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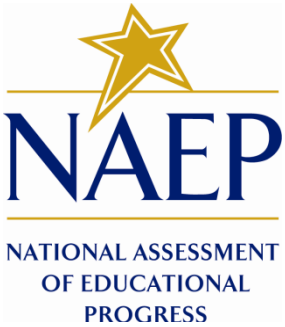
Appendix C: 2015 Sampling Memo

OMB# 1850-NEW v.1
(previous OMB# 1850-0790 v.43)



November 23, 2015

Revised February 2016

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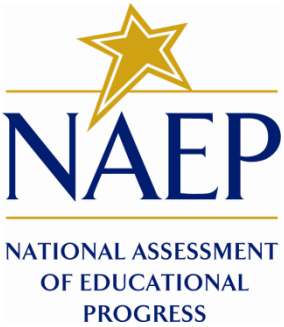
Appendix A

External Advisory Committees

OMB# 1850-NEW v.1
(previous OMB# 1850-0790 v.43)



November 23, 2015

Table of Contents

Appendix A-1: NAEP Design and Analysis Committee

Name	Affiliation
Betsy Becker	Florida State University
Peter Behuniak	University of Connecticut
Johnny Blair	Independent Consultant, Washington, DC
Lloyd Bond	University of North Carolina, Greensboro (Emeritus)/ Carnegie Foundation (retired)
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Kadriye Ercikan	University of British Columbia
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Appendix A-4: NAEP National Indian Education Study Technical Review Panel

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Rebecca Izzo-Manymules	Southwest Indian Polytechnic Institute, Albuquerque, NM
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Appendix A-5: NAEP Civics Standing Committee

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Appendix A-8: NAEP Mathematics Standing Committee

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Kathleen Heid	Pennsylvania State University
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Brian Nelson	Curtis Corner Middle School, Wakefield, RI
Matthew Owens	Spring Valley High School, Columbia, SC
Carole Philip	Alice Deal Middle School, Washington, DC
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Appendix A-9: NAEP Reading Standing Committee

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Bridget Dalton	University of Colorado Boulder
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Margaret McKeown	University of Pittsburgh
P. David Pearson	University of California, Berkeley
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Appendix A-10: NAEP Science Standing Committee

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Ibari Igwe	Shrewd Learning, Elkridge, MD
Michele Lombard	Kenmore Middle School, Arlington, VA
Ellen Mingione	Consultant
Brett Moulding	Utah Partnership for Effective Science Teaching and Learning, Ogden, UT
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Appendix A-11: NAEP Survey Questionnaires Standing Committee

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Gerunda Hughes	Howard University
David Kaplan	University of Wisconsin-Madison
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Stanley Presser	University of Maryland
Leslie Rutkowski	Indiana University Bloomington
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Norbert Schwarz	University of Michigan
Jonathon Stout	Lock Haven University
Roger Tourangeau	Westat, Rockville, MD
Akane Zusho	Fordham University

Appendix A-12: NAEP Technology and Engineering Literacy Standing Committee

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Britte Haugan Cheng	SRI International, Menlo Park, CA
Meredith Davis	North Carolina State University
Chris Dede	Harvard Graduate School of Education
Richard Duran	University of California, Santa Barbara
Maurice Frazier	Oscar Smith High School, Chesapeake, VA
Camilla Gagliolo	Arlington Public Schools, Arlington, VA
Christopher Hoadley	New York University
Eric Klopfer	Massachusetts Institute of Technology
Beth McGrath	Stevens Institute of Technology
Greg Pearson	National Academy of Engineering, Washington, DC
John Poggio	University of Kansas
Erin Reilly	University of Southern California
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Kimberly Scott	Arizona State University
Teh-Yuan Wan	New York State Education Department, Albany, NY

Appendix A-13: NAEP U.S. History Standing Committee

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Diana Turk	New York University

Appendix A-14: NAEP Writing Standing Committee

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Nikki Elliot-Schuman	Smarter Balanced Assessment Consortium
Rayna Goldfarb	Abraham Lincoln High School, Philadelphia, PA
Charles MacArthur	University of Delaware
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Appendix A-15: NAEP Principals' Panel Standing Committee

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Ardith Bates	Gladden Middle School, Chatsworth, GA
Williams Carozza	Harold Martin Elementary School, Hopkinton, NH
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Rita Graves	Pin Oak Middle School, Bellaire, TX
Don Hoover	Lincoln Junior High School, Springdale, AR
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Anthony Lockhart	Lake Shore Middle School, Belle Glade, FL
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Lillie McMillan	Porter Elementary School, San Diego, CA
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Appendix A-16: NAEP Mathematics Translation Review Committee

Name	Affiliation
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David Feliciano	P.S.M.S 29, The Melrose School, Bronx, NY
Yvonne Fuentes	Author and Spanish Linguist, Carrollton, GA
Flor Yanira Gurrola Valenzuela	Washington Middle School, Albuquerque, NM
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Sonia Suazo	Escuela Salvador Brau Elemental, Cayey, PR
Enid Valle	Kalamazoo College

Appendix A-17: NAEP Science Translation Review Committee

Name	Affiliation
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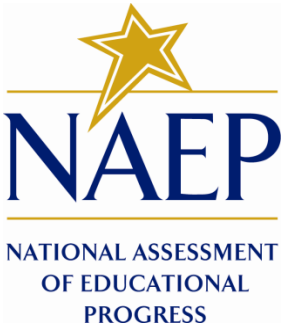
Appendix B

Sample Data Security Agreement

Request for Clearance for
NAEP Assessments for 2017-2019

OMB# 1850-NEW v.1
(previous OMB# 1850-0790 v.43)



UNITED STATES DEPARTMENT OF EDUCATION
INSTITUTE OF EDUCATION SCIENCES

NATIONAL CENTER FOR EDUCATION STATISTICS

Data Security Agreement for the
2015 National Assessment of Educational Progress (NAEP)

This document establishes a data security agreement between the _____ **State Department of Education**, and the **National Center for Education Statistics** of the U.S. Department of Education for the 2015 NAEP assessment program.

NAEP is a congressionally mandated project of the U.S. Department of Education. P.L 107-279, Title III, directs the Commissioner for Education Statistics to conduct a National Assessment of Educational Progress. The law requires the NCES Commissioner for Education Statistics to conduct a national and state assessment in mathematics and reading in grades four and eight at least once every 2 years. At grade 12, NAEP assesses mathematics and reading at regularly scheduled intervals. Additional national assessments in grades 4, 8, and 12 take place at regularly scheduled intervals in other subjects such as writing, science, history, geography, civics, economics, foreign languages, and arts. This agreement applies to data collection activities under the NAEP program including operational, and pilot and special studies.

P.L. 107-110, as amended by P.L. 107-279 authorizes NAEP to include, "whenever feasible, information collected, cross-tabulated, compared, and reported by race, ethnicity, socioeconomic status, gender, disability, and limited English proficiency." To fulfill this statutory requirement, in addition to cognitive questions, NAEP administers background questionnaires that provide information for reporting categories and that collect non-cognitive data on students, their family background, teachers, and schools.

NCES understands that any improper disclosure or unauthorized use of these materials may violate Federal statutes, including but not limited to the Family Educational Rights and Privacy Act (FERPA) (20 U.S.C. 1232g) as well as applicable state statutes.

By accepting this agreement, NCES acknowledges that student records and related information constitute confidential materials and commits to protect and safeguard these data according to NAEP data security procedures, as applicable, described in **NCES Data Confidentiality Procedures Summary** (Attachment A) and incorporated herein.

ACCEPTED AND AGREED TO:

_____	_____
State authorized agent Date	NCES authorized agent Date
_____	_____
Title	Title
_____	_____
Address	Address
_____	_____

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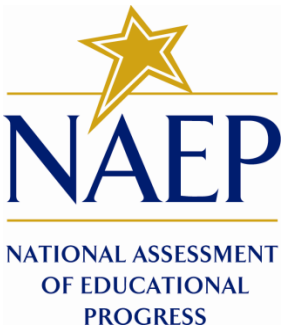
Appendix C

2017 Sampling Memo

Request for Clearance for
NAEP Assessments for 2017-2019

OMB# 1850-NEW v.1
(previous OMB# 1850-0790 v.43)



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Date: February 22, 2016

Memo: 2017-1.1A/1.1B/1.1D/1.1E/1.1L

To:

William Ward, NCES	Chris Averett
Ed Kulick, ETS	Kavemuii Murangi
David Freund, ETS	Jennifer Kali
Amy Dresher, ETS	David Ferraro
Cathy White, Pearson	Erin Wiley
Scott Ferguson, Fulcrum	Dwight Brock
Dianne Walsh	Amy Lin
Lauren Byrne	David Hubble
Lisa Rodriguez	Sarah Shore
Rick Rogers	Yiting Dai
Rob Dymowski	Jing Kang
William Wall	Sabrina Zhang

From: Lloyd Hicks and Keith Rust
Reviewer: John Burke

Subject: Sample Design for 2017 NAEP - DRAFT

I. Introduction

For 2017, the NAEP assessment involves the following components:

A. National assessments in reading, mathematics, and writing at grades 4, and 8;

B. State-by-state and Trial Urban District Assessment (TUDA) assessments in reading and mathematics for public schools at grades 4 and 8;

C. An assessment of mathematics in Puerto Rico at grades 4 and 8;

D. Digital-based assessment (DBA) start-ups, and pilot tests, in US history, civics, and geography at grade 8;

E. Pilot assessments in reading and mathematics at grades 4 and 8;

F. A special study of Multi-Stage Testing (MST) in mathematics at grades 4 and 8;

G. A special equating study of Knowledge and Skills Appropriate (KaSA) items in mathematics, at grades 4 and 8, both nationally and in Puerto Rico.

H. A special study of writing, using laptop computers rather than tablets, at grade 8.

I. A Computer Access and Familiarity Study at grades 4 and 8. The study will involve a relatively small subsample of public schools and students selected for the reading and math operational assessment components described above.

Below is a summary list of the features of the 2017 sample design.

1. The alpha samples for grades 4 and 8 public, and the delta samples for private schools at grades 4 and 8, will be used for the operational assessments in reading and mathematics.

2. The beta samples at grades 4 and 8 public, and the epsilon samples at grades 4 and 8 private, will be used for the national writing assessment, all start-ups and pilot tests, and the MST special study. The beta samples will also be used for the DBA portion of the national KaSA study.

3. The lambda ('L is for 'laptop') sample at grade 8 public will be used for the writing laptop study.

4. As in recent NAEP studies, Trial Urban District Assessment (TUDA) samples will form part of the corresponding state samples, and the state samples will form part of the national sample. There are twenty-seven Trial Urban District Assessment (TUDA) participants. Twenty-one of the twenty-seven also participated in 2013. The six new districts are: Denver, CO; Clark Co., NV; Guilford Co., NC; Shelby Co., TN; Fort Worth, TX; Milwaukee, WI.

5. Schools in the alpha and delta samples will receive a mixture of DBA assessments, using tablets, and pencil and paper (PBA) assessments. Schools in the beta and epsilon samples will be assessed using DBA with tablets. Schools in the lambda sample will be assessed DBA using laptops. In the alpha samples, the proportion of students assigned to DBA versus PBA will vary depending upon whether the school is in a large TUDA district, a small TUDA district, or not in a TUDA districts. Schools in the TUDA districts will have a larger proportion of students assigned to PBA than other alpha sample schools. In public schools the PBA assessment will include the KaSA study, in addition to operational reading and math.

6. There will be no samples in territories other than for Puerto Rico at grades 4 and 8.

7. As in 2015, the Department of Defense Schools are expected to be reported as a single jurisdiction (DoDEA).

8. There are no samples at grade 12.

9. There is no National Indian Education Study. This means that less extensive sampling of BIE schools is required than in 2015 and other years when NIES has been conducted. To ensure sound results for AIAN students in reading and mathematics at the national level, at grades 4 and 8 BIE students will be sampled at the same rate as students in Oklahoma, the state with the largest AIAN population.

10. Oversampling of private schools at grades 4 and 8 will be done at the same level as 2015. Response rates permitting, this will allow separate reporting for reading and mathematics for Catholic and non-Catholic schools, but no further breakdowns by private school type.

11. The sample sizes of assessed students for these various components are shown in Table 1 (which also shows the approximate numbers of participating schools).

Table 1. Target sample sizes of assessed students, and expected number of participating schools, for 2017 NAEP

	Spiral	Jurisdictions		Students		
	Spiral Indic.	States (incl. DC, DoDEA)	Urban districts	Public school students	Private school students	Total
Grade 4						
Nat'l/state reading (DBA)	DS	52	27	141,000	3,000	144,000
Nat'l/state math (DBA)	DS	52	27	141,000	3,000	144,000
Nat'l/state reading (PBA)	PA, PB	52	27	37,500	500	38,000
Nat'l/state math (PBA)	PA, PB	52	27	37,500	500	38,000
math KaSA (PBA)	PA			3,000	0	3,000
Puerto Rico (DBA)	DP	1		3,000	0	3,000
Puerto Rico (PBA)	PP	1		3,000	0	3,000
Total - alpha	**4**			**366,000**		**366,000**
Total- delta	**2**				**7,000**	**7,000**
Typical max. no. students/school				62	60	
Average assessed students/school				49	23	47
Total schools - alpha, delta				**7,500**	**300**	**7,800**
Writing	DA, DB			19,800	2,200	22,000
Mathematics MST	DA, DB			9,000	1,000	10,000
Math Pilot	DA, DB			13,500	1,500	15,000
Reading pilot	DA, DB			10,800	1,200	12,000
KaSA (DBA)	DA			3,000	0	3,000
Total - beta	**1**			**56,100**		**56,100**
Total - epsilon	**1**				**5,900**	**5,900**
Typical max. no. students/school				50	50	
Average assessed students/school				43	20	39
Total schools - beta, epsilon				**1,300**	**300**	**1,600**
Total number of students grade 4				**422,100**	**12,900**	**435,000**
Total number of schools grade 4				**8,800**	**600**	**9,400**

Table 1. Target sample sizes of assessed students, and expected number of participating schools, for 2017 NAEP (Continued)

	Spiral	Jurisdictions		Students		
	Spiral Indic.	States (incl. DC, DoDEA)	Urban districts	Public school students	Private school students	Total
Grade 8						
Nat'l/state reading (DBA)	DS	52	27	141,000	3,000	144,000
Nat'l/state math (DBA)	DS	52	27	141,000	3,000	144,000
Nat'l/state reading (PBA)	PA, PB	52	27	37,500	500	38,000
Nat'l/state math (PBA)	PA, PB	52	27	37,500	500	38,000
math KaSA (PBA)	PA			3,000	0	3,000
Puerto Rico (DBA)	DP	1		3,000	0	3,000
Puerto Rico (PBA)	PP	1		3,000	0	3,000
Total - alpha	**4**			**366,000**		**366,000**
Total- delta	**2**				**7,000**	**7,000**
Typical max. no. students/school				62	60	
Average assessed students/school				50	26	49
Total schools - alpha, delta				**7,330**	**270**	**7,600**
Writing	DA, DB			19,800	2,200	22,000
Mathematics MST	DA, DB			9,000	1,000	10,000
Math Pilot	DA, DB			13,500	1,500	15,000
Reading pilot	DA, DB			10,800	1,200	12,000
KaSA (DBA)	DA			3,000	0	3,000
U.S. History Start-up/Pilot	DA, DB			8,100	900	9,000
Civics Start-up/Pilot	DA, DB			6,300	700	7,000
Geography Start-up/Pilot	DA, DB			6,300	700	7,000
Total – beta	**1**			**76,800**		**76,800**
Total – epsilon	**1**				**8,200**	**8,200**
Typical max. no. students/school				50	50	
Average assessed students/school				43	23	40
Total schools - beta, epsilon				**1,800**	**350**	**2,150**
Writing laptop study	LW			3,000	0	3,000
Total- lambda	**1**			**3,000**	**0**	**3,000**
Typical max. no. students/school				30	0	30
Average assessed students/school				25	0	25
Total schools - lambda				**120**	**0**	**120**
Total number of students grade 8				**445,800**	**15,200**	**461,000**
Total number of schools grade 8				**9,250**	**620**	**9,870**
GRAND TOTAL STUDENTS				867,900	28,100	896,000
GRAND TOTAL SCHOOLS				**18,050**	**1,220**	**19,270**

II. Assessment Types

The assessment spiral types are shown in Table 2. Seven different spirals will be used at grade 4 and eight at grade 8. Session IDs contain six characters, traditionally. The first two characters identify the assessment "type" (subjects and type of spiral in a general way). Grade is contained in the second pair of characters, and the session sequential number (within schools) in the last two characters. For example, session DS0401 denotes the first grade 4 reading and mathematics operational DBA assessment in a given school.

Table 2. NAEP 2017 assessment types and IDs

ID	Type	Subjects	Grades	Schools	Comments
DS	Operational DBA	Reading, math (1:1)	4, 8	Public, Private	All schools in the alpha (except Puerto Rico) and delta samples, except a few small schools
PA	Operational PBA	Reading, math, KaSA (10:10:1)	4, 8	Public	All alpha sample schools, except Puerto Rico and a few small schools
PB	Operational PBA	Reading, math (1:1)	4, 8	Private	All delta sample schools, except a few small schools
DA	Operational, start-up, and pilot DBA	Writing, reading, math, math MST, math KaSA, US history, civics, geography	4, 8	Public	All beta sample schools
DB	Operational, start-up, and pilot DBA	Writing, reading, math, math MST, US history, civics, geography	4, 8	Private	All epsilon sample schools
DP	Operational DBA	KaSA Mathematics	4, 8	Public	Puerto Rico only
PP	Operational PBA	KaSA Mathematics	4, 8	Public	Puerto Rico only
LW	Laptop study	Writing	8	Public	All lambda sample schools

III. Sample Types and Sizes

In similar fashion to past years (but somewhat different), we will identify five different types of school samples: Alpha, Beta, Delta, Epsilon, and Lambda. These distinguish sets of schools that will be conducting distinct portions of the assessment.

1. Alpha Samples at Grades 4 and 8

These are public school samples for grades 4 and 8. They will be used for the operational state-by-state assessments in reading and mathematics, and contribute to the national samples for these subjects as well. They will also be used for the national KaSA special study (PBA mode). There will be alpha samples for each state, DC, DoDEA, BIE, and Puerto Rico.

The details of the target student sample sizes for the alpha samples are as follows:

A. At each grade, the target student sample size is 6,400: roughly 2,700 assessed each for math, and reading, and 50 for KaSA PBA. Of these 2,700 per subject, 2,200 will be DBA and 500 will be PBA. Thus the goal in each state (before considering the contribution of TUDA districts) is to assess 4,400 students in DBA and 1,050 PBA. The DS session type will be used for DBA and the PA session type for PBA.

B. There will be samples for twenty-seven TUDA districts. For the six large TUDA districts (New York, Los Angeles, Chicago, Miami-Dade, Clark Co., and Houston) the assessed student target sample sizes are three-quarters the size of a state sample for DBA (3,300) and the same size as a state sample for PBA (1,050), for a total of 4,350. Therefore the target sample size is 5,100.

C. For the remaining 21 TUDA districts the assessed student target sample sizes are half the size of a state sample for DBA (2,200) and the same size as a state sample for PBA (1,050), for a total of 3,250. Therefore the target sample size is 3,800.

D. Note that, above, there is a conflict between sample size requirements at the state level, and the TUDA district level. This will be resolved as in previous years: the districts will have the target samples indicated in B and C, and reflected in Table 3. For the states that contain one or more of these districts, the target sample size indicated in A (and shown in Table 3) will be used to determine a school sampling rate for the state, which will be applied to the balance of the state outside the TUDA district(s). Thus the target student sample sizes, shown in Table 3, for states that contain a TUDA district, are only 'design targets', and are smaller than the final total sample size for the state, but larger than the sample for the balance of the state, exclusive of its TUDA districts. In the case of the District of Columbia, the state sample size requirement is that all schools and students be included. This renders moot any requirements for the DC TUDA sample, which by default consists of all schools operated by the DCPS district (but excludes charter schools in DC, even though those are all included in the state sample, as these are not operated by DCPS).

E. In Puerto Rico, the target sample size is 7,000 per grade (grades 4 and 8), with the goal of assessing 3,000 students each for DBA and PBA.

As in past state-by-state assessments, schools with fewer than 20 students in the grade in question will be sampled at a moderately lower rate than other schools (at least half, and often higher, depending upon the size of the school). This is in implicit recognition of the greater cost and burden associated with surveying these schools.

Table 3 shows the target student sample sizes, and the approximate counts of schools to be selected in the alpha samples, along with the school and student frame counts, by state and TUDA districts for grades 4 and 8. The table also identifies the jurisdictions where we take all schools and where we take all students.

Table 4 consolidates the target student (and resulting school) sample size numbers, to show the total target sample sizes in each state, combining the TUDA targets with those for the balance of the state.

Table 3. Grade 4 and 8 school and student frame counts, expected school sample sizes, and initial target student sample sizes for the 2017 state-by-state and TUDA district assessments (Alpha samples)

	Grade 4					Grade 8				
Jurisdiction	Schools in frame	Schools in sample	Students in frame	Overall target student sample size		Schools in frame	Schools in sample	Students in frame	Overall target student sample size	
Alabama	709	113	57,548	6,400		456	109	55,820	6,400	
Alaska	361	188	9,990	6,400		280	141	9,651	6,400	
Arizona	1,193	116	86,472	6,400		793	115	83,469	6,400	
Arkansas	480	115	36,937	6,400		303	108	36,503	6,400	
Bureau of Indian Education	137	15	3,357	399		113	13	2,936	366	
California	5,977	111	472,139	6,400		2,901	110	455,002	6,400	
Colorado	1,054	118	67,814	6,400		567	113	65,088	6,400	
Connecticut	602	115	39,544	6,400		339	111	40,679	6,400	
Delaware	119	96	10,393	6,400		61	51	10,105	6,400	
District of Columbia	119	119	5,536	5,536	**	69	69	4,520	4,520	**
DoDEA Schools	110	110	7,554	7,554	**	65	65	5,636	5,636	**
Florida	2,226	109	212,541	6,400		1,220	110	202,256	6,400	
Georgia	1,248	105	133,243	6,400		562	105	129,475	6,400	
Hawaii	205	113	15,494	6,400		83	61	13,314	6,400	
Idaho	381	124	22,864	6,400		209	100	22,319	6,400	
Illinois	2,205	119	149,235	6,400		1,561	117	151,830	6,400	
Indiana	1,050	113	78,837	6,400		489	106	79,653	6,400	
Iowa	638	126	37,147	6,400		368	114	35,691	6,400	
Kansas	704	131	37,202	6,400		393	120	36,033	6,400	
Kentucky	721	114	52,221	6,400		417	113	50,755	6,400	
Louisiana	760	116	55,735	6,400		488	112	51,981	6,400	
Maine	320	153	13,444	6,400		202	114	13,473	6,400	
Maryland	903	112	67,399	6,400		373	107	61,983	6,400	
Massachusetts	958	114	70,968	6,400		485	106	71,662	6,400	
Michigan	1,711	118	111,240	6,400		1,083	115	114,211	6,400	
Minnesota	956	120	65,262	6,400		712	122	63,732	6,400	
Mississippi	423	111	38,316	6,400		287	105	36,486	6,400	
Missouri	1,166	126	69,574	6,400		709	121	67,833	6,400	

Table 3. Grade 4 and 8 school and student frame counts, expected school sample sizes, and initial target student sample sizes for the 2017 state-by-state and TUDA district assessments (Alpha samples) (Continued)

	Grade 4					Grade 8				
Jurisdiction	Schools in frame	Schools in sample	Students in frame	Overall target student sample size		Schools in frame	Schools in sample	Students in frame	Overall target student sample size	
Montana	392	183	11,534	6,400		271	142	10,811	6,400	
Nebraska	532	149	23,315	6,400		294	117	22,561	6,400	
Nevada	394	110	35,875	6,400		171	90	34,346	6,400	
New Hampshire	270	136	13,734	6,400		142	90	14,078	6,400	
New Jersey	1,368	115	99,727	6,400		762	109	99,169	6,400	
New Mexico	444	125	26,208	6,400		232	108	25,079	6,400	
New York	2,471	111	201,226	6,400		1,498	108	196,197	6,400	
North Carolina	1,457	111	118,118	6,400		728	108	117,176	6,400	
North Dakota	261	178	8,471	6,400		184	153	7,789	6,400	
Ohio	1,740	115	129,087	6,400		1,093	111	131,562	6,400	
Oklahoma	869	130	50,988	6,400		583	123	48,784	6,400	
Oregon	747	124	43,816	6,400		429	118	43,051	6,400	
Pennsylvania	1,607	110	130,442	6,400		888	106	131,525	6,400	
Puerto Rico	931	211	31,308	7,000		398	155	30,211	7,000	
Rhode Island	164	112	10,777	6,400		60	60	10,720	6,400	*
South Carolina	644	109	58,089	6,400		307	105	54,828	6,400	
South Dakota	312	170	10,517	6,400		246	143	9,657	6,400	
Tennessee	995	113	77,202	6,400		584	110	73,441	6,400	
Texas	4,433	109	399,614	6,400		2,256	109	384,210	6,400	
Utah	623	109	50,112	6,400		258	106	47,422	6,400	
Vermont	216	216	6,204	6,204	**	121	121	5,999	5,999	**
Virginia	1,109	108	97,550	6,400		379	104	95,187	6,400	
Washington	1,231	115	81,904	6,400		609	113	79,084	6,400	
West Virginia	417	142	20,578	6,400		190	106	20,464	6,400	
Wisconsin	1,099	127	61,686	6,400		649	117	61,152	6,400	
Wyoming	192	145	7,639	6,400		89	89	7,042	7,042	**

Table 3. Grade 4 and 8 school and student frame counts, expected school sample sizes, and initial target student sample sizes for the 2017 state-by-state and TUDA district assessments (Alpha samples) (Continued)

	Grade 4					Grade 8				
Jurisdiction	Schools in frame	Schools in sample	Students in frame	Overall target student sample size		Schools in frame	Schools in sample	Students in frame	Overall target student sample size	
Albuquerque	95	58	7,412	3,800		40	40	6,691	3,800	*
Atlanta	55	55	4,285	4,285	**	23	23	3,554	3,554	**
Austin	81	56	6,878	3,800		25	25	5,463	3,800	*
Baltimore City	128	75	6,716	3,800		96	69	5,504	3,800	
Boston	72	72	4,086	4,086	**	43	43	3,667	3,667	**
Charlotte	105	52	11,696	3,800		46	35	11,007	3,800	
Chicago	433	95	27,360	5,100		434	94	27,895	5,100	
Clark County, NV	226	79	25,311	5,100		80	58	24,676	5,100	
Cleveland	71	71	2,754	2,754	**	70	70	2,685	2,685	**
Dallas	151	54	13,325	3,800		42	42	10,878	3,800	*
Denver	102	60	7,108	3,800		60	48	6,060	3,800	
Detroit	65	65	3,889	3,889	**	49	49	2,963	2,963	**
Duval County, FL	119	57	10,313	3,800		50	36	8,873	3,800	
Fresno	72	55	5,905	3,800		23	23	5,237	3,800	*
Fort Worth	85	54	7,073	3,800		32	32	5,977	3,800	*
Guilford County, NC	74	57	5,492	3,800		29	29	5,339	3,800	*
Hillsborough County, FL	176	55	16,522	3,800		87	49	15,096	3,800	
Houston	175	78	18,049	5,100		62	48	13,383	5,100	
Jefferson County, KY	100	55	7,718	3,800		43	31	7,306	3,800	
Los Angeles	566	81	50,210	5,100		204	77	43,901	5,100	
Miami	286	83	26,711	5,100		178	78	26,978	5,100	
Milwaukee	111	76	5,668	3,800		83	64	4,977	3,800	
New York City	788	83	73,248	5,100		524	82	66,513	5,100	
Philadelphia	148	60	11,227	3,800		112	57	8,849	3,800	
San Diego	144	61	10,245	3,800		68	44	9,398	3,800	
Shelby County, TN	120	60	9,250	3,800		61	43	8,277	3,800	
District of Columbia PS	76	76	3,584	3,584	**	32	32	2,394	2,394	**

Counts for states *do not* reflect the oversampling for their constituent TUDA districts.

Target student sample sizes reflect sample sizes prior to attrition due to exclusion, ineligibility, and nonresponse.

* identifies jurisdictions where all schools (but not all students) for the given grade are included in the NAEP sample.

** identifies jurisdictions where all students for the given grade are included in the NAEP sample.

Table 4. Total sample sizes, combining state and TUDA samples

	Grade 4					Grade 8				
Jurisdiction	Schools in frame	Schools in sample	Students in frame	Overall target student sample size		Schools in frame	Schools in sample	Students in frame	Overall target student sample size	
Alabama	709	113	57,548	6,400		456	109	55,820	6,400	
Alaska	361	188	9,990	6,400		280	141	9,651	6,400	
Arizona	1,193	116	86,472	6,400		793	115	83,469	6,400	
Arkansas	480	115	36,937	6,400		303	108	36,503	6,400	
Bureau Of Indian Education	137	15	3,357	399		113	13	2,936	366	
California	5,977	293	472,139	18,198		2,901	240	455,002	18,274	
Colorado	1,054	165	67,814	9,526		567	151	65,088	9,603	
Connecticut	602	115	39,544	6,400		339	111	40,679	6,400	
Delaware	119	96	10,393	6,400		61	51	10,105	6,400	
District Of Columbia	119	119	5,536	5,536	**	69	69	4,520	4,520	**
DoDEA Schools	110	110	7,554	7,554	**	65	65	5,636	5,636	**
Florida	2,226	276	212,541	17,486		1,220	245	202,256	17,486	
Georgia	1,248	156	133,243	10,479		562	125	129,475	9,778	
Hawaii	205	113	15,494	6,400		83	61	13,314	6,400	
Idaho	381	124	22,864	6,400		209	100	22,319	6,400	
Illinois	2,205	191	149,235	10,323		1,561	189	151,830	10,320	
Indiana	1,050	113	78,837	6,400		489	106	79,653	6,400	
Iowa	638	126	37,147	6,400		368	114	35,691	6,400	
Kansas	704	131	37,202	6,400		393	120	36,033	6,400	
Kentucky	721	153	52,221	9,256		417	128	50,755	9,279	
Louisiana	760	116	55,735	6,400		488	112	51,981	6,400	
Maine	320	153	13,444	6,400		202	114	13,473	6,400	
Maryland	903	173	67,399	9,563		373	166	61,983	9,632	
Massachusetts	958	178	70,968	10,118		485	143	71,662	9,740	
Michigan	1,711	179	111,240	10,065		1,083	161	114,211	9,197	
Minnesota	956	120	65,262	6,400		712	122	63,732	6,400	
Mississippi	423	111	38,316	6,400		287	105	36,486	6,400	
Missouri	1,166	126	69,574	6,400		709	120	67,833	6,400	
Montana	392	183	11,534	6,400		271	142	10,811	6,400	

Table 4. Total sample sizes, combining state and TUDA samples (Continued)

	Grade 4					Grade 8				
Jurisdiction	Schools in frame	Schools in sample	Students in frame	Overall target student sample size		Schools in frame	Schools in sample	Students in frame	Overall target student sample size	
Nebraska	532	149	23,315	6,400		294	117	22,561	6,400	
Nevada	394	114	35,875	6,970		171	90	34,346	6,894	
New Hampshire	270	136	13,734	6,400		142	90	14,078	6,400	
New Jersey	1,368	115	99,727	6,400		762	109	99,169	6,400	
New Mexico	444	151	26,208	8,373		232	122	25,079	8,483	
New York	2,471	154	201,226	9,169		1,498	153	196,197	9,329	
North Carolina	1,457	204	118,118	13,068		728	157	117,176	13,106	
North Dakota	261	178	8,471	6,400		184	153	7,789	6,400	
Ohio	1,740	183	129,087	9,017		1,093	177	131,562	8,954	
Oklahoma	869	130	50,988	6,400		583	123	48,784	6,400	
Oregon	747	123	43,816	6,400		429	118	43,051	6,400	
Pennsylvania	1,607	161	130,442	9,649		888	155	131,525	9,769	
Puerto Rico	931	211	31,308	7,000		398	155	30,211	7,000	
Rhode Island	164	112	10,777	6,400		60	60	10,720	6,400	*
South Carolina	644	109	58,089	6,400		307	105	54,828	6,400	
South Dakota	312	170	10,517	6,400		246	143	9,657	6,400	
Tennessee	995	160	77,202	9,432		584	141	73,441	9,478	
Texas	4,433	339	399,614	22,173		2,256	247	384,210	22,304	
Utah	623	109	50,112	6,400		258	106	47,422	6,400	
Vermont	216	216	6,204	6,204	**	121	121	5,999	5,999	**
Virginia	1,109	108	97,550	6,400		379	104	95,187	6,400	
Washington	1,231	115	81,904	6,400		609	113	79,084	6,400	
West Virginia	417	142	20,578	6,400		190	106	20,464	6,400	
Wisconsin	1,099	190	61,686	9,609		649	171	61,152	9,678	
Wyoming	192	145	7,639	6,400		89	89	7,042	7,042	**
Total	52,354	8,089	3,833,727	427,568		29,009	6,770	3,733,641	423,869	

Sample sizes for each state *do* reflect the samples in the TUDA districts within the state.

* identifies jurisdictions where all schools (but not all students) for the given grade are included in the NAEP sample.

** identifies jurisdictions where all students for the given grade are included in the NAEP sample.

Stratification

Each state and grade will be stratified separately, but using a common approach in all cases. TUDA districts will be separated from the balance of their state, and each part stratified separately. The first level of stratification will be based on urban-centered type of location. This variable has 12 levels (some of which may not be present in a given state or TUDA district), and these will be collapsed so that each of the resulting location categories contains at least 9 percent of the student population (12 percent for large TUDA districts and 18 percent for small TUDA districts). Within each of the resulting location categories, schools will be assigned a minority enrollment status. This is based on the two race/ethnic groups that are the second and third most prevalent within the location category. If these groups are both low in percentage terms, no minority classification will be used. Otherwise three (or occasionally four) equal-sized groups (generally high, medium, and low minority) will be formed based on the distribution across schools of the two minority groups.

Within the resulting location and minority group classes (of which there are likely to be from three to fifteen, depending upon the jurisdiction), schools will be sorted by a measure derived from school level results from the most recent available state achievement tests at the relevant grade. In general, mathematics test results will be used, but where these are not available, reading results will be used. In the few states that do not have math or reading tests at grades 4 and 8 (or where we are unable to match the results to the NAEP school frame), instead of achievement data, schools will be sorted using a measure of socio-economic status. This is the median household income of the 5-digit ZIP Code area where the school is located, based on the 2014 ACS (5-year) data. For BIE and DoDEA schools neither achievement data nor income data are available, and so grade enrollment is used in these cases.

Once the schools are sorted by location class, minority enrollment class, and achievement data (or household income), a systematic sample of schools will be selected using a random start. Schools will be sampled with probability proportional to size. The exact details of this process are described in the individual sampling specification memos.

2. Beta Sample

The beta sample comprises the national public school samples at grades 4 and 8. This sample will be used to conduct the DBA assessments of operational writing, and various pilots, start-ups, and special studies as shown in Table 1. Each of these samples will be nationally representative, selected

to have minimal overlap with the alpha sample schools at the same grade. The number of students targeted per school will be 50.

Stratification

The Beta samples will have an implicit stratification, using a hierarchy of stratifiers and a serpentine sort. The highest level of the hierarchy is Census division (9 implicit strata). The next stratifier in the hierarchy is type of location, which has twelve categories. Many of the type of location strata nested within Census divisions will be collapsed with neighboring type of location cells (this will occur if the expected school sample size within the cell is less than 4.0). These geographic strata will be subdivided using a dichotomous high minority status category for oversampling purposes. Schools with more than 10 Black or Hispanic students and greater than 15 percent Black or Hispanic students will be considered high minority and placed in an oversampling stratum. All other schools will be considered low minority and placed in a regular sampling stratum. If the expected sample size for a high or low minority stratum is less than 8.0, it will be left as is. If the expected sample size is greater than 8.0, then the stratum will be subdivided into up to four substrata (two for expected sample size up to 12.0, three for expected sample size up to 16.0, and four for expected sample size greater than 16.0). For the regular sampling strata, the subdivision will be by state or groups of contiguous states. For the oversampling strata, the subdivision will be by percentage Black and Hispanic. Within these substrata, the schools are to be sorted by school type (public, BIE, DoDEA) and median household income from the 2014 5-year ACS (using a serpentine sort within the school type substrata).

Schools with more than 15 percent black or Hispanic students will be sampled at twice the rate of other schools, so as to increase the student sample sizes for these two groups.

3. Delta Samples

These are the private school samples at grades 4 and 8 for conducting the operational assessments in reading and mathematics. The sample sizes are large enough to report results by Catholic and non-Catholic at grades 4 and 8. Approximately half the sample at each grade will be from Catholic schools. The number of students targeted per school will be 60 at each grade.

Stratification

The private schools are to be explicitly stratified by private school type (Catholic/Other). Within each private school type, stratification will be by Census region (4 categories), type of location (12 categories), race/ethnicity composition, and enrollment size. In general, where there are few or no schools in a given stratum, categories will be collapsed together, always preserving the private school type.

4. Epsilon Sample

This sample is analogous to the beta sample, but for private schools, at grades 4 and 8. The same stratification variables will be used as for the delta samples. The epsilon sample schools will have minimum overlap with the delta sample schools which, given the respective sample sizes, means that no schools will be selected for both the delta and epsilon samples at the same grade.

5. Lambda Sample

This will be a sample of grade 8 public schools, and consist of only about 120 schools. The sample will be selected from a sample of approximately 35 geographic Primary Sampling Units (PSUs). This PSU component is needed because of the operational complexities of administering the laptop-based assessment. A select group of staff will be trained to administer those assessments, at a somewhat later time than the rest of the assessments. The PSUs will be selected so as to minimize overlap with the PSU samples used in recent NAEP assessments. The school stratification of the lambda sample within PSUs will be by type of location and median household income. The number of students targeted per school will be 30.

IV. New Schools

To compensate for the fact that files used to create the NAEP school sampling frames are at least two years out of date at the time of frame construction, we will supplement the Alpha, Beta, Delta, and Epsilon samples with new school samples at each grade.

The new school samples will be drawn using a two-stage design. At the first stage, a minimum of ten school districts (in states with at least ten districts) will be selected from each state for public schools, and ten Catholic dioceses will be selected nationally for the private schools. The sampled districts and dioceses will be asked to review lists of their respective schools and identify new schools. Frames of new schools will be constructed from these updates, and new schools will be drawn with probability proportional to size using the same sample rates as their corresponding original school samples.

The school sample sizes in the above tables do not reflect new school samples.

V. Substitute Samples

Substitute samples will be selected for each of the Beta, Delta, Epsilon and Lambda samples. The substitute school for each original will be the next "available" school on the sorted sampling frame, with the following exceptions:

A. Schools selected for any NAEP samples will not be used as substitutes.

B. Private schools whose school affiliation is unknown will not be used as substitutes. Also, unknown affiliated private schools in the original samples will not get substitutes.

C. A school can be a substitute for one and only one sample. (If a school is selected as a substitute school for grade 8, for example, it cannot be used as a substitute for grade 4.)

D. A public school substitute will always be in the same state as its original school.

E. A catholic school substitute will always be a Catholic school, and the same for non-Catholic schools.

VI. Contingency Samples

The districts that are taking part in the TUDA program are volunteers. Thus it is possible that at some point over the next few months, a given district might choose to opt out of the TUDA program for 2017. However, it is not acceptable for all schools in such a district to decline NAEP, as then the state estimates will be adversely affected. Thus to deal with this possibility, in each TUDA district, subsamples of the alpha sample schools will be identified as contingency samples. In the event that the district withdraws from the TUDA program prior to the selection of the student

sample, all alpha sampled schools from that district will be dropped from the sample, with the exception of those selected in the contingency sample. The contingency sample will provide a proportional representation of the district, within the aggregate state sample. Student sampling in those schools will then proceed in the same way as for the other schools within the same state.

VII. Student Sampling

Students within the sampled schools will be selected with equal probability, except in low minority schools in the Beta samples where oversampling of Black and Hispanic students will take place. The student sampling parameters vary by sample type (Alpha, Beta, Delta, Epsilon and Lambda) and grade, as described below.

Alpha Sample, Grades 4 and 8 Schools (Except Puerto Rico)

A. The sample size for each school will depend upon whether the school is in a Large TUDA district, a Small TUDA district, or not involved in TUDA.

B. In schools not involved in TUDA all students will be selected, up to 70. If the school has more than 70 students, 62 will be selected. Of these students, 50 will be assigned to DBA and the rest to PBA. In schools with fewer than 21 students, all will be assigned to DBA or all to PBA. In schools with 32 to 37 students, 25 will be assigned to DBA and the rest to PBA. In all other schools (with a single hit, see below), 25/31 of the students will be assigned to DBA with the rest to PBA. In some schools, the school may be assigned more than one 'hit' in sampling. In these schools we will select a sample of size 62 times the number of hits, taking all students if this target is greater than or equal to 62/70 of the total enrollment.

C. In schools from Large TUDA districts (New York City, Los Angeles, Chicago, Miami-Dade, Clark Co., and Houston), all students, up to 74, will be selected. If the school has more than 74 students, 66 will be selected. In schools where 66 to 74 students are selected, 50 students will be assigned to DBA and the rest to PBA. In schools with fewer than 21 students, all will be assigned to DBA or all to PBA. In schools with 34 to 39 students, 25 will be assigned to DBA and the rest to PBA. In all other schools (with a single hit, see below), 25/33 of the students will be assigned to DBA with the rest to PBA. In some schools, the school may be assigned more than one 'hit' in sampling. In these schools we will select a sample of size 66 times the number of hits, taking all students if this target is greater than or equal to 66/74 of the total enrollment.

D. In schools from Small TUDA districts all students, up to 80, will be selected. If the school has more than 80 students, 74 will be selected. In schools where 74 to 80 students are selected, 50 students will be assigned to DBA and the rest to PBA. In schools with fewer than 21 students, all will be assigned to DBA or all to PBA. In schools with 38 to 44 students, 25 will be assigned to DBA and the rest to PBA. In all other schools (with a single hit, see below), 25/37

of the students will be assigned to DBA with the rest to PBA. In some schools, the school may be assigned more than one 'hit' in sampling. In these schools we will select a sample of size 74 times the number of hits, taking all students if this target is greater than or equal to 74/80 of the total enrollment.

Alpha Sample, Puerto Rico Grades 4 and 8

A. All students, up to 55, will be selected.

B. If the school has more than 55 students, a systematic sample of 50 students will be selected with no oversampling.

C. 25 students will be assigned to DBA and the rest to PBA.

D. For schools with between 20 and 49 students, half of the students will be assigned to DBA and half to PBA.

E. Schools with fewer than 20 students in the selected grade will be assigned to have either all students assessed with DBA, or all with PBA.

Delta Samples, Grades 4 and 8

A. All students, up to 70, will be selected.

B. If the school has more than 70 students, a systematic sample of 60 students will be selected.

In schools with 60 students or more, 50 students will be assigned to DBA, and the remainder to PBA. In schools with fewer than 18 students, all will be assigned to DBA or all to PBA. In schools with 31 to 35 students, 25 will be assigned to DBA and the rest to PBA. In all other schools 5/6 of the students will be assigned to DBA with the rest to PBA.

Beta and Epsilon Samples, Grades 4 and 8

A. In each school, a sample will be selected as follows: All students up to 50 will be selected. If there are more than 50 students enrolled, a sample of 50 students will be selected.

Lambda Sample, Grade 8

A. In each school, a sample will be selected as follows: All students up to 30 will be selected. If there are more than 30 students enrolled, a sample of 30 students will be selected.

VIII. Weighting Requirements

The Operational Reading and Mathematics Samples

The exact weighting requirements for these samples have yet to be determined. One possibility is that three sets of weights will be required – for DBA alone, PBA alone, and DBA/PBA combined. These weights will reflect probabilities of selection, school and student nonresponse, any trimming, and the random assignment to the particular subject. There will be a separate replication schemes by grade and public/private. Such weights will also be derived for the Puerto Rico KaSA assessment and the national KaSA special studies at grades 4 and 8.

The Operational Writing Assessment

The sample weights will reflect probabilities of selection, school and student nonresponse, any trimming, and the random assignment to the particular subject (necessary because the writing assessment is spiraled in with other assessment components).

Start-up/Pilot Assessments in US History, Civics, and Geography, at Grade 8

Weighting will be implemented in full for these assessments. The sample weights will reflect probabilities of selection, school and student nonresponse, any trimming, and the random assignment to the particular subject (necessary because these assessments are spiraled in with other assessment components).

Math MST Special Study

Weighting will be implemented in full for these assessments. The sample weights will reflect probabilities of selection, school and student nonresponse, any trimming, and the random assignment to the particular subject (necessary because these assessments are spiraled in with other assessment components).

Pilot Tests for Reading and Mathematics

As is standard practice, only preliminary weights will be provided for these assessments. The sample weights will reflect probabilities of selection, and the random assignment to the particular subject (necessary because these assessments are spiraled in with other assessment components).

Writing Laptop Special Study at Grade 8

Weighting will be implemented in full for this assessment. The sample weights will reflect probabilities of selection, school and student nonresponse, and any trimming.