RETURN THIS FORM.

IF YOU DO NOT CONSENT TO YOUR CHILD'S PARTICIPATION IN THE PISA-BASED TEST FOR SCHOOLS, PLEASE RETURN THIS FORM TO YOUR TEENAGER'S SCHOOL AS SOON AS POSSIBLE.

I DO NOT GRANT PERMISSION for my child, _____, to participate in the PISA-BASED TEST FOR SCHOOLS TRIAL on October 4, 2012.

(Signature of parent or guardian)

Date of signature: _____ / _____ / _____

(_____)

Phone Number

PLEASE PRINT:

Student name:

School Name:

Superintendent's Checklist

Based on the experiences of EdLeader21 members who piloted the test, this checklist details the most recommended “to do’s” superintendents should consider when implementing OECD Test for Schools.

GETTING STARTED WITH OECD TESTING

- Take time to ensure you understand the PISA assessment framework, the student surveys included in the OECD test for schools, and the relationship of both to 21st-century skills and your district’s educational goals. ([See Appendix for More Information, p. 49–58](#))
- Familiarize yourself with the OECD Test for Schools guidelines. They are available here (www.tinyurl.com/OECD-Test-Guidelines) and key components are summarized in FAQ #4 ([p. 41](#))
- Convey to all participants that the OECD test is for formative assessment and continuous improvement and NOT for accountability or high-stakes evaluation. (See Step 3)
- Build and assemble an OECD test team, including high school principals, assessment officers in the district and faculty leaders. (See Step 2)
- Promote wide participation, extending to most or all of the high schools in your district, in the OECD Test for Schools administration.
- Create a communication plan and provide strong district-level communication about the purpose and value of the OECD testing to school boards, parents, community members and local media.
- Support the principals in the work of administering the test.

USING THE OECD REPORT OF YOUR RESULTS TO IMPROVE LEARNING OUTCOMES

- Promote strong and wide professional learning in assessment literacy and assist school-level staff in studying the document and interpreting the results. (See Steps 9–12)
- Provide opportunities and resources for principals, assessment coordinators, department heads and teachers from participating schools to meet together to compare results and consider implications. (See Steps 16–18)
- Seek opportunities to partner with other districts and superintendents to form communities of practice in reviewing results, comparing performance and considering implications for practice. (See Step 19)

OECD Test for Schools Project Manager Checklist

Based on the experiences of EdLeader21 members who piloted the test, this checklist details the most recommended “to do’s” for the person assigned with managing the day-to-day oversight of OECD Test for Schools for your district or school.

- Familiarize yourself with the OECD Test for Schools guidelines. They are available here (www.tinyurl.com/OECD-Test-Guidelines) and key components are summarized in this report.
- Work to promote effective communication and collaboration between district and school officials. (See Step 2)
- Select the best time of the school year for the test. January and February are most often recommended by pilot participants.
- Consider “pumping up” your student body and school community: Use assemblies, pep rallies, student leadership communication, inspirational videos, social media cheerleading and hashtags (e.g., #BeatFinland).
- Consider holding “Are you smarter than a top global 15-year-old?” or something similar as competitions with sample PISA questions to engage your student body.
- Work with teachers to establish, clarify and communicate effectively that students participating in the test will not miss critical class content and will bear no negative repercussions.
- Meet in advance with test-taking students to help them understand the value of the test for them and their schoolmates, convey that they will experience no repercussions academically, ensure that they know what to expect, ask for their support and appeal to their competitive spirit.
- Show students that you appreciate their participation: In some schools they call this “Pizza for PISA.”
- Make a personal appearance as a school leader welcoming students who are taking the test.
- Close the loop: In the months after test administration, circle back and help your community understand both what was learned from the OECD test and, even more important, what is being done with what students learned to improve their outcomes. Doing so will prime the pump for greater investment and enthusiasm for future administrations.

Principal's Checklist

Based on the experiences of EdLeader21 members who piloted the test, this checklist details the most recommended “to do’s” for principals who are implementing OECD Test for Schools.

BEFORE ADMINISTERING THE ASSESSMENT

- Understand what PISA assesses and what data it provides (and doesn't provide) at the outset.
(See Appendix, p. 49-58)
- Ensure appropriate coordination with district leadership. (See Step 2)
- Promote wide participation among the schools in your district and, if possible, promote participation by similar schools outside your district.
- Communicate clearly to teachers, parents and students the value and purpose of OECD test participation.
(See Step 1)
- Select, as much as it is possible, a date for test administration when there is relatively low pressure on students, and reduce the pressure on participating students about “missing out” on regular class.
- On the day of the test, greet participating students, explain to them the reasons for participation and consider rewarding them for their effort.

USING THE OECD REPORT OF YOUR RESULTS TO IMPROVE LEARNING OUTCOMES

- Study the results thoroughly in collaboration with other administrators and teachers. (See Steps 8–11)
- Provide results to faculty in various formats and forums, and promote assessment literacy and data visualization (graphs, not tables) for stronger comprehension of student performance. (See Steps 9–11)
- Align OECD test data with other school data sets and embed PISA-based data from the reports in ongoing school improvement efforts. (See Steps 15–19)
- Use OECD test results as a springboard to determine topics of student performance and perceptions for which more detailed data is desired. (See Step 17)
- Promote using OECD test data in school-level action research and Professional Learning Community (PLC) study group work. (See Steps 11–12)
- Familiarize teachers with released sample PISA questions and encourage assessment proficiency growth by comparing classroom assessments to PISA questions and by developing more PISA-like testing. (See Step 13)

Teacher's Checklist

Based on the experiences of EdLeader21 members who piloted the test, this checklist details the most recommended “to do’s” for teachers who are involved in OECD Test for Schools.

BEFORE ADMINISTERING THE ASSESSMENT

- Support the school’s test administration by promoting to students a strong understanding of the purpose and value of OECD testing.
- Ensure that it will not be too problematic for students who miss classes scheduled during the assessment time and communicate to students participating in the assessment that they will bear no negative repercussions for participating.

USING THE OECD REPORT OF YOUR RESULTS TO IMPROVE LEARNING OUTCOMES

- Study and understand how PISA defines and assesses proficiencies and “literacies” in your domain: reading, math or science.
- Consider whether additional data interpretation skills are demanded to fully appreciate the OECD test report and, as necessary, seek them out or provide them to others.
- Share with students, as appropriate, the results of the OECD student surveys and check for confirmation and more information.
- Collaborate with other teachers in your school and with same-subject teachers in other schools participating in the OECD test to examine student performance data in your domain and develop explanatory theories.
(See Steps 11, 12 and 16)
- Identify key gaps in student proficiencies, align them with instructional strategies and determine opportunities for improved instructional practice. (See Steps 19–20)
- Study PISA sample questions and identify key elements of PISA assessment, compare it to classroom testing, and consider opportunities to improve or more closely align classroom testing to PISA methodology. (See Step 13)

Frequently Asked Questions: Administrators and Teachers

- 1 | Is OECD TFS designed and intended for schools or districts?** The OECD has made the Test for Schools product available for schools—indeed, its guidelines are clear that the data is “owned” by the school and not by any larger entity or network—and the registration process for participation is structured to enroll schools. Research for this toolkit has found that it is most effectively employed when done in concert with the district office and individual schools, and when multiple schools in a district participate together.
- 2 | How do I find out more about what is being assessed in the OECD PISA-based testing?** The OECD maintains a vast and growing library of PISA testing resources on its website, nearly all of it available for free download (<http://www.oecd.org/pisa/pisaproducts/>). OECD Test for Schools testing, while administered separately from the international PISA, follows the format and design of the main PISA. Perhaps the best starting place for evaluating what PISA assesses is the OECD document “PISA 2012 Assessment and Analytical Framework.” Readers might also find useful the Appendix in accompanying this toolkit for an introduction.
- 3 | How do I find out more about the kinds of questions asked on the OECD test?** Many schools have found it profitable to spend time studying the test questions with both teachers and students, and sometimes even with school board members and parents. The units, as they are called in the PISA test, are engaging and sometimes contain fascinating puzzles. You can find them here: www.oecd.org/pisa/pisaproducts/pisa-test-questions.htm.
- 4 | Are there guidelines and rules from OECD about how the test may be used?** Yes. You can find them specified here: www.tinyurl.com/OECD-Test-Guidelines. The following points are especially important:

“The PISA-based test for schools is intended to be used for research, benchmarking and school improvement purposes. It is not intended as a high-stakes assessment or for accountability purposes.”

“The results of the assessment, for individual schools or local multiple-school entities, should not be used for marketing or commercial purposes by the schools themselves, by third parties or by contractors.”
- 5 | How do I find out more about educational practices in high-performing PISA nations?** Many participants have reported that the boxed inserts about high-performing-nation practices provided in their school results report to be both fascinating and inspirational. The OECD and Pearson have teamed to prepare a set of videos showcasing such practices, which can be found here: <http://www.pearsonfoundation.org/oecd/>. Two volumes, for 2011 and 2013, have been published addressing this topic. Both are called “PISA Lessons for the US.” And there is an additional 2013 report titled “PISA 2012 Results: What Makes Schools Successful?” Also, three books have been published recently on this topic: Amanda Ripley’s very readable “The Smartest Kids in the World” and two more academic volumes, Jal Mehta’s “The Allure of Order” and Marc Tucker’s “Surpassing Shanghai.”

- 6 | How do I find opportunities to compare results and practices with other U.S. schools or districts participating in the OECD test?** It is hard to overstate the value of doing this. In larger and medium-size districts, such as Fairfax, Virginia Beach, Douglas County and Lucia Mar, this is already happening. In smaller districts, such as Herricks on Long Island, superintendents such as Jack Bierwirth are rallying their colleagues regionally to enroll in TFS and build local networks. Our organization, EdLeader21, provides a national network and PLC for educational leaders for this kind of work. America Achieves also provides resources on this subject.
- 7 | Are my school's results published by OECD?** No. The OECD guidelines for PISA are clear and guaranteed: A school's results are returned only to the school and they will never be released by OECD. However, your school's report may be a public record and thus publicly available on demand.
- 8 | Can schools publish their results?** After the school receives its results, it may post or publish results if it chooses. Fairfax County in Virginia has distinguished itself for its transparency in posting online all of its reports for participating schools.
- 9 | Are the test questions on OECD TFS the same as for the main PISA international test?** TFS questions have been developed based on the same assessment frameworks as the main PISA international test and have been validated by an international equating study.
- 10 | Who owns and controls the school's data—the school or the district?** Per OECD guidelines, the school owns the data.
- 11 | Are individual student results reported?** No.
- 12 | Is the OECD TFS a criterion-referenced or norm-referenced test?** The TFS can be considered a criterion-referenced test, with a consistent and stable criterion-referenced scale. This allows progress of the population as a whole from administration to administration, and meaningful longitudinal tracking of school, district or national populations in the test sample.
- 13 | How much does the OECD TFS cost?** The price for the services in 2014-15 related to the OECD Test for Schools assessment is \$11,500 per school. This information is subject to change; contact CTB/McGraw Hill for more information.
- 14 | How are schools and districts funding the cost of OECD TFS?** The Test for Schools is not inexpensive and funding continues to be a challenge for many schools and districts. Whether the districts are finding funds to make this possible or whether individual schools are paying for it out of their annual budgets seems to vary widely. Some schools are seeking grants from foundations; donating for the TFS might be particularly attractive to international companies in your region that recruit employees from other countries and want to demonstrate the quality of local education on a globally comparative basis.

- 15 | How is a school's socioeconomic status determined?** The PISA index of social, cultural and economic status is based on information provided by students about their parents' education and occupations, and their home possessions, such as a desk to use for studying and the number of books in the home.
- 16 | Which students take the test, and how does OECD test sampling work?** How can we be confident that an entire school can be effectively assessed by the performance of fewer than 100 participating students? The OECD test contractor (CTB/McGraw Hill) uses accepted statistical methods to ensure that the student sample is representative of the 15-year-olds in your school. Sampling is based on a complete list of all of the eligible 15-year-old students in a school, and information is sought about whether the students on the list are enrolled in special education or have some form of special characteristic (e.g. special education/needs students). The process of picking students for the sample is random but stratified to ensure that gender, for example, is equally represented. Out of the full list of students, some students may be excluded because of special circumstances, such as having received less than one year of instruction in the language of the test (in this case English). Some students may have a disability that prevents them from taking part in the assessment.
- 17 | Why doesn't OECD provide data on the performance of subgroups?** There are three main reasons. The first has to do with international comparability. Racial or ethnic breakdown is something that is country-specific, so the results or the methods would not be internationally comparable. The second has to do with the fact that, given the limited number of students taking the test, the uncertainties involved with the results would be too large for the data to be meaningful because there are likely to be very few students within some of the subgroups. Third, from a technical point of view, the sampling process at the school would have to be stratified specifically using these variables to ensure that the results would be representative.

STUDENT PERSPECTIVE

How is this test different from other standardized tests?

“This test was more difficult: you couldn't just guess but you had to actually think about it. It was a lot more interesting because you could write about what you wanted instead of looking at the choices and picking the best one.”

— Student from Lucia Mar (Calif.) Unified School District

Frequently Asked Questions: Parents

Schools may find it useful to provide parents an FAQ sheet. Feel free to use this sample for your purposes.

- 1 | What is the purpose of administering the OECD Test for Schools in my child's school?** The OECD Test for Schools is used for research, benchmarking and school improvement purposes. It is not being used as a high-stakes assessment or for accountability purposes. (Additional district/school purposes may be provided here.)
- 2 | How will the results of the testing be used?** The results will be used to determine priorities and set goals for improvement in student outcomes.
- 3 | Will I receive a report of my child's performance on the OECD Test for Schools?** No. The OECD Test for Schools does not provide individual student results, only school-level aggregated data.
- 4 | Why should my child miss class for this test?** In order for our school or district to use this test for instructional and student outcome improvement, we need a representative sampling of students to participate. We believe this test to be a highly valuable tool and we ask that students participate to make it most successful.
- 5 | How are students selected for participation?** Neither the school nor the district selects the participating students. The OECD test contractor (CTB/McGraw Hill) uses accepted statistical methods to ensure that the student sample is representative of the 15-year-olds in your school. Sampling is based on a complete list of all of the eligible 15-year-old students in a school that is provided to the contractor.
- 6 | How does OECD test sampling work?** The sampling process, which involves the full list of eligible students, is random but stratified to make sure that gender, for example, is equally represented.
- 7 | Will my child be penalized for missing regular class to take this test?** (School level administrators should answer this question.)
- 8 | How can I prepare my child for participation in the test?** No studying or other academic preparation for the test is expected or provided. Parents are encouraged to ensure that their students get a good night's sleep, eat a good breakfast and arrive at school on time for the test.
- 9 | Will the school's OECD test performance results be made public?** (School-level administrators should answer this question.)

For Additional Study

Books

Boudette, Katherine Parker, et. al. "Data Wise: A Step-by-step Guide to Using Assessment Results to Improve Teaching and Learning" and "Data Wise in Action." These are two of the best books available today on how schools and districts can use data to drive improved learning outcomes. The authors are associated with the Harvard Graduate School of Education Principal's Center.

Kay, Ken and Greenhill, Valerie. "The Leader's Guide to 21st Century Education: 7 Steps for Schools and Districts." Kay and Greenhill's book highlights the importance of district-wide transformation using tools such as OECD Test for Schools.

Mehta, Jal. "The Allure of Order: High Hopes, Dashed Expectations, and the Troubled Quest to Remake American Schooling." Although the bulk of this book is a historical review of educational reform in the U.S., the final chapter uses PISA testing information to draw lessons from high-performing nations for U.S. educational practices.

Ripley, Amanda. "The Smartest Kids in the World." This book by a Time magazine journalist looks at three high-performing nations (Finland, Poland, South Korea) through the lens of American students doing year-abroad exchanges in those countries. It also includes a useful introduction to PISA, explaining its value and purpose.

Sahlberg, Pasi. "Finnish Lessons: What Can the World Learn from Educational Change in Finland?" Written as a response to the many inquiries Finland has received since attaining PISA distinction, Education Minister Sahlberg addresses comprehensively the policies and practices of education in Finland.

Wagner, Tony. "The Global Achievement Gap." This book covers a lot of topics; one chapter addresses assessment, criticizing most current standardized testing but praising PISA.

STUDENT PERSPECTIVE

What does this test seem to measure; what skills are required?

“ You have to be able to separate information that is relevant from information which isn’t. This is the stuff you’ll actually be doing after college, in life.”

— Student from Lucia Mar (Calif.) Unified School District

Reports

OECD PISA Resources: PISA and OECD/PISA are trademarks of the Organisation for Economic Co-operation and Development (OECD).

The OECD PISA website includes dozens of different reports, which can be easily browsed and are freely available for downloads as PDFs.

Some selected reports follow:

- Lessons for the US from PISA (2011): <http://www.oecd.org/pisa/46623978.pdf>
- PISA 2009 Results: Learning to Learn: Student Engagement, Strategies and Practices, Volume III
- Lessons for the US from PISA (2013)
[http://www.oecd.org/pisa/keyfindings/PISA2012_US%20report_ebook\(eng\).pdf](http://www.oecd.org/pisa/keyfindings/PISA2012_US%20report_ebook(eng).pdf)
- Excellence through Equity: PISA Results 2012, Vol. II
<http://www.oecd.org/pisa/keyfindings/pisa-2012-results-volume-II.pdf>
- PISA 2012 Results: Ready to Learn—Students’ Engagement, Drive and Self-Beliefs, Volume III:
<http://www.oecd.org/pisa/keyfindings/pisa-2012-results-volume-III.pdf>
- PISA 2012 Results: What Makes Schools Successful?, Volume IV
<http://www.oecd.org/pisa/keyfindings/pisa-2012-results-volume-iv.htm>
- PISA 2009 Assessment Framework: <http://www.oecd.org/pisa/pisaproducts/44455820.pdf>
- PISA 2012 Assessment and Analytical Framework: Mathematics, Reading, Science, Problem-Solving and Financial Literacy
http://www.oecd.org/pisa/pisaproducts/PISA%202012%20framework%20e-book_final.pdf
- PISA Take the Test: Sample Questions from the OECD’s PISA Assessments:
<http://browse.oecdbookshop.org/oecd/pdfs/free/9809051e.pdf>

Alliance for Excellent Education: The Alliance published an excellent report on PISA, “The Deepest Learners: What PISA Can Reveal About the Learning that Matters,” written by Robert Rothman. This free 20-page report offers a good overview of what PISA assesses and its connections to deeper learning for all students.

<http://all4ed.org/reports-factsheets/the-deepest-learners-what-pisa-can-reveal-about-the-learning-that-matters/>

Websites and Organizations

OECD PISA: This is the granddaddy site of PISA, providing a portal to a huge array of resources about PISA testing that are free for downloading. <http://www.oecd.org/pisa/>

EdLeader21 OECD Test for Schools Working Group: EdLeader21 is a national professional learning community for district superintendents and heads of schools. The OECD TFS Working Group began in late 2012 and is open to any EdLeader21 member. This working group continues to collaborate around the test results and translating them into action. Many of the lessons learned from the original working group members have informed the research and writing of this report. For more information about how to join EdLeader21 see www.edleader21.com.

Fairfax County PISA resources page: Fairfax County has provided a terrific set of resources from the work it has done to educate educators and the community about the PISA TFS. This includes the full reports from all 10 high schools that participated in the pilot, suggested training activities for faculty and also a set of PowerPoints prepared for presentations to the school board, the state department of education and academic leaders. There are two sites – one focused on the 2012-2013 pilot, and one focused on the 2013-2014 implementation.

http://www.fcps.edu/pla/ost/pisa/pisa_2012_13_index.shtml

http://www.fcps.edu/pla/ost/pisa/pisa_2013_14_index.shtml

America Achieves: This site describes the value of OECD testing for schools and offers opportunities and resources for OECD TFS participants.

- <http://www.americaachieves.org/oecd>
- America Achieve's "Middle Class or Middle of the Pack" report:
<http://www.americaachieves.org/docs/OECD/Middle-Class-Or-Middle-Of-Pack2.pdf>
- A video showcasing what schools learned from participation in the pilot titled "Learning from the OECD Test for Schools":
<http://www.americaachieves.org/voices-in-education/learning-from-the-oecd-test-for-schools>.

Hewlett Foundation Deeper Learning: The Hewlett Foundation supported the preparation of this toolkit, and shares its goals and work at this site.

<http://www.hewlett.org/programs/education-program/deeper-learning>

OECD Test for Schools and 4Cs School Improvement by Valerie Greenhill (P21 blog post):

<http://www.p21.org/news-events/p21blog/1271>

Videos and Films

Andreas Schleicher, “TED Talk: Use Data to Build Better Schools.” This is an excellent 20- minute video from PISA’s founder and leader that helps you understand the purpose and the power of PISA testing. http://www.ted.com/talks/andreas_schleicher_use_data_to_build_better_schools.html

Andreas Schleicher, “Asia Society Talk: PISA Chief Explains the Data.” This is an extended version, closer to 60 minutes, of the Schleicher TED talk for those who want more information. <http://asiasociety.org/education/learning-world/pisa-chief-explains-data>

Tony Wagner, “The Finland Phenomenon.” <http://www.tonywagner.com/resources/the-finland-phenomenon-inside-the-worlds-most-surprising-school-system-a-great-resource-now-available> The video is fascinating in its description of Finnish educational practices and it also includes a DVD extra in which Wagner discusses the particular strengths of the PISA test.

OECD PISA overview video, “Measuring Student Success Around the World.” This short animated video uses examples to explain both the purpose of PISA and what it assesses. The video is excellent for use with community audiences and students. <https://www.youtube.com/watch?v=q1I9tuScLUA>

American Federation of Teachers video, “What Can America Learn from PISA?” This five-minute video focuses on the value of PISA testing and what American educators can learn from the PISA 2013 results. <https://www.youtube.com/watch?v=hf9UVg-TdH0&feature=c4-overview-vl&list=PL-T5PpTCIN8CxYivpUeuLIJN-Jy63BH0t>

“Strong Performers and Successful Reformers in Education.” The video series profiles policies and practices of education systems that demonstrate high or improving performance in the PISA tests from Pearson and OECD. <http://www.pearsonfoundation.org/oecd/index.html>

America Achieves Video Collection, “Beyond the Scores: A Close-Up Look at U.S. Schools That Are Global Leaders.” These videos showcase practices at a set of OECD Test for Schools participants. <http://www.americaachieves.org/issues/beyond-the-scores-a-close-up-look-at-u-s-schools-that-are-global-leaders>

Appendix

Deeper Learning and PISA – A Brief Primer

For educators seeking to better understand the relationship between the PISA frameworks and deeper learning/21st-century skills/“the 4Cs,” we have included this brief primer on the connections we believe are most helpful.

What PISA Measures

The PISA assessments are designed for the dynamic demands of a changing world. They help us evaluate whether students are learning what they need to learn and whether they are developing the ability to apply what they have learned to make good decisions and solve complex problems throughout their lives as professionals and citizens.

Core content knowledge is certainly a part of this. But it is a floor, not a ceiling; a foundation, not a roof.

While it does assess students’ knowledge, PISA also examines their ability to reflect, and to apply that knowledge and their experience to real-life issues. For example, in order to understand and evaluate scientific advice on food safety, an adult would need to know not only some basic facts about the composition of nutrients, but also be able to apply that information (PISA 2009 Assessment Framework, p. 9).

The head of PISA, Andreas Schleicher, explains in his 2013 TED talk:

“We were less interested in whether students can simply reproduce what they have learned in school ... we wanted to test whether they can extrapolate from what they know and apply their knowledge in novel situations. Now, some people have criticized us for this. They say, you know, such a way of measuring outcomes is terribly unfair to people because we test students with problems they haven’t seen before.

But if you take that logic, you know, you should consider life unfair, because the test of truth in life is not whether we can remember what we learned in school, but whether we are prepared for change; whether we are prepared for jobs that haven’t been created, to use technologies that haven’t been invented, to solve problems we just can’t anticipate today.”

Assessing higher-order thinking skills applied to challenging, real-world scenarios, rather than recall of content knowledge, has been PISA’s ambitious goal since its beginning in the late 1990s (Schleicher, TED Talk).

The ability to transfer is at the core of the PISA assessment: Can students take the skills and understanding they’ve developed in our school systems and apply them to novel situations? We’re all familiar with the students in our classroom who complain it is unjust to test them with questions they haven’t seen before. But in the view of OECD/PISA, this is exactly what we must do if we are to evaluate our effectiveness preparing them for the “nonroutine” work they’ll have to do in the 21st-century workforce.

Defining 21st-Century Learning Outcomes and Deeper Learning

Many excellent resources have been developed delineating the critical 21st-century skills and learning outcomes our students deserve and require for success, including the well-known Partnership for 21st-Century Skills framework. Three organizations have helped define these competencies in ways that clarify the importance of PISA.

EdLeader21's 4Cs: "You can't really know what education in your school or district should look like if you don't identify what capabilities your students must have to succeed in life, citizenship and work. Having spent the past eight years focused on exactly this issue, we suggest a basic starting place: the 4Cs: Critical Thinking, Communication, Collaboration and Creativity." (Kay and Greenhill, "The Leader's Guide to 21st-century Education," 2012)

The National Research Council (NRC) publication "Education for Life and Work:" "Through the process of deeper learning, students develop 21st-century competencies— transferable knowledge and skills that can be applied to a range of different tasks in various civic, workplace or family contexts." This includes:

- "the cognitive domain, which includes thinking, reasoning, knowledge, problem-solving and related skills;
- the intrapersonal domain, which involves self-management, including the ability to regulate one's behavior and emotions to reach goals; and the interpersonal domain, which involves expressing information to others as well as interpreting others' messages and responding appropriately." (Pellegrino, ed. Education for Life and Work, National Research Council, 2012).

The William and Flora Hewlett Foundation's Deeper Learning Initiative: "Deeper learning is an umbrella term for the skills and knowledge that students must possess to succeed in 21st-century jobs and civic life. At its heart is a set of competencies that students must master in order to develop a keen understanding of academic content and to apply their knowledge to problems in the classroom and on the job. The deeper learning framework includes six competencies that are essential for preparing students to achieve at high levels.

- Mastery of core academic content
- Critical thinking and problem-solving
- Working collaboratively in groups
- Communicating clearly and effectively
- Learning how to learn, e.g., self-directed learning
- Developing academic mindsets (including self-efficacy)

(Hewlett Foundation, Deeper Learning Strategic Plan, 2012)

Domains of PISA

PISA's purpose is to measure the skills that matter most. The 2009 PISA Assessment Framework declared that "Certain broad, general skills are essential for students to develop. They include communication, adaptability, flexibility, problem solving and the use of information technologies. These skills are developed across the curriculum and an assessment of them requires a broad cross-curricular focus." (p. 12)

Competencies are defined in each of the three major subject domains—reading, mathematics, and science—as that domain's core literacy.

READING

Reading literacy is understanding, reflecting on and engaging with written texts in order to achieve one's goals, to develop one's knowledge and potential, and to participate in society.

MATHEMATICS

Mathematical literacy is defined as an individual's capacity to formulate, employ and interpret mathematics in a variety of contexts. It includes reasoning mathematically and using mathematical concepts, procedures, facts and tools to describe, explain and predict phenomena. It helps students to recognize the role that mathematics plays in the world and to make the well-founded judgments and decisions needed by constructive, engaged and reflective citizens.

SCIENCE

Scientific literacy refers to an individual's:

- scientific knowledge and use of that knowledge to identify questions, acquire new knowledge, explain scientific phenomena and draw evidence-based conclusions about science-related issues;
- understanding of the characteristic features of science as a form of human knowledge and enquiry;
- awareness of how science and technology shape our material, intellectual and cultural environments;
- and willingness to engage in science-related issues and scientific ideas as a reflective citizen.

Source: 2009 PISA Framework, Reading (p.23), and Science (p.128); PISA 2012 Mathematics Framework, (2010) (p. 4)

The PISA literacies are a carefully crafted set of skills that align closely with the 21st-century learning outcomes many schools and districts have embraced as essential for their graduates, and can serve as a model for educators looking to define what is required in each domain.

OECD Test For Schools and 21st-Century Skills: Outlining the Connections

Many OECD Test for Schools users see great promise and opportunity in the value of the program for assessing and guiding their school or district in the assessment of 21st-century skills and deeper learning. When effectively implemented into a school improvement plan or as part of a multifaceted and balanced initiative, it can provide valuable data for guiding the improvement of student outcomes and evaluating the effectiveness of innovative educational programming.

For this to be the case, schools and districts need clarity about where and how these skills and competencies are embedded inside the OECD Test for Schools. What follows is a short overview of five areas where these connections can be found:

- **Critical Thinking**
- **Problem-Solving**
- **Knowledge**
- **Written Communication**
- **Intrapersonal: Motivation, Self-Efficacy and Learning Strategies**

Critical Thinking

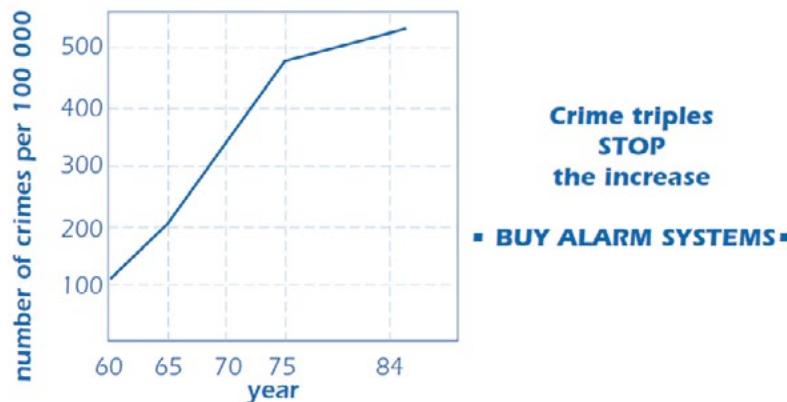
The OECD Test for Schools is especially well aligned with assessment of the first of the 4Cs, critical thinking, particularly as that competency relates to interpretation, analysis and problem-solving. Numerous variants of the term “critical thinking” can be found throughout the assessment framework, including “critical stance,” “critically evaluate,” “critical analysis” and “critical judgment, analysis and interpretation.”

In PISA, students are expected to think critically, to marshal knowledge from diverse content areas in different contexts and to use different cognitive processes to solve problems.

The 2012 PISA Math Framework, for instance, emphasizes interpretation: “The word ‘interpret’ used in the mathematical literacy definition focuses on the abilities of individuals to reflect upon mathematical solutions, results, or conclusions and interpret them in the context of real-life problems. This involves translating mathematical solutions or reasoning back into the context of a problem and determining whether the results are reasonable and make sense in the context of the problem. (p. 17)

Question 1: RISING CRIMES

How many reported crimes per 100 000 were there in 1960?



In one math unit, two graphs about rising crime rates are shown, one a press report and one from an alarm manufacturer. Students must explain why the police were dissatisfied with the alarm company's graph. (PISA 2009 Assessment Framework, pp. 103-104)

DOMAIN

Selected PISA Competencies Related to Critical Thinking

READING

- Accessing and retrieving texts
- Interpreting and inferring from text
- Reflecting on and evaluating texts
- Testing claims of the text against other knowledge

MATHEMATICS

- Interpreting a math result into the real world
- Evaluating reasonableness of a math result in the real world
- Understanding how real-world context impacts mathematical models or procedure
- Critiquing limits of a mathematical model

SCIENCE

- Interpreting phenomena scientifically
- Predicting change
- Interpreting scientific evidence
- Identifying assumptions, evidence and reasoning behind conclusions

Sources: PISA 2009 Assessment Framework; PISA 2012 Mathematics Framework

Problem-Solving

Problem-solving is prominently featured in both the Deeper Learning framework and the National Research Council's report on Deeper Learning, and is often closely associated with critical thinking and the 4Cs. As Tony Wagner explained in a 2013 New York Times column by Thomas Friedman:

"Today, because knowledge is available on every Internet-connected device, what you know matters far less than what you can do with what you know. The capacity to innovate—the ability to solve problems creatively or bring new possibilities to life—and skills like critical thinking, communication and collaboration are far more important than academic knowledge."

MATHEMATICS UNIT 5: CONTINENT AREA

Below is a map of Antarctica.



For example, in a mathematics question, students must estimate the size of Antarctica using a map scale, and explain how the estimate was made. (OECD/PISA, Take the Test: Sample PISA Questions, Mathematics Unit 5, p.105)

DOMAIN	Selected PISA Competencies Related to Problem-Solving
READING	<ul style="list-style-type: none">• Articulating and defend a point of view• Using texts to achieve goals and participate in society
MATHEMATICS	<ul style="list-style-type: none">• Formulating situations mathematically• Representing a situation mathematically• Devising and implementing strategies for mathematical solutions• Using and applying mathematical tools and algorithms to find solutions
SCIENCE	<ul style="list-style-type: none">• Using scientific evidence to make conclusions• Explaining phenomena scientifically

Sources: PISA 2009 Assessment Framework; PISA 2012 Mathematics Framework

Knowledge

As much as PISA emphasizes critical thinking, problem-solving and the application of previous learning to novel situations, certain fundamental background knowledge is still required for students to succeed in the complex world they are inheriting.

This is entirely in alignment with the principles of deeper learning as articulated by the Hewlett Foundation, which declares that the most important of its six principles is that students:

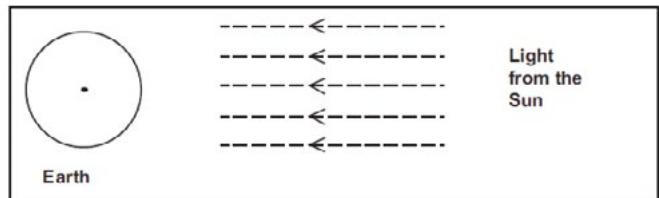
“Master core academic content: Students develop and draw from a baseline understanding of knowledge in an academic discipline; Students learn, remember and recall facts relevant to a content area; and students extend core knowledge to novel tasks and situations in a variety of academic subjects.” (Hewlett Foundation, Deeper Learning Strategic Plan, 2012)

The coverage of core content by the PISA frameworks in reading literacy, mathematical literacy and scientific literacy results in a high degree of correspondence. The PISA frameworks robustly cover the category of “content knowledge” and all nine of the skills grouped in the sets of “Master core academic content” and “Acquire, apply and expand knowledge.”

One example can be found in the Science Unit 3, for which students must be able to select the right option among four in response to the question, “Why does daylight and darkness occur on Earth?” Only 43 percent of students internationally were able to answer this question correctly (OECD/PISA, Take the Test: Sample PISA Questions 2009, Science Unit 3, p.196)

QUESTION 3.2

In the Figure light rays from the Sun are shown shining on the Earth



DOMAIN Selected PISA Competencies Related to Knowledge

MATHEMATICS

- Change and relationship
- Space and shape
- Quantity
- Uncertainty and data

SCIENCE

- Physical systems
- Living systems
- Earth and space systems
- Technology systems
- Knowledge about science: inquiry and explanations

Sources: PISA 2009 Assessment Framework; PISA 2012 Mathematics Framework

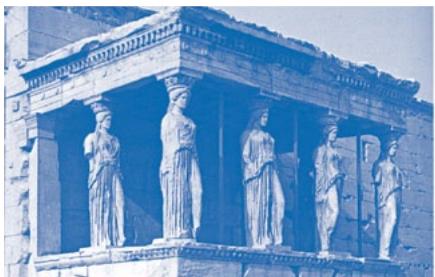
Written Communication

PISA frameworks call on students to organize their data, findings and thoughts clearly.

More so than most national or international assessments, the OECD Test for Schools assesses students' written communication skills by demanding that students prepare written responses rather than choose "fill in the bubble" answers for about half the questions on the assessment. To be successful, students have to be able to clearly and effectively formulate a written response to convey their understanding and their solutions.

As an example, the mathematical domain is defined as including the following.

Mathematical literacy involves communication. During the solution process, intermediate results may need to be summarized and presented. Later on, once a solution has been found, the problem solver may need to present the solution, and perhaps an explanation or justification, to others. (PISA 2012 Mathematics Framework, p. 18)



Question 1: ACID RAIN

Another example: Students in a science unit are asked to review an experiment examining the impact of acid rain on marble statues, and then explain in writing why the experimenters included the step of placing marble chips in pure/distilled water overnight in their experiment. (PISA 2009 Assessment Framework, p. 132)

DOMAIN	Selected PISA Competencies Related to Written Communication
READING	<ul style="list-style-type: none">• Reflecting on and evaluating a text
MATHEMATICS	<ul style="list-style-type: none">• Summarizing and presenting results• Explaining and justifying results• Using symbolic, formal and technical language and operations
SCIENCE	<ul style="list-style-type: none">• Describing and explaining phenomena based on scientific knowledge• Using scientific evidence to produce arguments and communicate conclusions• Expressing evidence and decisions to a specified audience through students' own words, diagrams or other representations• Presenting clear connections between evidence and conclusions or decisions

Sources: PISA 2009 Assessment Framework; PISA 2012 Mathematics Framework

Intrapersonal: Motivation, Self-Efficacy and Learning Strategies

The Partnership for 21st-Century Skills and EdLeader21 have long emphasized the importance of student self-direction as an essential prerequisite for success in a knowledge economy, and the National Research Council's Education for Life and Work report highlights intrapersonal competencies as one of its three equal clusters of critical value.

Deeper learning includes an emphasis on students perceiving "the inherent value of content knowledge" and enjoying and seeking out "learning on their own." Beyond motivation and the actions students take to read and learn widely, there is an emphasis on students' self-confidence as well as the following:

- Students know and can apply a variety of study skills and strategies.
- Students are aware of their strengths and weaknesses.
- Students identify and work toward lifelong learning and academic goals.
- Students evaluate the match between reality and what is needed to attain specific goals.

(Hewlett Foundation, Deeper Learning Defined, pp. 3-4)

By surveying student attitudes, the OECD Test for Schools provides comparative data about student proficiencies and practices in all of these areas. "Over the years, PISA results have shown that a strong learning environment and confident, engaged and motivated students are factors that consistently contribute to better learning outcomes. Based on students' responses to a contextual questionnaire that was part of the assessment, this section places the learning environment at your school in the context of other schools in your country." (OECD Sample Report, 2012, p. 47)

What's more, the data a school receives in its report is the survey data mapped onto the performance comparisons. For example, reading preferences are mapped to reading domain performance. This provides educators a way to examine and draw inferences regarding each affect's influence on performance. In many cases, the best way for schools to discern potential opportunities to improve student performance in a cognitive domain, such as science, is by identifying areas for improvement in school climate or student attitudes that can be seen to influence improved performance.

Many participants in the PISA OECD Test for Schools pilot reported that the data provided in these areas was especially fascinating—and useful.

STUDENT PERSPECTIVE

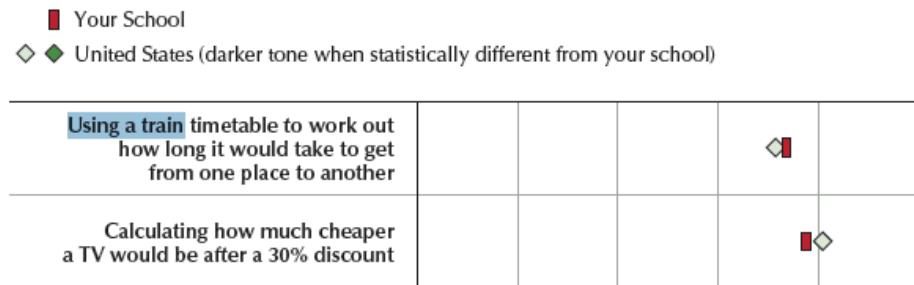
What does this test seem to measure; what skills are required?

“ This test measures the ability to critically think and take documents and break them down and then apply the information to the problem: this is much more useful for life.”

— Student from Lucia Mar (Calif.) Unified School District

For example, students are asked to rate themselves on scale of 1 to 5 for their sense of confidence in doing mathematical tasks such as “using a train timetable to work out how long it would take to get from one place to another.”

Figure 3.9 ■ Students' self-efficacy in mathematics at your school and in the United States in PISA 2003



OECD/PISA How Your School Compares Internationally, OECD Test for Schools Pilot Trial School Report, 2012

STUDENT ATTITUDES

OECD Test for Schools Student Survey Sections

SELF-EFFICACY

- Survey of mathematical self-efficacy
- Survey of scientific self-efficacy

MOTIVATION AND SELF-DIRECTION

- Survey of student mathematical instrumental motivation
- Survey of student scientific instrumental motivation
- Survey of student breadth of reading

LEARNING STRATEGIES

- Survey of student reading and learning strategies

OECD/PISA How Your School Compares Internationally, OECD Test for Schools Pilot Trial School Report, 2012

Acknowledgments

Project Leadership & Writing

Valerie Greenhill

Jonathan Martin

About EdLeader21

EdLeader21 is the nation's first professional learning community dedicated to helping district and school leaders enhance the 4Cs (critical thinking, communication, collaboration and creativity) in education systems, preparing students to be college, career and life ready in the 21st century.

We have over 130 members in 33 states representing over 2 million students.

See www.edleader21.com for more.

EDLEADER21 TEAM:

Ken Kay, CEO

Valerie Greenhill, CLO

Alyson Nielson, COO

Melissa Briones, Project Coordinator

Sara Mobley, Membership Director

Stephanie Bushnell, Administrative Assistant

Special Thanks

The following organizations and individuals provided critical direction and feedback during the research and writing process:

Barbara Chow

Education Program Director

William and Flora Hewlett Foundation

Jack Bierwirth

Superintendent

Herricks Public Schools

Terri Breedon

Assistant Superintendent

Fairfax County Public Schools

Alejandro Gómez-Palma

Policy Analyst

OECD

Jack Dale

Consultant

EdLeader21 OECD Pilot Participants

Twenty-six schools from the following EdLeader21 members participated in the OECD Test for Schools Pilot in 2013:

Birmingham Public Schools (MI)
Bronxville Unified Free School District (NY)
Chappaqua Central School District (NY)
Douglas County School District (CO)
Dublin City Schools (OH)
Fairfax County Public Schools (VA)
Hewlett-Woodmere Public Schools (NY)
Howard-Suamico School District (WI)
Lucia Mar Unified School District (CA)
Natick Public Schools (MA)
Ponca City Public Schools (OK)
Roanoke County Public Schools (VA)
Virginia Beach City Public Schools (VA)

EdLeader21 Working Group

Representatives from the following districts, schools and organizations helped guide and shape the toolkit throughout the drafting process:

Arcadia Unified School District (CA)
Bellevue School District (WA)
Big Spring School District (PA)
Birmingham Public Schools (MI)
Bronxville Union Free School District (NY)
Brown Deer School District (WI)
Douglas County School District (CO)
Dysart Unified School District (AZ)
Everett Public Schools (WA)
Fayette County Schools (GA)
Fairfax County Public Schools (VA)
Fremont School District #79 (IL)
Herricks Public Schools (NY)
Hewlett Woodmere Public Schools (NY)
Howard-Suamico School District (WI)
Lucia Mar Unified School District (CA)
Natick Public Schools (MA)
Pike County Schools (GA)
Ponca City Public Schools (OK)
Stillwater Area Public Schools (MN)
Roanoke County Public Schools (VA)
Virginia Beach City Public Schools (VA)

Interview Participants:

The following individuals provided valuable insight that helped shape the content of the toolkit:

Andrew Abner Principal Rock Canyon High School (CO)	Mike Frieder Principal Bay Port High School (WI)	Jane Modoono Principal Herricks High School, (NY)
Cheryl Askew Principal Ocean Lakes High School (VA)	Deirdre Hayes Assistant Superintendent for Instruction Herricks Public Schools (NY)	Donald Robertson Assistant Superintendent for Planning, Innovation and Accountability Virginia Beach City Public Schools (VA)
John Banbury Principal Oakton High School (VA)	Jim Hogeboom Superintendent Lucia Mar Unified School District (CA)	Christie Taylor Coordinator Educational Planning Fairfax County Public Schools (VA)
Jack Bierwirth Superintendent Herricks Public Schools (NY)	Teresa Johnson Principal Chantilly High School (VA)	Andrea Thiry-Wenz Director of Teaching & Learning Howard-Suamico School District (WI)
Terri Breedon Assistant Superintendent, Professional Learning and Accountability Fairfax County Public Schools (VA)	Nardos King Principal Mount Vernon High School (VA)	Julia Towes Principal BASIS Tucson North (AZ)
Monica Brown Literacy Resource Teacher Mount Vernon High School (VA)	Michael Mann Head of School North Star Academy (NJ)	Joe Wallander Assistant Principal/Assessment Coordinator Bay Port High School (WI)
Tom Butler Principal Arroyo Grande High School (CA)	Mary McDowell Assistant Principal Thomas Jefferson High School for Science/Technology (VA)	Corey Wise Principal Legend High School (CO)
Elizabeth Celania-Fagen Superintendent Douglas County School District (CO)	Carolyn McGarvey Vice President of Charter School Operations BASIS Schools (AZ)	
Hillary Dixon Curriculum Department Lucia Mar Unified School District (CA)	Daniel McMinimee Assistant Superintendent, Secondary Education Douglas County School District (CO)	
Colleen Eddy Assistant Principal Oakton High School (VA)		

Works Cited

- Banbury, John. In-person interview. Oct. 30, 2013.
- Biewirth, Jack. Telephone interview. Oct. 16, 2013.
- Breeden, Terri. Telephone interview. Sept. 9, 2013.
- Brown, Monica. In-person interview. Oct. 30, 2013.
- Dixon, Hillery. Telephone interview. Sept. 4, 2013.
- Fairfax County Public Schools PISA website. http://www.fcps.edu/pla/ost/pisa/pisa_2012_13_index.shtml and http://www.fcps.edu/pla/ost/pisa/pisa_2013_14_index.shtml
- Friedman, Thomas. "Need A Job, Find it" New York Times, 3/30/13
- Hewlett Foundation, The William and Flora. Deeper Learning Defined. Accessed from http://www.hewlett.org/uploads/documents/EducationProgram_Deep_Learning_Strategy.pdf
- Hewlett Foundation, The William and Flora. Deeper Learning Strategic Plan Summary Education Program. 2012. Accessed from http://www.hewlett.org/uploads/documents/EducationProgram_Deep_Learning_Strategy.pdf
- Hogeboom, Jim. Telephone interview. Sept. 4, 2013.
- Johnson, Teresa. In-person interview. Oct. 30, 2013.
- Kay, Ken, and Valerie Greenhill. The Leader's Guide to 21st Century Education. Upper Saddle River, NJ.: Pearson. 2012. Print.
- King, Nardos. In-person interview. Oct. 30, 2013.
- Lawrence Lightfoot, Sarah. The Good High School. Phoenix: Basic Books, 1983. Print.
- Mann, Michael. Telephone interview. Nov. 26, 2013.
- National Research Council. Education for Life and Work: Developing Transferable Knowledge and Skills in the 21st Century. Washington, DC: The National Academies Press, 2012.
- OECD/PISA. Lessons for the US from PISA. Paris: Organisation for Economic Co-operation and Development. 2011.
- OECD/PISA. Lessons for the US from PISA. Paris: Organisation for Economic Co-operation and Development. 2013.
- OECD/PISA. Excellence through Equity: PISA Results 2012 (Vol. II). Paris: Organisation for Economic Co-operation and Development. 2013.
- OECD/PISA PISA 2012 Results: Ready to Learn—Students' Engagement, Drive and Self-Beliefs (Vol. III). Paris: Organisation for Economic Co-operation and Development. 2013.
- OECD/PISA PISA 2012 Results: What Makes Schools Successful? (Vol. IV). Paris: Organisation for Economic Co-operation and Development. 2013.
- OECD/PISA 2009 Assessment Framework, Paris: Organisation for Economic Co-operation and Development. 2009.
- OECD/PISA 2012 Mathematics Framework, Paris: Organisation for Economic Co-operation and Development. 2010.
- OECD/PISA Math 2012 PISA 2012 Assessment and Analytical Framework: Mathematics, Reading, Science, Problem Solving and Financial Literacy. Paris: Organisation for Economic Co-operation and Development.
- OECD/PISA PISA Take the Test: Sample Questions from the OECD's PISA Assessments, Paris: Organisation for Economic Co-operation and Development. 2009.
- OECD/PISA. How Your School Compares Internationally: OECD Test For Schools (based on PISA) Pilot Sample Report, 2012. Paris: Organisation for Economic Co-operation and Development. Accessed from <http://www.oecd.org/pisa/aboutpisa/OECD%20Test%20for%20Schools%20-%20Herndon%20High%20School.pdf>
- Ripley, Amanda. The Smartest Kids in the World. New York: Simon and Schuster. 2013. Print
- Schleicher, Andreas. Use Data to Build Better Schools. TED Talk. 2012. Accessed from http://www.ted.com/talks/andreas_schleicher_use_data_to_build_better_schools. Video.
- Wagner, Tony. The Finland Phenomenon. 2 Million Minutes. 2011. Video.
- The Global Achievement Gap. Phoenix, Basic Books, 2008. Print.



EdLeader 21

177 N. Church Ave., Suite 305 • Tucson, AZ 85701 • 520-623-2466 • www.edleader21.com