National Assessment Governing Board
Assessment Development Committee
March 6, 2015

AGENDA

10:00 – 10:45 am	**Joint Session with Reporting and Dissemination Committee** (Crystal VI) Welcome and Joint Session Overview *Shannon Garrison, ADC Chair* *Andrés Alonso, R&D Chair* Technology and Engineering Literacy Reporting *Cary Sneider, ADC Vice Chair* *Emmanuel Sikali, NCES* *Jonas Bertling, ETS*	Attachment A
10:45 – 10:50 am	BREAK	
10:50 – 10:55 am	Welcome and Introductions *Shannon Garrison, Chair*	
10:55 – 11:05 am	Update on the 2014 NAEP Technology and Engineering (TEL) Assessment *William Ward, NCES*	Attachment B
11:05 – 11:15 am	NAEP and Next Generation Science Standards (NGSS) Comparison – Final Report *Maria Stephens, AIR*	Attachment C
11:15 – 11:30 am	Discussion: Governing Board's Strategic Planning Initiative *Committee Members*	See Strategic Planning Tab in Board Materials
11:30 am – 12:30 pm	**Closed Session** NAEP Digital Based Assessments: Update on Subject Area Item Development and Issues *Eunice Greer, NCES*	Attachment D
Information Item	NAEP Item Review Schedule	Attachment E

NAEP Technology and Engineering Literacy (TEL) Reporting

Joint Session of the Assessment Development Committee

and the Reporting and Dissemination Committee

Purpose

The purpose of this joint session is to explore issues related to the reporting of NAEP's newest assessment, Technology and Engineering Literacy (TEL), which is scheduled for release in October 2015.

At its November 2014 meeting, the Assessment Development Committee (ADC) received a briefing on the status of the TEL data analyses. Based on this briefing and subsequent Committee discussion, the ADC requested a joint meeting in March 2015 with the Reporting and Dissemination Committee (R&D) to discuss challenging issues, unique opportunities, and effective strategies for the upcoming TEL reporting. As a potential model for TEL reporting, the ADC suggested that R&D members examine the 2011 online report and released tasks from NAEP's Science Interactive Computer Tasks (ICTs) at http://www.nagb.org/newsroom/naep-releases/science-hots-icts.html

Background on TEL

In 2005 the National Academy of Engineering and the National Research Council called on the Governing Board to add a NAEP assessment in the area of Technological Literacy. The Board extensively deliberated the recommendation, added this assessment to the NAEP schedule, and conducted a multi-year, comprehensive framework development process involving thousands of educators, policymakers, IT professionals, engineers, testing experts, and others.

Eventually renamed Technology and Engineering Literacy, or TEL, this innovative assessment was based on a Board-adopted Framework that called for a unique combination of scenario-based tasks and discrete test questions, all of which were to be administered via a computer-based platform. After various stages of test development and a full-scale pilot test, the TEL assessment was administered in 2014 to a nationally representative sample of more than 20,000 eighth graders, in both public and private schools.

The TEL assessment is designed to gauge how well students can apply their understanding of technology principles to real-life situations. The assessment focuses on the level of knowledge and competencies related to technology and engineering needed by all students and citizens to function in society. An important component in the array of NAEP subject-area assessments, TEL joins the NAEP Mathematics and Science exams to provide our nation with information on student achievement in all of the STEM areas.

TEL measures students' knowledge and skills in three interconnected areas: Technology and Society, Design and Systems, and Information and Communication Technology. There are three

cross-cutting practices as well: (1) Understanding Technological Principles; (2) Developing Solutions and Achieving Goals; and (3) Communicating and Collaborating. An innovative component of the assessment is the incorporation of interactive scenario-based tasks. These tasks allow the collection of a wide array of information on student performance, including observable data captured as students interact with the TEL tasks. This innovation allows NAEP to expand TEL reporting beyond the traditional NAEP scores by including students' problem-solving strategies and processes.

Relevant Links

Technology and Engineering Literacy Framework (full and abridged)
http://www.nagb.org/publications/frameworks/technology/2014-technology-framework.html

NAEP/National Center for Education Statistics page on Technology and Engineering Literacy Framework, including overview, resources, video, and an interactive task that viewers can try.
http://nces.ed.gov/nationsreportcard/tel/

Video featuring former Governing Board Member Alan Friedman – "NAEP Technology and Engineering Literacy: New Education Assessment"
https://www.youtube.com/watch?v=N3ZrK76wez4

Video from the National Center for Education Statistics – "An Introduction to the NAEP Technology and Engineering Literacy Assessment"
https://www.youtube.com/watch?v=eziz0f_d2ZM

Video from the National Center for Education Statistics – "Exploring a TEL Task"
https://www.youtube.com/watch?v=uexguF1674k

Release page of *The Nation's Report Card Science in Action: Hands-On and Interactive Computer Tasks from the 2009 Science Assessment*
http://www.nagb.org/newsroom/naep-releases/science-hots-icts.html

NAEP Technology and Engineering Literacy (TEL)

Assessment Update

In the spring of 2014, the first-ever national NAEP TEL assessment was administered via computer to a nationally representative sample of 8th graders. The assessment was designed to gauge how well students can apply their understanding of technology principles to real-life situations. Results will be available at the national level only and will be released as The Nation's Report Card. The NAEP TEL Framework, which guides development activities, focuses on the level of knowledge and competencies about technology and engineering needed by all students and citizens to function in a technological society. TEL measured students' knowledge and skills in three interconnected areas: Technology and Society, Design and Systems, and Information and Communication Technology. There are three cross-cutting practices as well: Understanding Technological Principles, Developing Solutions and Achieving Goals, and Communicating and Collaborating. An innovative component of the assessment is the incorporation of interactive scenario-based tasks. These tasks allowed the collection of a wide array of information on student performance, including observable data captured as students interacted with the TEL tasks. This innovation allows NAEP to expand TEL reporting beyond the traditional NAEP scores by including students' problem-solving strategies and processes.

In this session, NCES will present to the Assessment Development Committee an overview and update of ongoing NAEP TEL data analysis plans for responses to assessment items and questionnaires, which resulted in the development of an overall univariate scale, three content-area scales (for Technology and Society, Design and Systems, and Information and Communication Technology) and three practice scales (for Understanding Technological Principles, Developing Solutions and Achieving Goals, and Communicating and Collaborating).

Included in this session will be a timeline of assessment activities and a preview of additional ongoing data analysis efforts.

Update on the Comparison Study of NAEP and the Next Generation Science Standards

The recent release of the *Next Generation Science Standards* (NGSS) in 2013 and the National Research Council report on *Developing Assessments for the Next Generation Science Standards* (NGSS) in 2014 is leading to major changes in state curricula and assessments in response to the NGSS emphasis on the integration of scientific and engineering practices (including mathematics-related practices) with disciplinary core ideas and crosscutting concepts in the sciences and engineering. To inform ongoing discussions of NAEP's role in emerging national systems of large-scale assessments in science, technology, engineering, and mathematics (STEM), NCES conducted a comparison study of NGSS with the NAEP Frameworks in Science, Technology and Engineering Literacy (TEL) and Mathematics. The main purpose of the study was to provide evidence of the extent to which the NAEP Science and TEL Frameworks are aligned with the content and scientific and engineering practices in the NGSS. An additional purpose that supplements the Science and TEL comparisons was to determine the extent to which the mathematics-related performance expectations and practices in the NGSS are aligned with the expectations in the NAEP Mathematics Framework.

At the last Governing Board meeting in November 2014, the Assessment Development Committee received an update on the study that described the types of analyses conducted and some results from the comparisons of the NGSS with NAEP Science, TEL, and Mathematics Frameworks. Report writing and review have been underway since the ADC meeting in November. At the March 2015 meeting, we will provide an update on key findings and dissemination plans for the report.

Overview of NAEP Civics, Geography and U.S. History Transition from Paper and Pencil to DBA and Update on Reading and Mathematics DBA

NAEP's transition of Civics, Geography and U.S. History items from paper-and-pencil based to digitally-based assessments (DBA) is in progress. For NAEP to remain relevant and meaningful in the broader assessment landscape—and because schools across the country have already embarked on their own transitions—the transition to DBA is critical in *all* subject areas that NAEP assesses. As has been the case with Reading, Writing, Science and Mathematics, with Civics, Geography and U.S. History, the intent is not to simply transfer existing paper-and-pencil items to electronic delivery. Rather, the goal is to more fully utilize new technologies and introduce new types of items that can measure knowledge and skills in the current NAEP Frameworks that could not be tested—or could not be tested as well—on paper.

In this session, we will introduce the overall approach for accomplishing this transition for Civics, Geography, and U.S. History. We will explore how we will balance concerns for two issues: fidelity to trend and a commitment to exploring the unique affordances of digital devices. NAEP's concern for the ability to maintain trend lines is central to NAEP's relevance. There is a strong commitment to continue to measure progress and maintain trend despite the shift from paper-and-pencil to DBA. At the same time, NAEP is eager to develop assessment tools that mirror innovations in use in classrooms across the country. Our ongoing commitment to reliable and valid measures of what students know and can do makes this an essential focus of the development work. In addition to a focus on Civics, Geography and U.S. History, we will also provide a brief update on the DBA transition work in Reading and Mathematics.

This majority of the session will be devoted to NCES's work plan for the assessment of 8th and 12th grade Civics, Geography and U.S. History. Topics will include:

- Overview of the transition from paper-and-pencil to tablet delivery
- Maintaining trend for the Civics, Geography and U.S. History assessments
- Timelines for Civics, Geography and U.S. History DBA transition
- DBA for Civics, Geography and U.S. History: eNAEP and new item types
- A look at DBA start up items and issues associated with the shift to tablets
- Next steps

The session will conclude with a brief update on DBA item development work for Reading and Mathematics.

NATIONAL CENTER FOR EDUCATION STATISTICS
Institute of Education Sciences

Assessment Development Committee
Item Review Schedule
January 2015 – August 2015

(Updated 2/4/15)

Review Package to Board	Board Comments to NCES	Survey/ Cognitive	Review Task	Approx. Number of Items	Status
4/30/15	5/22/15	Survey	2017 Reading(4, 8, 12) Pilot Reading	130-150	
4/30/15	5/22/15	Survey	2017 Math (4, 8, 12) Pilot	130-150	
4/30/15	5/22/15	Survey	2017 Writing (8, 12) Pilot	130-150	
May—TBD	May—TBD	Cognitive	2018 U.S. History, Civics, Geography (8, 12) Pilot Concept Sketches	12 Concept Sketches	
7/23/15	8/14/15	Cognitive	2017 Writing (8, 12) Pilot	20	
7/23/15	8/14/15	Cognitive	2017 Math (4, 8) Pilot	280	
7/27/15	8/14/14	Cognitive	2017 Reading (4, 8) Pilot	55-60	