



Cornell University  
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Employment and Disability Institute

Rehabilitation Research and Training Center  
on Disability Demographics and Statistics

Disability Statistics User Guide Series

# **A Guide to Disability Statistics from the National Assessment of Educational Programs (NAEP)**

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## Introduction

Policymakers, service providers, disability advocacy groups and researchers use disability statistics for a wide variety of purposes. A common problem that these groups encounter is finding a data source, a disability definition and/or a statistical method that provides them with a disability statistic that is both relevant to their needs and useful.

The mission of the Cornell StatsRRTC is to bridge the divide between the sources of disability data and the users of disability statistics. One product of this effort is a series of *User Guides* to national survey data sets that collect information on the disability population. The purpose of each of the *User Guides* is to provide disability data users with:

1. An easily accessible guide to the disability information available in the nationally representative survey;
2. Estimates of the population with a disability, the disability prevalence rate, and estimates of participation-related statistics;
3. A description of the unique features of the dataset that will help disability statistics users determine whether the dataset can provide them with the statistic that they need; and
4. A description of how the dataset compares to other national data that are used to describe the population with disabilities.

This *User Guide* contains information on the National Assessment of Educational Programs (NAEP), also known as “the Nation's Report Card.” Unlike the other data sources addressed by the *User Guide Series*, the NAEP focuses solely on children. As a result, the focus of this *Guide* will shift to the inclusion and accommodation of

educational activities of children with disabilities, as opposed to adult employment and economic well-being, which are the focus of many of the other *User Guides*

The NAEP is a nationally representative and continuing assessment of U.S. students in various subject areas (reading, mathematics, science, writing, U.S. history, civics, geography, and the arts).<sup>1</sup> The two main goals of the NAEP are (a) to compare student achievement across states and other jurisdictions, and (b) to track changes over time in achievement of fourth-, eighth-, and twelfth-grade students.

The NAEP has been administered since 1969 by the Commissioner of Education Statistics, who heads the National Center for Education Statistics in the U.S. Department of Education. The National Research Council recently described NAEP data as "an unparalleled source of information about the academic proficiency of U.S. students, providing among the best available trend data on the academic achievement of elementary, middle, and secondary students in core subject areas" (<http://nces.ed.gov/pubs97/web/97045.asp>). However, as with other data sources, periodic changes in the way the NAEP data are collected limit comparisons of some information over longer time periods.

This *Guide* utilizes data from the 2003 NAEP Mathematics data. Disability-related information is derived from the 2003 Students with Disabilities/Limited English Proficiency (SD/LEP) Questionnaire (see Appendix B). The SD/LEP survey is completed by a school official who is knowledgeable about the child's ability to perform on standardized examinations. Teacher information is collected using a supplemental questionnaire for only those students who are rated as being capable of being included in

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<sup>1</sup> A schedule of the NAEP assessments by year and topic is available on the NAEP website.

testing (with or without accommodations). Therefore, information from the student and teacher questionnaires is not available for students with disabilities who were excluded from the assessment, and we do not draw from those sources.

The following section describes the conceptual model of disability used in the *User Guide Series*. Subsequently, we present a summary of the development and purpose of the NAEP, an outline of the data collection methodology, and a description of the various definitions used in this *Guide*.

### **Conceptual Model of Disability**

One purpose of the *User Guides* is to describe the information on disability available in the various national data sources. An operational definition of disability is required to fulfill this purpose. Unlike age and gender, which are for the most part readily identifiable individual attributes, disability is usually defined as a complex interaction between a person's health condition and the social and physical environment. An environment that provides accommodation may allow a person with a health condition to function at the level of a person without a health condition. In this instance, the person may not consider her health condition a disability.

Two major conceptual models of disability are the World Health Organization's (WHO, 2001) International Classification of Functioning, Disability and Health (ICF) and the disability model developed by Saad Nagi (1965, 1976). Both of these conceptual models recognize disability as a dynamic process that involves the interaction of a person's health condition, personal characteristics, the physical environment and the social environment. Changes to any one of these factors over time can have an impact on a person's ability to function and participate in activities. Detailed descriptions of these

models, as well as a comparison, can be found in Jette and Badley (2000) and Altman (2001).

A version of the International Classification of Functioning and Health for Children and Youth (ICF-CY) has been developed. The ICF-CY maintains the structure of the ICF but modifies content to document functioning, disability and environmental factors that exist from infancy through adolescence (0-18 age group). Alterations to the original ICF included (a) modifying or expanding descriptions, (b) removing codes outside the range of childhood and adolescence, (c) assigning new content to unused codes, (d) modifying inclusion and exclusion criteria, and (e) expanding generic qualifiers to include developmental aspects. All ICF codes applicable for children were retained with needed entries added such as sensory exploration; pre-verbal communication; symbolic and social play; and home, school and community environments (Simeonsson & Leonardi, 2004).

In the following discussion, we adopt ICF concepts to create operational definitions of disability. The concepts used include *impairment*, *activity limitation*, *participation restriction*, and *disability* (see WHO, 2001). A prerequisite to each of these concepts is the presence of a health condition. Examples of health conditions are listed in the International Classification of Diseases, Tenth Edition (ICD-10, WHO, 1992, 1993) and they encompass diseases, injuries, health disorders, and other health-related conditions. An *impairment* is defined as a significant deviation or loss in body function or structure. For example, the loss of a limb or vision may be classified as impairments. In some surveys, impairments are defined as long-lasting health conditions that limit a person's ability to see or hear, limit a person's physical activity, or limit a person's



mental capabilities. An *activity limitation* is defined as a difficulty an individual may have in executing activities. For example, a person who experiences difficulty dressing, bathing or performing other activities of daily living due to a health condition may be classified as having an activity limitation. In some surveys, activity limitations are identified based upon a standard set of activities of daily living questions (ADLs) and/or instrumental activities of daily living questions (IADLs). A *participation restriction* is defined as a problem that an individual may encounter in involvement in life situations. For example, a student with a severe health condition may have difficulty participating in school activities as a result of the physical environment (e.g., lack of reasonable accommodations) and/or the social environment (e.g., discrimination). In some surveys for adult populations, participation restrictions are identified by questions that ask whether the person has a long-lasting health condition that limits his or her ability to work, or whether a health conditions affects his or her ability to go outside his or her home, to go shopping, to church or to the doctor's office.

The final ICF concept that we will introduce is a *disability*. Unlike most modern medical texts, the World Health Organization (2002, 2007) defines a *disability* as a socially-contrived problem and not just a health problem. The World Health Organization stresses that society has created an environment for individuals with disabilities that is filled with both physical and attitudinal barriers. The negative effects of a disability are not just due to an individual's condition but are also due to environmental factors such as the lack of social integration, social action, individual and collective responsibility, environmental manipulation, attitude, human rights, politics, and overall social change. Simply stated, the term disability is used to describe the presence of an impairment, an

activity limitation and/or a participation restriction. This concept is similar to the definition used in the Americans with Disabilities Act of 1990 (ADA). The ADA defines a disability as “a physical or mental impairment that substantially limits one or more of the major life activities, a record of such an impairment, or being regarded as having such an impairment.”

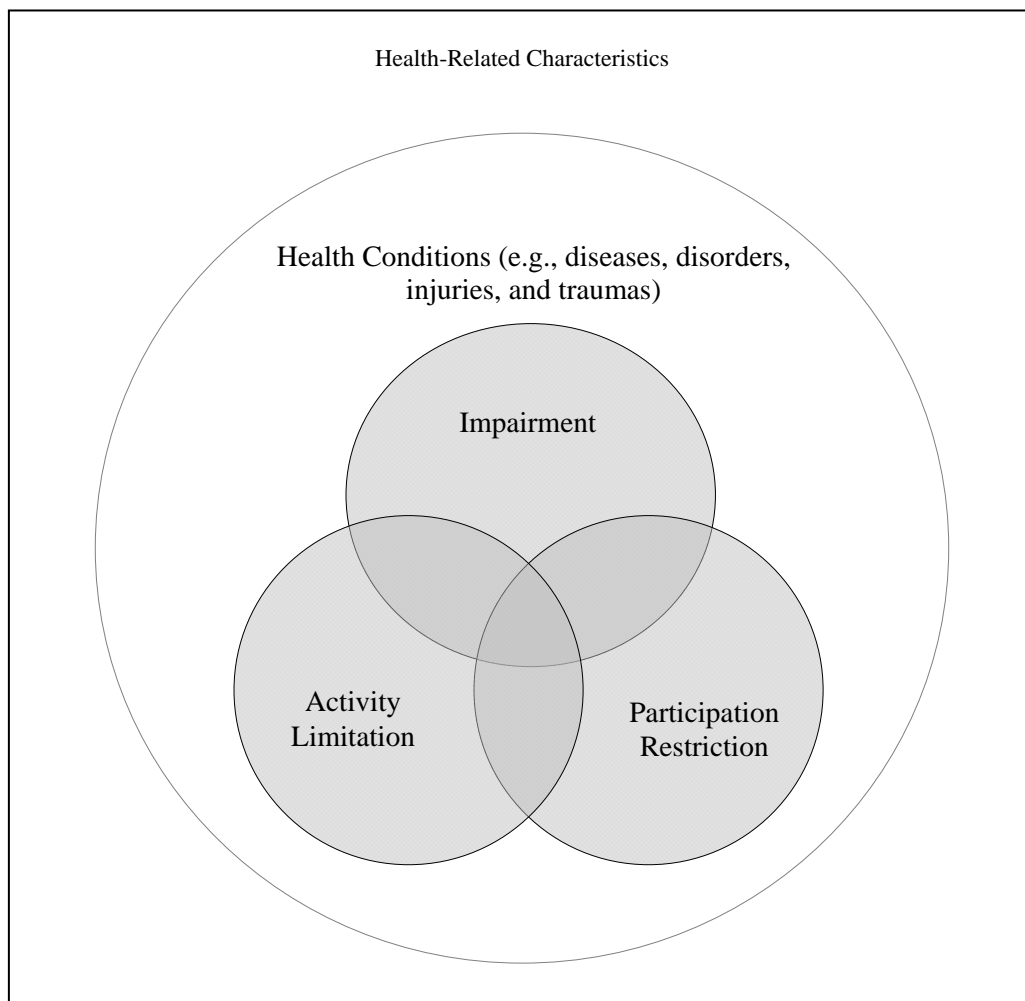
While these concepts may seem to follow a progression—that is, an impairment leading to an activity limitation leading to a participation restriction—this is not necessarily the case. It is possible that a person may have a participation restriction without an activity limitation or impairment. For example, a person diagnosed as HIV positive may not have an evident impairment or activity limitation but may not be able to find employment due to discrimination resulting from his health condition. Similarly, a person with a history of mental illness, but who no longer has a loss in capacity or activity limitation, may also be unable to finding employment due to discrimination resulting from his past health condition.

As a final comment about the ICF, it is important to note the emerging shift in the overall conceptualization of disability. Rather than viewing children and adults with disabilities as being labeled as having a particular health condition or impairment, they are instead being viewed on a “continuum of functioning in three dimensions (the person, the activity, and the environment in which the activity takes place)” (Clauser and Bierman, 2003; p. 6). That is to say that functioning is not static and can change daily, dependent upon the confluence of physiological and environment variables and will most certainly change developmentally over the lifespan. Therefore, to properly employ the World Health Organization’s definition of disability and the concepts of the ICF

specifically to children, the overall impact of the disability or impairment on the child's level of functioning must continually be assessed.

Figure 1 provides a useful summary of the ICF concepts. It illustrates that while there is an overlap across these concepts, it is possible that one of them can occur without the others being present. The shaded area of Figure 1 illustrates the ICF concept of a disability.

**Figure 1. Simplified Conceptual Model of Disability Using ICF Concepts**



### **Operational Issues**

Translating the ICF concepts into operational definitions for survey use or administrative data collection procedures is not a straightforward task. Decisions to

classify the questions into one of the three specific ICF categories (impairment, activity limitation, participation restriction) were made based upon judgments and are not based upon well-defined rules from the ICF. In some cases, the classification is readily evident. In other cases, for example, the survey questions may be interpreted as both an activity limitation and participation restriction. Our approach in these cases was to make consistent judgments so that comparisons across the datasets would be possible. Using this approach would provide a framework for comparisons across surveys and for comparisons to ICF concepts.

When considering the U.S. Office of Special Education Programs' (OSEP) definitions in the context of the ICF, it is clear that the school environment has been added in some domains (see the subsection entitled *Definition of Disability*).

### **Purpose of the NAEP**

The NAEP has two major goals: to compare student achievement in states and other jurisdictions and to track changes in the achievement of fourth-, eighth-, and twelfth-graders over time in mathematics, reading, writing, science, and other content domains. To meet these dual goals, the NAEP selects nationally-representative samples of students who participate in either the main NAEP assessments or the long-term trend NAEP assessments, where the latter is an examination that has retained the same set of questions over time. In addition, the NAEP conducts both national- and state-level assessments.

### **NAEP Background, Methods and Definitions**

The survey methods can have an important impact on the information that a survey collects on the population with disabilities. Mathiowitz (2000) provides a good

review of the general survey method issues as well as issues specific to the population with disabilities. The purpose of this section is to describe the development of the NAEP, the methods used by the NAEP to collect information on the population, and the definitions used to describe the population with disabilities.

### **Coverage: Universe and Sample Design**

NAEP samples are drawn from fourth-, eighth-, and twelfth-graders in public and private schools, as well as Domestic Dependent Elementary and Secondary Schools (DDESS) and Department of Defense Dependents Schools-Overseas Schools (DoDDS).

The random samples within each state are designed (with one exception mentioned below) to be proportionately representative of all the students in the state. No students are targeted for oversampling based on their student characteristics. However, in a state that contains one or more districts that are participating in the Trial Urban District Assessment (TUDA), students from the districts involved are sampled at a greater rate than those in the remainder of the state. The NAEP's sample weighting procedures ensure that the final results for the state contain the correct proportional contribution from such districts despite this difference in sampling rates within the state (<http://nces.ed.gov/nationsreportcard/about/samplesfaq.asp>).

The NAEP uses a complex stratified representative sample design. It collects data via a multi-stage, clustered sampling design involving unequal selection probabilities. First, schools are selected and then typically 30 students per subject per grade are selected randomly in each school. The numbers of schools and students vary from year to year depending on the number of subjects and items assessed. Schools are selected in a stratified manner.

For states that have agreed to participate in the NAEP state assessment, a sample of schools and students is selected to represent a participating state. In an average state, 2,500 students in approximately 100 public and non-public schools are selected per grade per subject assessed. Schools are selected randomly, within classes of schools with similar characteristics. But some schools or groups of schools (districts) may be selected if they are unique in the state. For instance, a particular district may be in the only major metropolitan area of a state or have the majority of a minority population in the state. If a state decides not to participate at the state level, schools in that state that are identified as part of the national sample will still be asked to participate.

For the national assessment, a national sample is drawn to yield a sufficient number of schools and students from public and non-public schools and each of the four NAEP regions of the country. Care is taken to ensure representation for characteristics such as sex, race, degree of urbanization of school location, parent education, and participation in the National School Lunch Program (NSLP). In years with both national and state assessments in the same subjects, the national sample is a subset of the combined sample of public and non-public school students assessed in each participating state, plus an additional sample from the states that did not participate, and a national private school sample. This national sample of public and non-public schools is selected for the fourth-, eighth- and twelfth-grades.<sup>2</sup> The sample is designed to produce national and regional estimates of student performance.

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<sup>2</sup> A separate twelfth-grade sample of schools is also selected to produce national and regional estimates, as the state NAEP does not include the twelfth grade.

Beginning with the 2002 NAEP assessments, a combined sample of public schools was selected for both the state and national NAEP. This was done in response to the NAEP redesign of 1998. It was thought that drawing a subset of schools from all of the state samples to produce national estimates would reduce the burden by decreasing the total number of schools participating in the state and national NAEP. From this group of schools, representing the fifty states and the District of Columbia (DC), a sub-sample was identified as the national subset. (Please note that the long-term trend assessments, given every four years and most recently given during the 2003-2004 school year, use a nationally-representative sample and do not report results by state.)

### **Inclusion Policy**

The NAEP has always endeavored to assess all students selected as a part of its sampling process, including students with disabilities (SD) and Limited English Proficiency (LEP). (Beginning in 2005, English Language Learners, or ELL, replaced LEP.) The decision to exclude any of these students is made by school personnel. School personnel are encouraged to use inclusion criteria provided by the NAEP and may discuss their inclusion decisions with NAEP field staff. Some students may participate with testing accommodations.

According to the current criteria, a student with a disability is to be included in the NAEP assessment except in the following cases (see inclusion of special needs students: <http://nces.ed.gov/nationsreportcard/about/inclusion.asp>):

1. The student's IEP team determines that the student cannot participate;
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2. The student's cognitive functioning is so severely impaired that she or he cannot participate; *or*
3. The student's IEP requires that the student has to be tested with an accommodation or adaptation that the NAEP does not allow (see the list of NAEP accommodations).

All LEP students who have received academic instruction in English for three years or more, including the current year, are included in assessments, if selected.

Those LEP students who have received instruction in English for fewer than three years are included, if selected, unless school staff judges them to be incapable of participating in the assessment in English.

All special-needs students may use the same accommodations in the NAEP assessments that they use in their usual classroom testing unless the accommodation would make it impossible to measure the ability, skill, or proficiency being assessed, or the accommodation is not possible for the NAEP program to administer. For instance, in the reading assessment, reading the passage and questions aloud to a student is not permitted because the NAEP assessment is intended to measure the student's ability to decode the written word as well as understand the meaning of the passage. Also, extending testing over several days is not allowed for the NAEP because the NAEP administrators are in each school only one day.

### **Testing Accommodations**

Accommodations in the testing environment or administration procedures are provided for SD and LEP students (see Appendix; Questions 3, 8-12). Examples of accommodations permitted by the NAEP are extra time, testing in small-group or one-on-



one sessions, reading aloud to a student, and scribing a student's responses. Table 1 lists the testing accommodations frequently offered to SD students and whether the NAEP provides such an accommodation. Table 2 does the same for LEP students.

**Table 1. Frequently-Provided Accommodations for Students with Disabilities**

Description of Accommodation	Permitted by NAEP?
<i>Presentation Format</i>	
Read directions aloud/Repeat directions <sup>a</sup>	Yes
Assist with interpretation of directions	Yes
Large-print edition of test	Yes
Use magnifying equipment	Yes
Person familiar to student administers test	Yes
Sign directions	Yes <sup>b</sup>
Read problems, passages, test questions, or other test stimuli aloud to the student	Yes, except for reading exams
Use audiotaped version of the test	No
Braille edition of test	No <sup>b</sup>
<i>Response Format</i>	
Respond in Braille	Yes
Point to answers	Yes
Oral responses	Yes
Use computer or typewriter to respond	Yes
Use template to respond	Yes
Use large marking pen or special writing tool	Yes
Write directly in test booklet <sup>a</sup>	Yes
Respond in sign language	No <sup>b</sup>
Tape record answers	No
Use talking, Braille or other calculators	No
<i>Setting Format</i>	
Test in small group or individually	Yes
Administer test in separate room	Yes
Preferential seating, special lighting or furniture	Yes
<i>Other Accommodations</i>	
Extended time	Yes
Breaks during test	Yes
Test sessions over several days	No
Abacus, Arithmetic tables, Graph paper, Thesaurus	No
Spelling and grammar checking software and devices	No

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 Reading, Mathematics, and Science Assessments

<sup>a</sup> Standard NAEP practice. Not considered an accommodation.

<sup>b</sup> Not provided by NAEP, but school, district, or state may provide after fulfilling NAEP security requirements.

**Table 2. Frequently-Provided Accommodations for English Language Learners**

Description of Accommodation	Permitted by NAEP?
Directions read aloud in English or presented by audiotope <sup>a</sup>	Yes
Small group	Yes
One-on-one (tested individually)	Yes
Extended time	Yes
Preferential seating	Yes
Bilingual dictionary without definitions	Yes <sup>b</sup> , except reading exams
Passages, other stimulus materials, or test questions read aloud in English or presented by audiotope	Yes, except reading exams
Bilingual version of test (Spanish/English)	No, except math and science
Bilingual word lists or glossaries (Spanish/English)	No, except science
Native language version of test	No
Passages, other stimulus material, or test questions translated aloud into native language or presented by audiotope <sup>c</sup>	No
Directions translated aloud into native language or presented by audiotope	No
Student's oral or written responses translated into written English	No

Source: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP) 2005 Reading, Mathematics, and Science Assessments

<sup>a</sup> Standard NAEP practice. Not considered an accommodation.

<sup>b</sup> Not provided by NAEP, but school, district, or state may provide after fulfilling NAEP security requirements.

<sup>c</sup> For Spanish/English bilingual mathematics and science, this would be standard NAEP practice. Not allowed otherwise.

### **Data Collection and Methodology**

NAEP data are collected using a closely monitored and standardized process. The tight controls that guide the data collection process help ensure the comparability of the results generated for the national and the state assessments. All NAEP sessions use the same assessment booklets and identical administration procedures, and contractor staff members direct all sessions during a single calendar assessment period.

In addition to assessing subject area knowledge and abilities, the NAEP collects information from participating students, teachers, and principals about contextual or background variables that are related to student achievement. When developing the

questionnaires used to gather this information, the NAEP ensures that the questions do not infringe on respondents' privacy, that they are grounded in current educational research, and that the answers can provide information relevant to the discussions about educational reform.

These questionnaires were developed using a framework and process similar to that used for cognitive questions. This process includes reviews by external advisory groups, pilot testing, and reviews by NCES, NAGB, and the Office of Management and Budget (OMB). For the main and state NAEP, the student questions appear in non-cognitive blocks. The background characteristic questions vary somewhat by grade level within a subject, and the subject area experience questions differ slightly by grade level within a subject. Unlike the cognitive blocks, these non-cognitive blocks do not differ among the assessment booklets for a given grade and subject. The teacher questionnaires vary based on subject area and may differ by grade level. The school questionnaires are completed by a school official for each grade of students participating in the assessment.

Some of the questionnaires, such as the student questionnaires, appear in separately printed and timed blocks of questions in the assessment booklets. Four general sources provide context information for the NAEP results as follows:

- Student questionnaires, which examine background characteristics and subject area instructional experience;
- Teacher questionnaires, which gather data on teacher training and classroom instruction;
- School questionnaires, which gather information about school characteristics and policies; and

- SD/LEP (students with disabilities or limited English proficiency) questionnaires, which provide information about students within the sample who have disabilities or limited proficiency in English.

### **Accessing of Data and Statistics**

Summary data that is collected by the NAEP is publicly available from the NAEP website (<http://nces.ed.gov/nationsreportcard/>), and customized tables can be produced using the NAEP data tool. However, only limited disability data is available using the Web data tool. NAEP databases have been released since 1969, and are available on CD-ROM for secondary researchers. An assortment of other information, including sample questions for each subject area, survey and background questionnaires, sampling information and manuals, can be downloaded from the NAEP website.

The National Center for Educational Statistics also produces a number of reports, based on data collected by the NAEP, which are available publicly; NAEP statistics and reports are published on the NAEP website. Additionally, NAEP has developed a number of different publications and Web-based tools that provide direct access to assessment results at the state and national level. For every major assessment release, Web-specific content is developed that is suitable to the Web environment.

- Results pages, such as those developed for the U.S. history assessment, highlight assessment results.
- State Profiles present state-level results and a history of state participation in the NAEP.
- The NAEP Data Tool provides comprehensive information on student performance.

- The NAEP Questions Tool links users to questions, student responses, and scoring guides that are released to the public.

Several types of printed reports published by the NAEP can be found under publications on the NAEP website (<http://nces.ed.gov/pubsearch/getpubcats.asp?sid=031>). These range from the NAEP Report Card, a comprehensive report that contains all the major results for each assessment, to technical reports that contain psychometric details of a national or state assessment.

### **Description of the NAEP Survey Instrument and Topics**

The NAEP SD/LEP questionnaire for 2003 consists of 24 multiple choice items. The first fourteen items are to be completed if the student has a disability and the remaining ten items are to be completed if the student is LEP. The fourteen disability-related items cover the following topics: type of disability; severity of disability; IEP test participation; grade level of language arts and mathematics instruction; inclusion in language arts and mathematics curriculum content of non-disabled students; testing accommodations allowed; appropriateness of testing with or without accommodations; and type of presentation, response, setting or timing accommodation given. The ten LEP-related items cover the following topics: student's native language, number of academic years receiving language arts and mathematics instruction in English, amount of instruction given in student's native language, grade level of language arts and mathematics instruction, testing accommodations allowed, appropriateness of testing with or without accommodations, and type accommodation given.

## **NAEP Security Requirements**

Under the National Assessment of Educational Progress Authorization Act (Public Law 107-279 III, section 303), the Commissioner of the National Center for Education Statistics (NCES) is charged with ensuring that NAEP tests do not question test-takers about personal or family beliefs or make information about their personal identity publicly available. The NCES provides Micro-level NAEP data to researchers in raw format for the purpose of secondary analysis only after the researcher's organization applies for and receives a restricted-use data license from the NCES. The license is intended to protect the confidentiality of individual students and schools.

## **Definitions of Disability and Other Variables**

A description of the survey questions and the methods used to produce data on disability, demographics, and economic background is shown in Tables 3-6.

***Definition of Disability.*** All students with information on the type of disability question (Question 1 on the SD/LEP survey) were defined as our population with disabilities.<sup>3</sup> Therefore, students with disabilities are those students for which an SD/LEP survey was assigned and for whom the school official has categorized as a student with one of the following conditions: a specific learning disability, hearing impairment/deafness, visual impairment/blindness, speech or language impairment,

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<sup>3</sup> An alternative is to define the population with disabilities as all students with *any* information from the disability section of the SD/LEP survey. This would have led to a large sample of students with disabilities, but the additional students gained from this approach would have had missing values for disability type. Type of disability is a critical variable in our analysis. In the SD/LEP survey question on type of disability, there is an "other" category, and "do not know" was not a choice, both of which will influence response rates to this question. To get an understanding of the restrictiveness of our approach to defining disability, there were 257 fourth-grade observations that have information on the degree/severity of disability and lack information on the type of disability; for eighth-grade students, there were 194 such observations.

mental retardation, emotional disturbance, orthopedic impairment, traumatic brain injury, autism, developmental delay (age 9 or younger), other health impairment, or other disability.

Disability terms used in the questionnaire are adopted from the OSEP and should be familiar to the administrators filling out the SD/LEP survey. The Individuals with Disabilities Education Act Amendments of 1997 (P.L. 105-17) defines them as follows:

Autism: A developmental disability significantly affecting verbal and nonverbal communication and social interaction, generally evident before age 3, that adversely affects a child's educational performance. Other characteristics often associated with autism are engagement in repetitive activities and stereotyped movements, resistance to environmental change or change in daily routines, and unusual responses to sensory experiences. The term does not apply if a child's educational performance is adversely affected primarily because the child has a serious emotional disturbance as defined below.

Deafness: A hearing impairment so severe that the child is impaired in processing linguistic information through hearing, with or without amplification that adversely affects a child's educational performance.

Deaf-Blindness: A combination of hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational needs that they cannot be accommodated in special education programs solely for children with deafness or children with blindness.

Hearing Impairment: An impairment in hearing, whether permanent or fluctuating, that adversely affects a child's educational performance but that is not included under the definition of deafness as listed above.

Mental Retardation: Significantly sub-average general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period that adversely affects a child's educational performance.

Multiple Disabilities: A combination of impairments (such as mental retardation-blindness or mental retardation-orthopedic impairment), the combination of which causes such severe educational needs that they cannot be accommodated in special education programs solely for one of the impairments. Multiple disabilities does not include deaf-blindness.

Orthopedic Impairment: A severe orthopedic impairment that adversely affects a child's educational performance. The term includes impairments caused by a congenital anomaly, impairments caused by disease (e.g., poliomyelitis, bone tuberculosis), and impairments from other causes (e.g., cerebral palsy, amputations, and fractures or burns that cause contractures).

Other Health Impairment: Having limited strength, vitality, or alertness, including a heightened alertness to environmental stimuli, that results in limited alertness with respect to the educational environment, which adversely affect educational performance.

Serious Emotional Disturbance: A condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance: (A) An inability to learn that cannot be explained by intellectual, sensory, or health factors. (B) An inability to build or maintain satisfactory interpersonal relationships with peers and teachers. (C) Inappropriate types of behavior or feelings under normal circumstances. (D) A general pervasive mood of unhappiness or depression. (E) A tendency to develop physical symptoms or fears associated with personal or school problems.

Specific Learning Disability: A disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in the imperfect ability to listen, think, speak, read, write, spell, or to do mathematical calculations, including conditions such as perceptual disabilities, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia.

Speech or Language Impairment: A communication disorder such as stuttering, impaired articulation, a language impairment, or a voice impairment, that adversely affects a child's educational performance.

Traumatic Brain Injury: An acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child's educational performance. Traumatic brain injury applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; language; memory; attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual, and motor abilities; psychosocial behavior; physical functions; information processing; and speech. Traumatic brain injury does not apply to brain injuries that are congenital or degenerative, or to brain injuries induced by birth trauma.



Visual Impairment, Including Blindness: An impairment in vision that, even with correction, adversely affects a child's educational performance. The term includes both partial sight and blindness.

We map the aforementioned responses to Question 1 into their corresponding ICF concepts of impairment to define disability types. While some of the disability questions in the ACS and NHIS are activity and/or participation based (ADLs and IADLs), the NAEP questions are rooted in body function or the impairment classification of disability. The only exception is the “specific learning disability” which corresponds to the ICF concept of activity restrictions.

*Definition of Inclusion.* We utilize whether a student is included in the NAEP mathematics assessment to define inclusion. As an alternative, we could have used the recommendation of the school official filling out the SD/LEP questionnaire, Question 14 (see Appendix A). As will be shown in our descriptive analysis, the NAEP largely follows the recommendations of the school official filling out the SD/LEP questionnaire with regard to inclusion.

### **Curriculum Content**

Curriculum content in mathematics in the NAEP is based on Question 7 of the SD/LEP survey for students with disabilities. Students could be categorized as not receiving instruction in mathematics, receiving the same curriculum instruction in mathematics as non-disabled students, or receiving different curriculum instruction in mathematics than non-disabled students.

### **Suggested NAEP Participation (With or Without Accommodations)**

The appropriateness of taking the NAEP mathematics assessment was assessed with question 14 of the SD/LEP survey. Students with disabilities could be identified as

being able to take the NAEP mathematics assessment without accommodations or adaptations, with accommodations or adaptations, or not able to take the mathematics assessment as recommended by the IEP team or an equivalent group.

### **Race, Ethnicity and Gender**

Race/ethnicity data in the NAEP are obtained from school records. When the school data are missing, student-reported information is used. The racial/ethnic categories are the following mutually exclusive categories: White (non-Hispanic), black (non-Hispanic), Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, and Unclassified. Hispanic students could be of any racial category. The “unclassified” category includes those who self-report more than one race category, or whose school reported the student’s race as “unavailable,” “other” or did not supply a response. Gender is self-reported by students.

### **School Location**

A school’s “type of location” is determined by its physical location and the characteristics of the population of that location. There are three categories (1) “Central city” schools, which are located in a large city (a principle city with a population of at least 250,000) or mid–size city (a principle city of a metropolitan area with a population of less than 250,000); (2) urban fringe/large town schools, which are located in a metropolitan area of a large or mid-sized city, in a city or town classified by the Census Bureau as urban that does not qualify as a principle city, or in large towns that include schools located outside a metropolitan area in a town with at least 25,000 in total population; and (3) rural/small town schools, whose locations are classified as rural by the Census Bureau or are located outside a metropolitan area in small towns with total

populations between 2,500 and 25,000

(<http://nces.ed.gov/nationsreportcard/glossary.asp>).

### **Eligibility for Free and Reduced-Price School Lunch**

The Department of Agriculture's national School Lunch Program provides subsidies and donated commodities to schools that offer free or reduced-price lunches to eligible children. Eligibility is based on school records and is determined by the family's income as it relates to the federal poverty level. In order to qualify for free lunch the family must earn 130 percent of the poverty level or less. To qualify for reduced-price lunch the family income needs to be between 130-185 percent of the poverty level.

### **Population and Prevalence Estimates**

*Sample Restrictions.* In the tables below, we limit our analysis to students in the fifty states and District of Columbia (DC). (Note: DC is referred to as a state in the following discussion and in all tables.) Since there is variation in private and Catholic school attendance across states, and students with disabilities are less likely to attend private schools as revealed in the data, private and Catholic school students are included in our analytical sample. We excluded from our analytical sample students in the Department of Defense Domestic Dependent Elementary and Secondary Schools (DDESS) and Department of Defense Dependents Schools-Overseas (DoDDS). In our descriptive analysis we use all observations, and for each variable that allows missing values we provide estimates for those with missing values.

### **NAEP Description of Disability Population**

#### *Demographics*

In Tables 3-6 we provide estimates for the mathematics assessment portion of the NAEP for both fourth and eighth graders addressing the demographic characteristics of who is classified as having a disability, where the students are located, specific disability-related characteristics, and the limited economic indicators available (free or reduced-price lunch eligibility and school type).

### ***Composition of the Population with Disabilities***

Table 3 provides the number and prevalence rates of students in the fourth and eighth grades by demographic characteristics. Note that most of the characteristics listed in the tables are remarkably consistent between the fourth and eighth grades with the exception of race and ethnicity. Of the nearly 4 million students in both fourth and eighth grades, approximately 11 percent of each grade (437,000) is comprised of students with disabilities. In terms of gender, nearly twice as many males have a disability in both the fourth and eighth grades, resulting in males comprising approximately two-thirds of the total population with a disability in both grades. The NAEP reveals that 14.2 percent of fourth-grade males and 14.5 percent of eighth-grade males have a disability compared with only 7.5 percent of females in fourth and 7.6 percent of females in eighth grade.

Race and ethnicity varies more between the two grades, although the differences are not substantial and may be related to the degree of missing responses (7.6 percent of fourth and 9.6 percent of eighth grade students lack this information). For both fourth and eighth graders, Asian and Pacific Islanders have the lowest disability prevalence rate (6.7 percent of fourth graders, 5.6 percent of eighth graders) while American Indian/Alaska Natives have the highest prevalence rate (15.2 percent of fourth graders, 16.3 percent of

eighth graders). The disability prevalence rates of the other groups (White, Black/African American and Hispanics) range from 10.2 percent to 13.2 percent.

There are minor differences by school location with Central city locations reporting lower prevalence rates (10.1 percent of fourth graders, 10.5 percent of eighth graders) than those located in the “urban fringe” (10.9 percent of fourth graders, 10.6 percent of eighth graders). Children attending rural schools have the highest prevalence rates with 12.1 percent of fourth graders and 12.4 percent of eighth graders having a disability.

**Table 3. Number and prevalence of students with disabilities in the fourth and eighth grade, by grade and demographic characteristics<sup>a</sup>**

Demographic Characteristic	Fourth Grade			Eighth Grade		
	Number of Students	Number of Students with Disabilities	Percentage of Students with Disabilities	Number of Students	Number of Students with Disabilities	Percentage of Students with Disabilities
<b>Total</b>	3,986,303	437,041	11.0	3,936,978	437,238	11.1
<b>Gender</b>						
Male	2,051,519	291,642	14.2	1,993,998	289,341	14.5
Female	1,930,434	145,133	7.5	1,938,440	147,618	7.6
Missing Responses	4,350	271	6.2	4,540	276	6.1
<b>Race/Ethnicity</b>						
White	2,337,382	256,266	11.0	2,422,937	259,560	10.7
Black/African American	661,116	85,369	12.9	646,470	85,059	13.2
Hispanic	715,821	72,705	10.2	581,715	69,063	11.9
Asian, Pacific Islander Amer. Indian/Alaska Native	166,807	11,130	6.7	175,582	9,818	5.6
Missing Responses	47,113	7,166	15.2	46,847	7,645	16.3
<b>School Location</b>						
Central city	58,064	4,410	7.6	63,427	6,090	9.6
Urban Fringe	1,242,234	125,036	10.1	1,157,165	121,186	10.5
Rural	1,626,709	177,098	10.9	1,632,051	173,313	10.6
Missing Responses	1,117,360	134,907	12.1	1,147,762	142,737	12.4
	0	5	NA	0	0	NA

Source: Authors' calculations using the NAEP 2003 Mathematics Assessment data, using the state samples.

<sup>a</sup> Students are defined as having a disability if they have information on disability type.

### *Prevalence of Disability Across States*

The prevalence of disability varied greatly across states. As is shown in Table 4a below, and Table 4b in Appendix A, 11 percent of fourth-grade students in the United States in 2003, were students with disabilities. In other words, roughly 437,000 out of 4,000,000 fourth graders were students with disabilities. Among fourth-grade students, the prevalence of disability varied from 7.2 percent to 16.1 percent across states. The states with the five highest percentages of fourth-grade students with disabilities were Rhode Island (16.1 percent), New Hampshire (15.8 percent), Florida (15.4 percent), Alaska (14.7 percent), and Massachusetts (14.6 percent). The states with the five lowest percentages of fourth-grade students with disabilities were California (7.2 percent), Mississippi (8.1 percent), Hawaii (8.5 percent), Maryland, and Connecticut (both with 9.2 percent).

Among eighth-grade students in the United States in 2003, students with disabilities accounted for 11.1 percent. Among eighth-grade students, the prevalence of disability varied from 7.8 percent to 16.7 percent across states. The states with the five highest percentages of eighth-grade students with disabilities were New Hampshire (16.7 percent), New Mexico (16.5 percent), Vermont (15.0 percent), Rhode Island (14.7 percent), and Maine (14.5 percent); note that four of these five were New England states. The states with the five lowest percentages of eighth-grade students with disabilities were Mississippi (7.8 percent), California (8.3 percent), Idaho (8.9 percent), Georgia (9.0 percent), and Arizona (9.2 percent).

The prevalence of disability at the state level was positively correlated between fourth and eighth grades—a correlation coefficient of 0.60. The states with the greatest increase in percentage change in disability prevalence from fourth graders to eighth graders were Hawaii (43.5 percent), New Mexico (39.8 percent), Connecticut (35.9 percent), New York (19.1 percent), and Virginia (16.4 percent). The states with the greatest decrease in percentage change from fourth graders to eighth graders were South Dakota (-28.5 percent), the District of Columbia (-28.1 percent), Louisiana (-24.0 percent), Florida (-23.4 percent), and Nebraska (-20.6 percent). The states with the least percentage difference from fourth graders to eighth graders were Nevada (0.0 percent), Maine (0.7 percent), Oklahoma (-1.4 percent), Kansas (-1.7 percent), and South Carolina (-2.1 percent).

#### ***Distribution by Disability Across Disability-Related Characteristics***

Table 5 shows the percentage distribution of students with disabilities in the fourth and eighth grades across various disability-related characteristics. With regards to the type of disability, children with specific learning disabilities account for more than half of all students with disabilities (they comprise 50.7 percent of fourth graders with disabilities and 64.4 percent of eighth graders with disabilities). The next most common specified disability types for fourth graders are speech or language impairment (16.2 percent) and mental retardation (6.6 percent). For eighth graders the most common types after LD are mental retardation (6.6 percent) and emotional disturbance (4.7 percent).

The majority of the students are defined as having mild or moderate disabilities. Forty percent of fourth graders have moderate disabilities while 47.1 percent have mild disabilities; 36.8 percent of eighth graders have moderate disabilities while 53.1 percent

have mild disabilities. Nearly one in ten of the fourth graders with disabilities are defined as having severe disabilities (9.6 percent) as compared with 6.8 percent of eighth graders with disabilities. Most students with disabilities receive the same math curriculum as those without disabilities (75.6 percent of fourth graders, 66.3 percent of eighth graders). With regards to the suggested math NAEP participation, approximately one in ten are deemed unable to participate (11.3 percent of fourth graders, 9.6 percent of eighth graders). The majority can participate with an accommodation (60.6 percent of fourth graders, 62.7 percent of eighth graders), with approximately a quarter able to participate without an accommodation (24.1 percent of fourth graders, 23.5 percent of eighth graders).

**Table 4a. Prevalence of students with disabilities in the fourth and eighth grades, by grade and location<sup>a</sup>**

Location	Fourth Grade			Eighth Grade		
	Number of Students	Number of Students with Disabilities	Percentage of Students with Disabilities	Number of Students	Number of Students with Disabilities	Percentage of Students with Disabilities
<i>United States</i>	3,986,303	437,041	11.0	3,936,978	437,238	11.1
Alabama	64,449	6,223	9.7	60,518	6,596	10.9
Alaska	8,921	1,307	14.7	9,720	1,287	13.2
Arizona	77,038	7,944	10.3	79,797	7,376	9.2
Arkansas	36,646	4,540	12.4	39,096	4,982	12.7
California	530,464	38,198	7.2	478,186	39,580	8.3
Colorado	59,766	6,584	11.0	60,252	5,955	9.9
Connecticut	49,192	4,537	9.2	42,437	5,287	12.5
Delaware	9,865	1,186	12.0	9,569	1,265	13.2
District of Columbia	7,735	1,072	13.9	6,316	632	10.0
Florida	211,529	32,599	15.4	193,037	22,773	11.8
Georgia	122,286	12,561	10.3	119,456	10,721	9.0
Hawaii	16,435	1,395	8.5	14,850	1,811	12.2
Idaho	17,954	1,946	10.8	20,163	1,804	8.9
Illinois	175,313	21,626	12.3	163,376	18,060	11.1
Indiana	94,687	10,404	11.0	93,150	9,618	10.3



**Table 4a (continued). Prevalence of students with disabilities in the fourth and eighth grades, by grade and location<sup>a</sup>**

Location	Fourth Grade			Eighth Grade		
	Number of Students	Number of Students with Disabilities	Percentage of Students with Disabilities	Number of Students	Number of Students with Disabilities	Percentage of Students with Disabilities
Iowa	39,134	4,957	12.7	42,987	5,812	13.5
Kansas	38,514	4,551	11.8	38,719	4,505	11.6
Kentucky	52,789	6,202	11.7	55,839	5,738	10.3
Louisiana	64,973	8,388	12.9	62,869	6,162	9.8
Maine	15,704	2,263	14.4	16,966	2,463	14.5
Maryland	70,288	6,487	9.2	70,781	6,915	9.8
Massachusetts	78,858	11,536	14.6	85,573	10,998	12.9
New Hampshire	16,544	2,608	15.8	17,428	2,907	16.7
New Jersey	111,844	12,973	11.6	115,292	14,488	12.6
New Mexico	32,139	3,796	11.8	24,606	4,069	16.5
New York	245,624	23,016	9.4	248,200	27,919	11.2
North Carolina	106,384	14,253	13.4	118,231	14,484	12.3
North Dakota	7,723	1,110	14.4	8,749	1,058	12.1
Ohio	164,529	15,666	9.5	162,243	16,608	10.2
Oklahoma	50,366	7,126	14.1	48,765	6,785	13.9
Oregon	41,698	5,883	14.1	46,156	5,204	11.3
Pennsylvania	161,153	16,317	10.1	163,287	18,419	11.3
Rhode Island	14,044	2,266	16.1	15,734	2,317	14.7
South Carolina	55,103	7,757	14.1	55,457	7,664	13.8
South Dakota	9,487	1,234	13.0	9,960	923	9.3
Tennessee	79,207	7,826	9.9	72,044	7,977	11.1
Texas	329,904	40,004	12.1	344,585	44,222	12.8
Utah	34,642	3,690	10.7	35,074	3,526	10.1
Vermont	7,437	1,055	14.2	8,082	1,213	15.0
Virginia	101,616	11,214	11.0	98,141	12,515	12.8
Washington	81,263	8,808	10.8	83,633	8,237	9.8
West Virginia	22,321	2,845	12.7	21,476	2,894	13.5
Wisconsin	71,148	8,315	11.7	74,533	9,264	12.4
Wyoming	6,162	799	13.0	6,817	863	12.7

Source: Authors' calculations using the NAEP 2003 Mathematics Assessment data, using the state samples.

<sup>a</sup>Students are defined as having a disability if they have information on disability type.

**Table 5. Percentage distribution of students with disabilities in the fourth and eighth grades across various disability-related characteristics<sup>a</sup>**

Disability-Related Characteristics	Fourth Grade		Eighth Grade	
	Number of Students with Disabilities	Percentage of Students with Disabilities	Number of Students with Disabilities	Percentage of Students with Disabilities
<b><i>Type of Disability</i></b>	437,046	100.0	437,235	100.0
Specific learning disability	221,755	50.7	281,390	64.4
Hearing impairment/deafness	4,723	1.1	4,911	1.1
Visual impairment/blindness	1,954	0.4	1,522	0.3
Speech or language impairment	70,602	16.2	15,797	3.6
Mental retardation	28,683	6.6	34,389	7.9
Emotional disturbance	20,469	4.7	28,681	6.6
Orthopedic impairment	2,277	0.5	1,859	0.4
Traumatic brain injury	1,102	0.3	1,214	0.3
Autism	9,774	2.2	5,101	1.2
Develop. delay (age 9 or younger)	1,777	0.4	203	0.0
Other health impairment	27,567	6.3	26,063	6.0
Other	32,266	7.4	28,250	6.5
Multiple responses	14,097	3.2	7,855	1.8
<b><i>Degree of Disability</i></b>				
Profound/Severe	41,768	9.6	29,614	6.8
Moderate	174,702	40.0	161,031	36.8
Mild	205,638	47.1	231,966	53.1
Missing responses	14,938	3.4	14,624	3.3
<b><i>Curriculum Content</i></b>				
Not receiving instruction in math	4,419	1.0	3,280	0.8
Same curriculum	330,449	75.6	290,000	66.3
Different curriculum	90,146	20.6	121,017	27.7
Missing responses	12,032	2.8	22,938	5.2
<b><i>Suggested NAEP Participation</i></b>				
Without accommodation/adaptation	105,371	24.1	102,953	23.5
With accommodation/adaptation	264,996	60.6	274,348	62.7
Determined cannot participate	49,492	11.3	42,164	9.6
Missing responses	17,187	3.9	17,770	4.1

Source: Authors' calculations using the NAEP 2003 Mathematics Assessment data, using the state samples.

<sup>a</sup>Students are defined as having a disability if they have information on disability type.

***Economic Indicators: Free and Reduced-Price Lunch Program Eligibility and School Type***

Table 6 provides a sense of the economic status of the students. It presents information regarding eligibility for free and reduced-price lunch programs, as well as percentage of students in public, private, and Catholic schools, by grade and disability status. A larger proportion of children with disabilities than those without disabilities are eligible for free and reduced-price lunch programs in both fourth (53.3 percent with disabilities compared with 39.7 without disabilities) and eighth grade (47.9 percent with disabilities compared with 32.5 percent without disabilities). The rate of eligibility for this program is indicative of a higher poverty rate among children with disabilities. A much higher proportion of students with disabilities attend public schools for both grades than those without disabilities, again indicative of the relative economic situation of the children with disabilities. A much smaller proportion of fourth graders with disabilities than those without disabilities attend private schools (1.1 percent compared with 5.0 percent) or catholic schools (1.3 percent compared with 5.3 percent). The same pattern is shown for eighth graders: private schools (0.7 percent compared with 4.7 percent) or Catholic schools (0.9 percent compared with 5.4 percent).

**Table 6. Percentage of fourth- and eighth-grade students eligible for free and reduced-price lunch programs and percentage of students in public, private, and Catholic schools, by grade and disability status<sup>a</sup>**

Socioeconomic Characteristic	Fourth Grade		Eighth Grade	
	Students with Disabilities	Students without Disabilities	Students with Disabilities	Students without Disabilities
<i>Free and Reduced-Price Lunch</i>				
Eligible	53.3	39.7	47.9	32.5
Not eligible	41.5	50.0	45.9	55.8
Info not available	5.2	10.3	6.2	11.7
<i>Type of School</i>				
Public	97.5	89.5	98.4	89.9
Private	1.1	5.0	0.7	4.7
Catholic school	1.3	5.3	0.9	5.4

Source: Authors' calculations using the NAEP 2003 Mathematics Assessment data, using the state samples.

<sup>a</sup> Students are defined as having a disability if they have information on disability type. Percentages are based on all students with non-missing data.

### ***Inclusion Rates Estimates by Disability and Other Characteristics***

Table 7 presents the number of students included in the NAEP mathematics assessment, by grade level and disability-related characteristics. As evidenced by the table, the inclusion rate varies widely depending on the type of disability. The percent included with autism and mental retardation is quite low, around 40 percent in the fourth and eighth grades. The disability type most likely to be included in the NAEP math assessment were those with speech or language impairments with 94.3 percent of fourth graders included and 88 percent of eighth graders included. Those with specific learning disabilities are also included at a fairly high rate: 82.7 percent of fourth graders and 84.6 percent in eighth grade. There is a fairly large change in the percentage included for those

with visual impairments/blindness with 74.1 percent of fourth graders included as compared to 89 percent of eighth graders.

Disability severity clearly impacts the inclusion rate. Slightly less than half of those with profound/severe disabilities are included while around three quarters of those with moderate and 88.3 percent of those with a mild degree of disability were included in the NEAP math assessment. With regards to curriculum content, the majority of students with disabilities who had the same curriculum as those without disabilities were included in the NAEP math assessment (86.7 percent of fourth graders, 87.3 percent of eighth graders). Nearly all of those who were recommended to take the NAEP math assessment without an accommodation did so: 97.4 percent of fourth graders and 95.7 percent of eighth graders. The majority of those who were encouraged to participate with accommodations also participated (86.5 percent of fourth graders and 85.0 percent of eighth graders).

**Table 7. Number of fourth- and eighth-grade students with disabilities and the percentage of included in the NAEP assessment, by grade and various disability-related characteristics<sup>a</sup>**

<b>Disability-Related Characteristics</b>	<b>Fourth Grade</b>		<b>Eighth Grade</b>	
	<b>Number of Students with Disabilities</b>	<b>Percentage of Students with Disabilities Included</b>	<b>Number of Students with Disabilities</b>	<b>Percentage of Students with Disabilities Included</b>
<b><i>Type of Disability</i></b>				
Specific learning disability	437,046	79.6	437,235	79.8
Hearing impairment/deafness	221,755	82.7	281,390	84.6
Visual impairment/blindness	4,723	74.3	4,911	75.8
Speech or language impairment	1,954	74.1	1,522	89.0
Speech or language impairment	70,602	94.3	15,797	88.7
Mental retardation	28,683	39.0	34,389	38.9
Emotional disturbance	20,469	75.7	28,681	81.4
Orthopedic impairment	2,277	76.9	1,859	72.9
Traumatic brain injury	1,102	62.7	1,214	70.1
Autism	9,774	42.2	5,101	36.6
Develop. delay (age 9 or younger)	1,777	82.4	203	69.0
Other health impairment	27,567	77.1	26,063	82.5
Other	32,266	84.8	28,250	83.9
Multiple responses	14,097	69.0	7,855	69.8
<b><i>Degree of Disability</i></b>				
Profound/Severe	41,768	48.1	29,614	46.2
Moderate	174,702	76.3	161,031	74.8
Mild	205,638	88.3	231,966	87.3
Missing responses	14,938	87.3	14,624	84.4
<b><i>Curriculum Content</i></b>				
Not receiving instruction in math	4,419	57.0	3,280	40.4
Same curriculum	330,449	86.9	290,000	87.3
Different curriculum	90,146	54.2	121,017	61.5
Missing responses	12,032	79.3	22,938	87.4
<b><i>Suggested NAEP Participation</i></b>				
Without accommodation/adaptation	105,371	97.4	102,953	95.8
With accommodation/adaptation	264,996	86.5	274,348	85.0
Determined cannot participate	49,492	6.3	42,164	6.2
Missing responses	17,187	75.2	17,770	80.7

Source: Authors' calculations using the NAEP 2003 Mathematics Assessment data, using the state samples.

<sup>a</sup> Students are defined as having a disability if they have information on disability type.

***Inclusion Rates Estimates by Disability and State***

Table 8a below and Table 8b in Appendix A present the number and percent of students with disabilities included in the NAEP math assessment by state. Overall, nearly four out of five students with disabilities in both grades (79.4 percent of fourth graders, 79.8 percent of eighth graders) participated in the NAEP at the national level. However, the proportion participating in the assessments vary considerably by state. In Mississippi less than half of students with disabilities participated in both grades. Over 90 percent of the students with disabilities participated in both grades in Wyoming, Alaska, New Jersey and Idaho. The largest decrease in percentage change in the participation rate between fourth grade and eighth grade was for three states: Delaware, Louisiana, and South Carolina which all showed a reduction of more than 16 percent between the two grades.

**Table 8a. Number of fourth- and eighth-grade students with disabilities and the percentage of included in the NAEP assessment, by grade and location<sup>a</sup>**

Location	Fourth Grade		Eighth Grade	
	Number of Students with Disabilities	Percentage of Students with Disabilities Included	Number of Students with Disabilities	Percentage of Students with Disabilities Included
<i>United States</i>	437,041	79.6	437,238	79.8
Alabama	6,223	87.2	6,596	89.7
Alaska	1,307	95.5	1,287	94.7
Arizona	7,944	72.2	7,376	78.3
Arkansas	4,540	89.8	4,982	91.0
California	38,198	81.9	39,580	89.2
Colorado	6,584	87.4	5,955	91.0
Connecticut	4,537	82.1	5,287	80.6
Delaware	1,186	63.2	1,265	49.3
District of Columbia	1,072	65.4	632	67.9
Florida	32,599	90.4	22,773	89.2
Georgia	12,561	88.5	10,721	89.7
Hawaii	1,395	88.3	1,811	83.3

**Table 8a (continued). Number of fourth- and eighth-grade students with disabilities and the percentage of included in the NAEP assessment, by grade and location<sup>a</sup>**

Location	Fourth Grade		Eighth Grade	
	Number of Students with Disabilities	Percentage of Students with Disabilities Included	Number of Students with Disabilities	Percentage of Students with Disabilities Included
Idaho	1,946	91.7	1,804	95.8
Illinois	21,626	83.9	18,060	82.7
Indiana	10,404	87.8	9,618	85.4
Iowa	4,957	85.0	5,812	87.9
Kansas	4,551	90.2	4,505	83.1
Kentucky	6,202	80.7	5,738	73.0
Louisiana	8,388	85.9	6,162	68.5
Maine	2,263	85.1	2,463	79.6
Maryland	6,487	82.2	6,915	76.5
Massachusetts	11,536	88.7	10,998	87.9
Michigan	13,508	68.9	15,336	68.2
Minnesota	7,786	84.8	7,613	87.4
Mississippi	3,362	47.2	3,122	48.0
Missouri	9,690	79.9	10,209	76.3
Montana	1,357	88.7	1,311	87.0
Nebraska	3,134	85.6	2,852	82.6
Nevada	3,137	80.6	2,899	85.4
New Hampshire	2,608	88.4	2,907	83.8
New Jersey	12,973	91.6	14,488	95.3
New Mexico	3,796	89.8	4,069	90.6
New York	23,016	81.2	27,919	77.9
North Carolina	14,253	79.0	14,484	81.3
North Dakota	1,110	88.8	1,058	89.8
Ohio	15,666	68.0	16,608	65.2
Oklahoma	7,126	83.5	6,785	87.8
Oregon	5,883	80.7	5,204	84.2
Pennsylvania	16,317	84.5	18,419	92.4
Rhode Island	2,266	92.7	2,317	88.0
South Carolina	7,757	64.6	7,664	53.9
South Dakota	1,234	91.6	923	85.8
Tennessee	7,826	85.5	7,977	88.8
Texas	40,004	54.8	44,222	59.3
Utah	3,690	83.9	3,526	80.1
Vermont	1,055	78.5	1,213	86.0



**Table 8a (continued). Number of fourth- and eighth-grade students with disabilities and the percentage of included in the NAEP assessment, by grade and location<sup>a</sup>**

Location	Fourth Grade		Eighth Grade	
	Number of Students with Disabilities	Percentage of Students with Disabilities Included	Number of Students with Disabilities	Percentage of Students with Disabilities Included
Virginia	11,214	64.8	12,515	60.4
Washington	8,808	83.8	8,237	87.0
West Virginia	2,845	81.8	2,894	84.7
Wisconsin	8,315	79.1	9,264	84.5
Wyoming	799	93.7	863	93.7

Source: Authors' calculations using the NAEP 2003 Mathematics Assessment data, using the state samples.

<sup>a</sup>Students are defined as having a disability if they have information on disability type.

### Comparisons to Other Data Sources

*Comparison to OSEP Statistics.* An important validity check of the NAEP data and our analytical sample is to compare statistics derived from our sample to statistics reported by OSEP. In Tables 9 and 10, we compare OSEP- and NAEP-based statistics with respect to the prevalence of disability across states and the distribution of students with disabilities over the types of disability. Despite substantial differences in the way OSEP statistics and our NAEP statistics were calculated (see table notes), a high degree of correlation across states and disability types exists. From the results of these comparisons, we conclude that the NAEP is a valid source of disability statistics. For both the NAEP and the OSEP, children with specific learning disabilities comprise the greatest share of youth with disabilities. Speech or language impairment is 16.2 percent of the NAEP fourth-grade population as compared to 19.6 percent of the OSEP population, although this proportion drops significantly in the eighth-grade NAEP population.

**Table 9. Comparison of the NAEP and OSEP percentage distribution estimates over type of disability<sup>a</sup>**

<b>Location</b>	<b>2003 NAEP</b>		<b>2003 OSEP</b>
	<b>Fourth Grade</b>	<b>Eighth Grade</b>	<b>Public Schools Ages 6-17<sup>a</sup></b>
Type of Disability	100.0	100.0	100.0
Specific learning disability	50.7	64.4	47.2
Hearing impairment/deafness	1.1	1.1	1.2
Visual impairment/blindness	0.4	0.3	0.4
Speech or language impairment	16.2	3.6	19.6
Mental retardation	6.6	7.9	8.9
Emotional disturbance	4.7	6.6	8.0
Orthopedic impairment	0.5	0.4	1.1
Traumatic brain injury	0.3	0.3	0.4
Autism	2.2	1.2	2.3
Develop. delay (age 9 or younger)	0.4	0.0	1.2
Other health impairment	6.3	6.0	7.7
Other	7.4	6.5	---
Multiple responses/disabilities	3.2	1.8	2.0
Deaf-blindness	---	---	0.0

Source: Authors' calculations using the NAEP 2003 Mathematics Assessment data, using the state samples, and Twenty-Fourth Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act, Tables AA1 and AF4.

<sup>a</sup> There are important differences between our NAEP estimates and OSEP estimates. Our NAEP estimates are for fourth and eighth graders, while the OSEP estimates are for persons ages 6-17. Our NAEP estimates are based on public, private and Catholic school students, while OSEP estimates use only public school students. Our NAEP estimates uses a definition of disability based on responses to the 2003 NAEP SD/LEP questionnaire, while the OSEP estimates are based on whether a student received services under Part B of IDEA. The denominator in our NAEP percentages are based on enrollment as measured with NAEP data, while the OSEP denominator is based on overall population estimates for those ages 6-17 derived from the Census Bureau's Current Population Survey.

Table 10 compares the NAEP fourth- and eighth-grade estimates to the OSEP estimates for students ages 6-17 at the state and national levels. Even given the broader age range included in the OSEP figures, at the national level the OSEP estimates are quite similar to the NAEP estimates (NAEP: 11 percent of fourth graders, and 11.1 percent of the eighth graders have a disability; OSEP: 11.6 percent of students ages 6-17 have a

disability). At the state level, a correlation of 0.59 exists for the fourth graders and 0.54 for the eighth graders between the NAEP and the OSEP estimates, despite the differences in the defined OSEP age groupings.

**Table 10. Comparison of the NAEP and OSEP disability prevalence estimates by state**

Location	2003 NAEP				2003 OSEP
	Fourth Grade		Eighth Grade		Public Schools
	Rank	Prevalence	Rank	Prevalence	Ages 6-17 <sup>a</sup>
<i>United States</i>		11.0		11.1	11.6
Alabama	9	9.7	19.0	10.9	10.7
Alaska	48	14.7	41.0	13.2	11.7
Arizona	13	10.3	5.0	9.2	9.5
Arkansas	31	12.4	36.0	12.7	11.6
California	1	7.2	2.0	8.3	9.2
Colorado	19	11.0	10.0	9.9	9.0
Connecticut	4	9.2	33.0	12.5	10.7
Delaware	27	12.0	40.0	13.2	11.6
District of Columbia	39	13.9	11.0	10.0	16.3
Florida	49	15.4	28.0	11.8	12.9
Georgia	12	10.3	4.0	9.0	10.9
Hawaii	3	8.5	30.0	12.2	10.3
Idaho	15	10.8	3.0	8.9	9.7
Illinois	29	12.3	20.0	11.1	12.5
Indiana	18	11.0	15.0	10.3	13.4
Iowa	33	12.7	43.0	13.5	13.5
Kansas	26	11.8	27.0	11.6	11.3
Kentucky	24	11.7	14.0	10.3	12.0
Louisiana	35	12.9	8.0	9.8	10.8
Maine	46	14.4	47.0	14.5	15.4
Maryland	5	9.2	7.0	9.8	10.4
Massachusetts	47	14.6	39.0	12.9	13.5
Michigan	8	9.5	16.0	10.5	11.6
Minnesota	21	11.2	17.0	10.8	11.2
Mississippi	2	8.1	1.0	7.8	11.0
Missouri	30	12.4	44.0	13.7	12.6
Montana	32	12.5	22.0	11.1	11.1
Nebraska	40	14.1	23.0	11.2	12.8

**Table 10 (continued). Comparison of the NAEP and OSEP disability prevalence estimates by state**

Location	2003 NAEP				2003 OSEP
	Fourth Grade		Eighth Grade		Public Schools
	Rank	Prevalence	Rank	Prevalence	Ages 6-17 <sup>a</sup>
Nevada	17	10.9	18.0	10.9	10.1
New Hampshire	50	15.8	51.0	16.7	12.5
New Jersey	22	11.6	34.0	12.6	14.6
New Mexico	25	11.8	50.0	16.5	12.7
New York	6	9.4	24.0	11.2	11.8
North Carolina	38	13.4	31.0	12.3	12.0
North Dakota	45	14.4	29.0	12.1	11.5
Ohio	7	9.5	13.0	10.2	11.4
Oklahoma	43	14.1	46.0	13.9	13.7
Oregon	42	14.1	25.0	11.3	11.3
Pennsylvania	11	10.1	26.0	11.3	11.9
Rhode Island	51	16.1	48.0	14.7	16.5
South Carolina	41	14.1	45.0	13.8	13.7
South Dakota	37	13.0	6.0	9.3	10.8
Tennessee	10	9.9	21.0	11.1	11.3
Texas	28	12.1	38.0	12.8	10.8
Utah	14	10.7	12.0	10.1	10.3
Vermont	44	14.2	49.0	15.0	11.6
Virginia	20	11.0	37.0	12.8	12.2
Washington	16	10.8	9.0	9.8	10.2
West Virginia	34	12.7	42.0	13.5	15.9
Wisconsin	23	11.7	32.0	12.4	11.4
Wyoming	36	13.0	35.0	12.7	12.7

Source: Authors' calculations using the NAEP 2003 Mathematics Assessment data, using the state samples, and Twenty-Fourth Annual Report to Congress on the Implementation of the Individuals with Disabilities Education Act, Tables AA1 and AF4.

<sup>a</sup> There are important differences between our NAEP estimates and OSEP estimates. Our NAEP estimates are for fourth and eighth graders, while the OSEP estimates are for persons ages 6-17. Our NAEP estimates are based on public, private and Catholic school students, while OSEP estimates use only public school students. Our NAEP estimates uses a definition of disability based on responses to the 2003 NAEP SD/LEP questionnaire, while the OSEP estimates are based on whether a student received services under Part B of IDEA. The denominator in our NAEP percentages are based on enrollment as measured with NAEP data, while the OSEP denominator is based on overall population estimates for those ages 6-17 derived from the Census Bureau's Current Population Survey.

### *Comparison to American Community Survey Statistics*

Table 11a compares the fourth-grade NAEP numbers to estimates derived from the 2003 ACS Public Use Micro-data Sample (PUMS) data, limited to children ages 9-10, the typical ages of those in fourth grade, at the national and state levels. Table 11b displays the same for eighth graders (ages 13-14). The prevalence rates are significantly smaller for the ACS in both tables. The disparity between the NAEP and ACS estimates may be attributed to the limited question set used for defining disability in the ACS and the broader disability determination used in the NAEP. The ACS questionnaire is also more likely to be completed by the parents who may be hesitant to identify or label their child as having a disability in the ACS form, or who may decide that their child does not fit into the ACS disability categories.

In terms of state-level correlations, there is a 0.26 correlation between the fourth-grader NAEP and the overall ACS disability measure, and a 0.34 correlation with the ACS mental disability category. Given that the majority of the NAEP population is children with LD, the correlation with the mental disability category makes sense as the ACS “mental disability” question used is focused on difficulty with “learning, remembering, or concentrating.” For the eighth-grade NAEP population, these correlations drop to a 0.11 correlation with the overall ACS disability measure and a correlation of 0.07 with the ACS mental disability category.

**Table 11a. Comparison to the NAEP fourth-grade prevalence rates and prevalence rates obtained from the 2003 American Community Survey (ACS) for children ages 9-10.**

State	NAEP Fourth Graders	ACS Children Ages 9-10				
		Overall Disability	Sensory Disability	Physical Disability	Mental Disability	Self-Care Disability
<i>United States</i>	11.0	6.6	1.1	1.1	5.5	0.8
Alabama	9.7	8.0	2.0	0.8	6.5	0.2
Alaska	14.7	9.0	2.6	1.3	5.3	0.2
Arizona	10.3	8.4	2.5	1.5	5.9	1.2
Arkansas	12.4	8.6	0.6	1.5	8.0	1.3
California	7.2	4.3	0.9	0.9	3.5	0.7
Colorado	11.0	4.2	0.7	0.5	3.5	0.6
Connecticut	9.2	3.9	0.2	1.1	2.6	0.7
Delaware	12.0	5.3	1.5	1.4	4.8	1.3
District of Columbia	13.9	8.1	1.8	0.5	7.7	0.6
Florida	15.4	6.5	0.8	1.0	5.6	0.7
Georgia	10.3	5.5	1.4	1.4	4.4	0.3
Hawaii	8.5	2.0	0.3	0.2	1.7	0.5
Idaho	10.8	7.6	0.5	0.8	7.3	0.6
Illinois	12.3	6.0	1.4	1.1	4.9	0.6
Indiana	11.0	6.0	0.7	0.8	5.0	1.1
Iowa	12.7	8.2	1.9	0.3	7.2	0.6
Kansas	11.8	7.7	1.0	1.9	6.6	2.0
Kentucky	11.7	9.7	1.7	1.5	8.2	1.7
Louisiana	12.9	6.4	0.4	0.4	6.0	0.2
Maine	14.4	8.3	1.1	0.8	6.8	0.6
Maryland	9.2	5.8	0.9	1.2	4.9	0.8
Massachusetts	14.6	6.7	1.3	0.5	5.5	0.6
Michigan	9.5	8.5	1.4	1.6	7.1	0.8
Minnesota	11.2	9.3	2.0	1.4	8.1	1.8
Mississippi	8.1	10.4	2.0	4.3	6.4	3.0
Missouri	12.4	6.4	0.8	1.0	5.7	1.2
Montana	12.5	3.2	0.6	0.3	2.3	0.0
Nebraska	14.1	10.9	0.9	1.6	10.4	1.1
Nevada	10.9	5.4	1.1	0.5	4.5	0.8
New Hampshire	15.8	6.0	0.2	0.9	6.0	0.0
New Jersey	11.6	4.2	0.1	0.3	4.0	0.3
New Mexico	11.8	5.1	2.2	0.7	3.5	0.0
New York	9.4	5.5	0.7	0.9	4.3	0.5

**Table 11a (continued). Comparison to the NAEP fourth-grade prevalence rates and prevalence rates obtained from the 2003 American Community Survey (ACS) for children ages 9-10.**

State	NAEP	Overall Disability	ACS Children Ages 9-10			
	Fourth Graders		Sensory Disability	Physical Disability	Mental Disability	Self-Care Disability
North Dakota	14.4	5.9	0.9	0.9	5.0	0.9
Ohio	9.5	7.7	1.3	1.9	6.2	1.5
Oklahoma	14.1	7.5	2.1	2.9	5.6	1.5
Oregon	14.1	5.7	0.5	0.4	5.2	0.8
Pennsylvania	10.1	9.0	1.3	1.2	7.3	0.9
Rhode Island	16.1	10.4	0.2	1.3	9.2	1.1
South Carolina	14.1	9.0	1.3	1.1	7.5	0.5
South Dakota	13.0	5.3	0.0	2.2	4.1	1.5
Tennessee	9.9	7.8	1.4	2.0	6.3	1.2
Texas	12.1	6.4	1.0	0.8	5.4	0.6
Utah	10.7	5.4	1.9	1.1	4.0	1.0
Vermont	14.2	8.5	2.2	0.5	7.4	0.8
Virginia	11.0	8.0	0.8	1.4	6.2	0.8
Washington	10.8	8.2	2.0	1.1	6.7	1.0
West Virginia	12.7	8.1	1.5	2.7	4.8	0.6
Wisconsin	11.7	6.0	0.9	0.8	5.1	0.8
Wyoming	13.0	4.8	0.8	1.3	3.0	0.3

Source: Authors' calculations using the NAEP 2003 Mathematics Assessment data, using the state samples, and the 2003 American Community Survey Public Use Microdata Sample (PUMS).

**Table 11b. Comparison to the NAEP eighth-grade prevalence rates and prevalence rates obtained from the 2003 American Community Survey (ACS) for children ages 13-14.**

State	NAEP Eighth Graders	ACS Children Ages 13-14				
		Overall Disability	Sensory Disability	Physical Disability	Mental Disability	Self-Care Disability
<i>United States</i>	11.1	7.0	1.2	1.3	5.6	0.7
Alabama	10.9	10.9	1.7	2.2	7.3	1.3
Alaska	13.2	8.3	1.3	0.8	6.5	0.9
Arizona	9.2	7.5	1.8	0.4	6.2	0.1
Arkansas	12.7	6.9	2.1	1.4	4.4	0.3
California	8.3	5.6	1.2	1.0	4.4	0.7
Colorado	9.9	7.2	0.7	1.5	6.0	0.8
Connecticut	12.5	4.1	0.6	0.9	3.4	0.2
Delaware	13.2	10.0	0.6	1.1	9.1	1.2
District of Columbia	10.0	7.9	0.4	0.5	7.0	1.5
Florida	11.8	7.1	1.2	1.3	5.7	0.6
Georgia	9.0	6.1	1.2	1.5	4.5	0.3
Hawaii	12.2	4.8	0.0	0.8	3.9	0.0
Idaho	8.9	6.1	0.0	0.6	5.5	0.1
Illinois	11.1	6.9	0.9	0.8	5.7	0.7
Indiana	10.3	6.2	2.1	1.3	4.7	0.3
Iowa	13.5	6.5	0.9	0.6	5.4	0.2
Kansas	11.6	6.6	1.6	0.4	4.8	0.4
Kentucky	10.3	8.0	0.7	1.7	5.9	0.7
Louisiana	9.8	8.1	0.7	1.5	7.0	1.0
Maine	14.5	7.3	0.3	1.5	7.0	1.4
Maryland	9.8	6.0	0.9	1.3	5.1	0.3
Massachusetts	12.9	6.1	0.7	1.1	5.4	0.6
Michigan	10.5	9.0	1.6	1.8	7.4	1.2
Minnesota	10.8	7.5	1.7	0.8	6.7	0.4
Mississippi	7.8	9.6	1.2	1.2	8.7	0.6
Missouri	13.7	7.4	1.2	1.3	6.3	0.2
Montana	11.1	7.3	1.6	1.4	4.5	0.0
Nebraska	11.2	5.0	0.2	0.3	4.8	0.5
Nevada	10.9	3.6	1.3	0.3	2.9	0.6
New Hampshire	16.7	6.3	0.9	0.3	5.0	0.0
New Jersey	12.6	5.4	1.3	1.1	4.6	0.7
New Mexico	16.5	7.8	2.9	3.0	5.8	1.3
New York	11.2	6.7	1.0	2.1	5.1	1.1



**Table 11b (continued). Comparison to the NAEP eighth-grade prevalence rates and prevalence rates obtained from the 2003 American Community Survey (ACS) for children ages 13-14.**

State	NAEP Eighth Graders	ACS Children Ages 13-14				
		Overall Disability	Sensory Disability	Physical Disability	Mental Disability	Self-Care Disability
North Carolina	12.3	8.3	0.6	1.7	7.0	0.7
North Dakota	12.1	5.1	0.6	0.5	4.6	0.5
Ohio	10.2	9.4	1.5	1.6	7.9	0.3
Oklahoma	13.9	6.8	1.1	1.1	4.8	0.8
Oregon	11.3	6.8	1.7	1.0	5.0	0.3
Pennsylvania	11.3	9.7	1.3	1.9	8.2	1.1
Rhode Island	14.7	8.5	1.2	1.3	7.7	0.7
South Carolina	13.8	7.5	1.2	1.6	5.9	0.1
South Dakota	9.3	3.8	0.7	0.9	3.0	0.1
Tennessee	11.1	9.2	1.6	1.1	7.6	0.2
Texas	12.8	6.3	1.4	1.4	4.8	0.8
Utah	10.1	4.9	1.0	0.7	3.6	0.3
Vermont	15.0	9.2	1.3	1.8	7.0	0.0
Virginia	12.8	6.8	1.3	1.0	5.3	0.6
Washington	9.8	6.2	1.1	0.8	5.1	0.9
West Virginia	13.5	8.0	1.0	1.3	6.1	2.1
Wisconsin	12.4	8.7	1.0	1.1	7.8	0.6
Wyoming	12.7	7.8	0.2	1.4	6.3	1.0

Source: Authors' calculations using the NAEP 2003 Mathematics Assessment data, using the state samples, and the 2003 American Community Survey Public Use Microdata Sample (PUMS).

**Table 12a. Correlation coefficients between fourth-grade state prevalence rates from the NAEP and ACS disability categories**

	NAEP Fourth Graders	ACS Children Ages 9-10				
		Overall	Sensory	Physical	Mental	Self-Care
NAEP	1.00					
Overall	0.26	1.00				
Sensory	-0.08	0.40	1.00			
Physical	-0.16	0.46	0.26	1.00		
Mental	0.34	0.92	0.19	0.22	1.00	
Self-Care	-0.22	0.42	0.20	0.71	0.33	1.00

Source: Authors' calculations using the NAEP 2003 Mathematics Assessment data, using the state samples, and the 2003 American Community Survey Public Use Microdata Sample (PUMS).

**Table 12b. Correlation coefficients between eighth-grade state prevalence rates from the NAEP and ACS disability categories**

	NAEP Eighth Graders	ACS Children Ages 13-14				
		Overall	Sensory	Physical	Mental	Self-Care
NAEP	1.00					
Overall	0.11	1.00				
Sensory	0.10	0.26	1.00			
Physical	0.19	0.52	0.38	1.00		
Mental	0.07	0.92	0.04	0.36	1.00	
Self-Care	0.10	0.38	-0.03	0.37	0.39	1.00

Source: Authors' calculations using the NAEP 2003 Mathematics Assessment data, using the state samples, and the 2003 American Community Survey Public Use Microdata Sample (PUMS).

### Summary and Conclusion

This *Guide* carefully describes the information on the disability population from the National Center for Educational Statistics' (NCES) National Assessment for Educational Progress (NAEP) - Student with Disabilities/Limited English Proficiency (SD/LEP) questionnaire. It began with a description of the ICF and ICF-CY conceptual model of disability. The ICF provides a framework that may be used to assess the disability information in the SD/LEP questionnaire as well as disability information in other surveys.

The *Guide* then presented an overview of the survey methodology and definitions. The design of the NAEP SD/LEP questionnaire provides several advantages over other data collection efforts. The NAEP SD/LEP questionnaire contains the largest amount of information on disability-related data for students with disabilities compared to all of the other major surveys, including particularly unique and extensive data on accommodations, school location and type, and participation in curriculum instruction

and testing. The NAEP SD/LEP questionnaire also contains a broad set of data on disability type and disability severity.

We illustrate the utility of the NAEP SD/LEP questionnaire with estimates based on the NAEP SD/LEP questionnaire data for the students with disabilities population, including: the size of the population, the prevalence rate, the demographic composition, level of accommodation, participation in curriculum instruction, and eligibility for the federal Free and Reduced-Price Lunch program. At the national level, 11 percent of fourth-grade students and 11.1 percent of eighth-grade students have a disability. Fourth- and eighth-grade students with disabilities tend to be Black/African American, White (non-Hispanic), and Hispanic, and attend schools in rural areas. Specific learning disabilities are the most common disabilities among fourth and eighth grade students with disabilities. The majority of fourth- and eighth-grade students with disabilities have a mild or moderate disability, and are able to receive the same curriculum instruction as non-disabled students.

Finally, the *User Guide* compares estimates from the NAEP SD/LEP questionnaire to other national surveys that collect information on children with disabilities. Despite substantial difference in the way OSEP statistics and our NAEP statistics were calculated, there is a high degree of correlation across states and disability types. The lower ACS estimates are not surprising given the limited question set used for defining disability in the ACS and the broader disability determination used in the NAEP.

In conclusion, while there are limitations to the disability data collected in the NAEP SD/LEP questionnaire, the SD/LEP questionnaire provides substantial information about the numbers and characteristics of fourth- and eighth-grade students with

disabilities in the U.S. The extensive data on disability type, curriculum and testing accommodations, and test participation are particularly valuable, because they capture information that is not available from other major surveys. The use of the SD/LEP questionnaire to monitor the status of the population of students with disabilities to provide insights into the level of accommodations needed by students with disabilities will be an important component of the Department of Education's effort to meet the goals set forth by the Individuals with Disabilities Education Act and No Child Left Behind.

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APPENDIX A

Table 4b. Prevalence of students with disabilities in the fourth and eighth grades, by grade and location<sup>a</sup>

Location	Fourth Grade			Eighth Grade			Fourth Grade Rank	Eighth Grade Rank	Rank Change	Percentage Change in Prevalence
	Number of Students	Number of Students with Disabilities	Percentage of Students with Disabilities	Number of Students	Number of Students with Disabilities	Percentage of Students with Disabilities				
<i>United States</i>	3,986,303	437,041	11.0	3,936,978	437,238	11.1				0.9
Alabama	64,449	6,223	9.7	60,518	6,596	10.9	9	19	-10	12.4
Alaska	8,921	1,307	14.7	9,720	1,287	13.2	48	41	7	-10.2
Arizona	77,038	7,944	10.3	79,797	7,376	9.2	13	5	8	-10.7
Arkansas	36,646	4,540	12.4	39,096	4,982	12.7	31	36	-5	2.4
California	530,464	38,198	7.2	478,186	39,580	8.3	1	2	-1	15.3
Colorado	59,766	6,584	11.0	60,252	5,955	9.9	19	10	9	-10.0
Connecticut	49,192	4,537	9.2	42,437	5,287	12.5	4	33	-29	35.9
Delaware	9,865	1,186	12.0	9,569	1,265	13.2	27	40	-13	10.0
District of Columbia	7,735	1,072	13.9	6,316	632	10.0	39	11	28	-28.1
Florida	211,529	32,599	15.4	193,037	22,773	11.8	49	28	21	-23.4
Georgia	122,286	12,561	10.3	119,456	10,721	9.0	12	4	8	-12.6
Hawaii	16,435	1,395	8.5	14,850	1,811	12.2	3	30	-27	43.5
Idaho	17,954	1,946	10.8	20,163	1,804	8.9	15	3	12	-17.6
Illinois	175,313	21,626	12.3	163,376	18,060	11.1	29	20	9	-9.8
Indiana	94,687	10,404	11.0	93,150	9,618	10.3	18	15	3	-6.4
Iowa	39,134	4,957	12.7	42,987	5,812	13.5	33	43	-10	6.3
Kansas	38,514	4,551	11.8	38,719	4,505	11.6	26	27	-1	-1.7
Kentucky	52,789	6,202	11.7	55,839	5,738	10.3	24	14	10	-12.0

**Table 4b (continued). Prevalence of students with disabilities in the fourth and eighth grades, by grade and location<sup>a</sup>**

Location	Fourth Grade			Eighth Grade			Fourth Grade Rank	Eighth Grade Rank	Rank Change	Percentage Change in Prevalence
	Number of Students	Number of Students with Disabilities	Percentage of Students with Disabilities	Number of Students	Number of Students with Disabilities	Percentage of Students with Disabilities				
Louisiana	64,973	8,388	12.9	62,869	6,162	9.8	35	8	27	-24.0
Maine	15,704	2,263	14.4	16,966	2,463	14.5	46	47	-1	0.7
Maryland	70,288	6,487	9.2	70,781	6,915	9.8	5	7	-2	6.5
Massachusetts	78,858	11,536	14.6	85,573	10,998	12.9	47	39	8	-11.6
Michigan	141,842	13,508	9.5	145,799	15,336	10.5	8	16	-8	10.5
Minnesota	69,624	7,786	11.2	70,597	7,613	10.8	21	17	4	-3.6
Mississippi	41,704	3,362	8.1	40,114	3,122	7.8	2	1	1	-3.7
Missouri	78,368	9,690	12.4	74,493	10,209	13.7	30	44	-14	10.5
Montana	10,824	1,357	12.5	11,817	1,311	11.1	32	22	10	-11.2
Nebraska	22,269	3,134	14.1	25,357	2,852	11.2	40	23	17	-20.6
Nevada	28,794	3,137	10.9	26,651	2,899	10.9	17	18	-1	0.0
New Hampshire	16,544	2,608	15.8	17,428	2,907	16.7	50	51	-1	5.7
New Jersey	111,844	12,973	11.6	115,292	14,488	12.6	22	34	-12	8.6
New Mexico	32,139	3,796	11.8	24,606	4,069	16.5	25	50	-25	39.8
New York	245,624	23,016	9.4	248,200	27,919	11.2	6	24	-18	19.1
North Carolina	106,384	14,253	13.4	118,231	14,484	12.3	38	31	7	-8.2
North Dakota	7,723	1,110	14.4	8,749	1,058	12.1	45	29	16	-16.0
Ohio	164,529	15,666	9.5	162,243	16,608	10.2	7	13	-6	7.4
Oklahoma	50,366	7,126	14.1	48,765	6,785	13.9	43	46	-3	-1.4
Oregon	41,698	5,883	14.1	46,156	5,204	11.3	42	25	17	-19.9
Pennsylvania	161,153	16,317	10.1	163,287	18,419	11.3	11	26	-15	11.9



**Table 4b (continued). Prevalence of students with disabilities in the fourth and eighth grades, by grade and location<sup>a</sup>**

Location	Fourth Grade			Eighth Grade			Fourth Grade Rank	Eighth Grade Rank	Rank Change	Percentage Change in Prevalence
	Number of Students	Number of Students with Disabilities	Percentage of Students with Disabilities	Number of Students	Number of Students with Disabilities	Percentage of Students with Disabilities				
Rhode Island	14,044	2,266	16.1	15,734	2,317	14.7	51	48	3	-8.7
South Carolina	55,103	7,757	14.1	55,457	7,664	13.8	41	45	-4	-2.1
South Dakota	9,487	1,234	13.0	9,960	923	9.3	37	6	31	-28.5
Tennessee	79,207	7,826	9.9	72,044	7,977	11.1	10	21	-11	12.1
Texas	329,904	40,004	12.1	344,585	44,222	12.8	28	38	-10	5.8
Utah	34,642	3,690	10.7	35,074	3,526	10.1	14	12	2	-5.6
Vermont	7,437	1,055	14.2	8,082	1,213	15.0	44	49	-5	5.6
Virginia	101,616	11,214	11.0	98,141	12,515	12.8	20	37	-17	16.4
Washington	81,263	8,808	10.8	83,633	8,237	9.8	16	9	7	-9.3
West Virginia	22,321	2,845	12.7	21,476	2,894	13.5	34	42	-8	6.3
Wisconsin	71,148	8,315	11.7	74,533	9,264	12.4	23	32	-9	6.0
Wyoming	6,162	799	13.0	6,817	863	12.7	36	35	1	-2.3

Source: Authors' calculations using the NAEP 2003 Mathematics Assessment data, using the state samples.

<sup>a</sup> Students are defined as having a disability if they have information on disability type.

**Table 8b. Number of fourth- and eighth-grade students with disabilities and the percentage of included in the NAEP assessment, by grade and location<sup>a</sup>**

Location	Fourth Grade			Eighth Grade			Percentage Change in the Percentage of Students with Disabilities Included
	Number of Students with Disabilities	Rank	Percentage of Students with Disabilities Included	Number of Students with Disabilities	Rank	Percentage of Students with Disabilities Included	
<i>United States</i>	437,041		79.6	437,238		79.8	0.3
Alabama	6,223	33	87.2	6,596	41	89.7	2.9
Alaska	1,307	51	95.5	1,287	49	94.7	-0.8
Arizona	7,944	9	72.2	7,376	14	78.3	8.4
Arkansas	4,540	43	89.8	4,982	46	91.0	1.3
California	38,198	19	81.9	39,580	39	89.2	8.9
Colorado	6,584	34	87.4	5,955	45	91.0	4.1
Connecticut	4,537	20	82.1	5,287	17	80.6	-1.8
Delaware	1,186	3	63.2	1,265	2	49.3	-22.0
District of Columbia	1,072	6	65.4	632	7	67.9	3.8
Florida	32,599	45	90.4	22,773	40	89.2	-1.3
Georgia	12,561	38	88.5	10,721	42	89.7	1.4
Hawaii	1,395	36	88.3	1,811	22	83.3	-5.7
Idaho	1,946	48	91.7	1,804	51	95.8	4.5
Illinois	21,626	25	83.9	18,060	20	82.7	-1.4
Indiana	10,404	35	87.8	9,618	27	85.4	-2.7
Iowa	4,957	28	85.0	5,812	36	87.9	3.4
Kansas	4,551	44	90.2	4,505	21	83.1	-7.9
Kentucky	6,202	16	80.7	5,738	10	73.0	-9.5
Louisiana	8,388	32	85.9	6,162	9	68.5	-20.3
Maine	2,263	29	85.1	2,463	15	79.6	-6.5
Maryland	6,487	21	82.2	6,915	12	76.5	-6.9
Massachusetts	11,536	40	88.7	10,998	35	87.9	-0.9
Michigan	13,508	8	68.9	15,336	8	68.2	-1.0
Minnesota	7,786	27	84.8	7,613	33	87.4	3.1
Mississippi	3,362	1	47.2	3,122	1	48.0	1.7
Missouri	9,690	13	79.9	10,209	11	76.3	-4.5
Montana	1,357	39	88.7	1,311	31	87.0	-1.9
Nebraska	3,134	31	85.6	2,852	19	82.6	-3.5
Nevada	3,137	14	80.6	2,899	28	85.4	6.0

**Table 8b (continued). Number of fourth- and eighth-grade students with disabilities and the percentage of included in the NAEP assessment, by grade and location<sup>a</sup>**

Location	Fourth Grade			Eighth Grade			Percentage Change in the Percentage of Students with Disabilities Included
	Number of Students with Disabilities	Rank	Percentage of Students with Disabilities Included	Number of Students with Disabilities	Rank	Percentage of Students with Disabilities Included	
New Hampshire	2,608	37	88.4	2,907	23	83.8	-5.2
New Jersey	12,973	47	91.6	14,488	50	95.3	4.0
New Mexico	3,796	42	89.8	4,069	44	90.6	0.9
New York	23,016	17	81.2	27,919	13	77.9	-4.1
North Carolina	14,253	11	79.0	14,484	18	81.3	2.9
North Dakota	1,110	41	88.8	1,058	43	89.8	1.1
Ohio	15,666	7	68.0	16,608	6	65.2	-4.1
Oklahoma	7,126	22	83.5	6,785	34	87.8	5.1
Oregon	5,883	15	80.7	5,204	24	84.2	4.3
Pennsylvania	16,317	26	84.5	18,419	47	92.4	9.3
Rhode Island	2,266	49	92.7	2,317	37	88.0	-5.1
South Carolina	7,757	4	64.6	7,664	3	53.9	-16.6
South Dakota	1,234	46	91.6	923	29	85.8	-6.3
Tennessee	7,826	30	85.5	7,977	38	88.8	3.9
Texas	40,004	2	54.8	44,222	4	59.3	8.2
Utah	3,690	24	83.9	3,526	16	80.1	-4.5
Vermont	1,055	10	78.5	1,213	30	86.0	9.6
Virginia	11,214	5	64.8	12,515	5	60.4	-6.8
Washington	8,808	23	83.8	8,237	32	87.0	3.8
West Virginia	2,845	18	81.8	2,894	26	84.7	3.5
Wisconsin	8,315	12	79.1	9,264	25	84.5	6.8
Wyoming	799	50	93.7	863	48	93.7	0.0

Source: Authors' calculations using the NAEP 2003 Mathematics Assessment data, using the state samples.

<sup>a</sup> Students are defined as having a disability if they have information on disability type.

**APPENDIX B**



**SD/LEP Student Questionnaire**

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**2003**

## SD/LEP STUDENT QUESTIONNAIRE

LX001612

### POSITION OF PERSON COMPLETING QUESTIONNAIRE

- Ⓐ Principal/Assistant Principal
- Ⓑ Special Education Teacher
- Ⓒ Bilingual Education/ESL Teacher
- Ⓓ Classroom Teacher
- Ⓔ Other (specify) \_\_\_\_\_

A representative sample of students across the country, including some students in your school, has been selected to take part in the National Assessment of Educational Progress (NAEP). The current assessment focuses on reading and mathematics. As part of the assessment, NAEP will investigate the relationship between students' achievement and various school, teacher, and home factors that may influence this achievement. In order to obtain a complete picture of educational progress for **all** students, it is important to collect supplemental information on students in the sample who have been identified as having a physical or mental disability or are classified as limited English proficient—**whether they will be assessed or not**. We are asking you to complete this questionnaire about **one** of those students.

We realize that you are very busy; however, we urge you to complete this questionnaire as carefully as possible. All responses that relate to or describe identifiable characteristics of teachers may be used only for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose, unless otherwise compelled by law.

NAEP is authorized under Public Law 107-110. While your participation is voluntary, your responses to these questions are needed to make this survey accurate and complete.

Please record your answers online, following the instructions on the front cover. If you do not have Internet access, please answer questions directly on this questionnaire by filling in the appropriate ovals and, if necessary, by writing your responses in the spaces provided. When you are finished, please return the questionnaire to your school's NAEP coordinator.

Thank you very much for your help.

### INSTRUCTIONS FOR FILLING OUT QUESTIONNAIRE

- If the student has a physical or mental disability and has an IEP or equivalent classification, such as those receiving services under Section 504 of the Rehabilitation Act Amendments of 1973, please complete SECTION A, beginning on page 3.
- If the student is classified as limited English proficient according to school records, please complete SECTION B, BEGINNING WITH QUESTION 15, on page 8.
- If the student has a physical or mental disability and is also classified as limited English proficient according to school records, please complete SECTION A AND SECTION B.

## SECTION A: STUDENTS WITH DISABILITIES

Complete this section for all students who have an IEP or equivalent classification (such as those receiving services under Section 504 of the Rehabilitation Act Amendments of 1973).

VBS38417

1. Which of the following best describes this student's primary disability?  
(Fill in one oval only.)
- Ⓐ Specific learning disability
  - Ⓑ Hearing impairment/deafness
  - Ⓒ Visual impairment/blindness
  - Ⓓ Speech or language impairment
  - Ⓔ Mental retardation
  - Ⓕ Emotional disturbance
  - Ⓖ Orthopedic impairment
  - Ⓖ Traumatic brain injury
  - Ⓗ Autism
  - Ⓘ Developmental delay  
(age 9 or younger)
  - Ⓚ Other health impairments
  - Ⓛ Other (specify) \_\_\_\_\_

2. What is the degree of this student's disability?

VB338418

- Ⓐ Profound/Severe
- Ⓑ Moderate
- Ⓒ Mild

3. Does the student's IEP state that he or she cannot participate in assessments such as NAEP, even with accommodations?

VB338419

- Ⓐ Yes
- Ⓑ No
- Ⓒ I don't know.

4. What grade level of instruction is this student currently receiving in language arts (includes reading and/or writing)?

VB338420

- Ⓐ This student is currently not receiving instruction in language arts.
- Ⓑ At or above grade level
- Ⓒ One year below grade level
- Ⓓ Two or more years below grade level
- Ⓔ I don't know.

5. Is this student participating in the same curriculum content as nondisabled students receiving the same grade level of instruction in language arts?

VB338421

- Ⓐ This student is currently not receiving instruction in language arts.
- Ⓑ Same curriculum content
- Ⓒ Different curriculum content
- Ⓓ I don't know.

6. What grade level of instruction is this student currently receiving in **mathematics**? VB473302

- Ⓐ This student is currently not receiving instruction in mathematics.
- Ⓑ At or above grade level
- Ⓒ One year below grade level
- Ⓓ Two or more years below grade level
- Ⓔ I don't know.

7. Is this student participating in the same curriculum content as nondisabled students receiving the same grade level of instruction in **mathematics**? VB473303

- Ⓐ This student is currently not receiving instruction in mathematics.
- Ⓑ Same curriculum content
- Ⓒ Different curriculum content
- Ⓓ I don't know.

8. Are any accommodations or adaptations used for district or statewide achievement testing for this student? VB338424

- Ⓐ Yes, tested with accommodations or adaptations → *Go to Question 9*
- Ⓑ No, tested without accommodations or adaptations → *Skip to Question 13*
- Ⓒ IEP states that this student cannot be tested. → *Skip to Question 13*



Questions 9-12. If your answer to question 8 is "Yes," which accommodations or adaptations are used for district or statewide achievement testing with this student?

VB338425

9. Presentation Accommodations (Fill in all ovals that apply.)

- Ⓐ Read directions aloud
- Ⓑ Read problems aloud (except on reading test)
- Ⓒ Signing of directions
- Ⓓ Use of audiotaped version of test
- Ⓔ Assistance with interpretation of directions
- Ⓕ Braille edition of test
- Ⓖ Large-print edition of test
- Ⓗ Use of magnifying equipment
- Ⓘ Other (specify) \_\_\_\_\_

VB338426

10. Response Accommodations (Fill in all ovals that apply.)

- Ⓐ Response in Braille
- Ⓑ Response in sign language
- Ⓒ Oral responses
- Ⓓ Pointing to answers
- Ⓔ Tape recording of answers
- Ⓕ Use of computer to respond
- Ⓖ Use of typewriter to respond
- Ⓗ Use of calculator including talking or Braille calculators
- Ⓘ Use of template to respond
- Ⓚ Use of large marking pen or specially designed writing tool
- Ⓛ Other (specify) \_\_\_\_\_

11. Setting Accommodations (Fill in all ovals that apply.)

VB338427

- Ⓐ Test in small group
- Ⓑ Test individually
- Ⓒ Other (specify) \_\_\_\_\_

12. Timing Accommodations (Fill in all ovals that apply.)

VB338428

- Ⓐ Extended time
- Ⓑ More breaks during test
- Ⓒ Test sessions over several days
- Ⓓ Other (specify) \_\_\_\_\_

13. How would this student most appropriately participate in the NAEP language arts assessment?

VB338429

- Ⓐ Without accommodations or adaptations
- Ⓑ With the accommodations or adaptations specified for district or statewide achievement testing of this student
- Ⓒ The IEP team or an equivalent group has determined that the student cannot participate in assessments such as NAEP language arts.

14. How would this student most appropriately participate in the NAEP mathematics assessment?

VB473304

- Ⓐ Without accommodations or adaptations
- Ⓑ With the accommodations or adaptations specified for district or statewide achievement testing of this student
- Ⓒ The IEP team or an equivalent group has determined that the student cannot participate in assessments such as NAEP mathematics.

## SECTION B: LIMITED ENGLISH PROFICIENT STUDENTS

Complete this section if the student is classified as limited English proficient according to school records.

15. What is this student's first or native language?

VB338430

- Ⓐ Spanish
- Ⓑ Other language (specify) \_\_\_\_\_

16. Including the current school year, how long has this student been receiving academic instruction in reading/language arts primarily in English?

VB338431

- Ⓐ Student does not receive academic instruction primarily in English.
- Ⓑ 1 year
- Ⓒ 2 years
- Ⓓ 3 years
- Ⓔ 4 years or more
- Ⓕ I don't know.

17. Including the current school year, how long has this student been receiving academic instruction in mathematics primarily in English?

VB473306

- Ⓐ Student does not receive academic instruction primarily in English.
- Ⓑ 1 year
- Ⓒ 2 years
- Ⓓ 3 years
- Ⓔ 4 years or more
- Ⓕ I don't know.

VB338432

18. During this school year, what percentage of this student's academic instruction is provided in his/her native language?

- Ⓐ 0%
- Ⓑ 1-24%
- Ⓒ 25-49%
- Ⓓ 50-99%
- Ⓔ 100%

VB338433

19. What grade level of instruction is this student currently receiving in English reading/English language arts?

- Ⓐ This student is currently not receiving instruction in language arts.
- Ⓑ At or above grade level
- Ⓒ One year below grade level
- Ⓓ Two or more years below grade level
- Ⓔ I don't know.

VM73305

20. What grade level of instruction is this student currently receiving in mathematics?

- Ⓐ This student is currently not receiving instruction in mathematics.
- Ⓑ At or above grade level
- Ⓒ One year below grade level
- Ⓓ Two or more years below grade level
- Ⓔ I don't know.

21. Are any accommodations or adaptations used for district or statewide achievement testing for this student?
- Ⓐ Yes, tested with accommodations or adaptations → *Go to Question 22*
  - Ⓑ No, tested without accommodations or adaptations → *Skip to Question 23*
  - Ⓒ IEP states that student cannot be tested (for LEP students classified as SD). → *Skip to Question 23*

22. If your answer to question 21 is “Yes,” which accommodations or adaptations are used for district or statewide achievement testing with this student? (Fill in all ovals that apply.)
- Ⓐ Native language version of test
  - Ⓑ Bilingual version of test
  - Ⓒ Word lists or glossaries
  - Ⓓ Bilingual dictionary
  - Ⓔ Help from a native speaker in interpreting directions and questions
  - Ⓕ Directions read aloud in English
  - Ⓖ Questions read aloud in English
  - Ⓖ Extended time
  - Ⓗ Other (specify) \_\_\_\_\_

23. How would this student most appropriately participate in the NAEP language arts assessment?
- Ⓐ English version without accommodations or adaptations
  - Ⓑ English version with accommodations or adaptations
  - Ⓒ Native language version or bilingual version with or without accommodations or adaptations
  - Ⓓ This student would not participate.

24. How would this student most appropriately participate in the NAEP mathematics assessment?
- Ⓐ English version without accommodations or adaptations
  - Ⓑ English version with accommodations or adaptations
  - Ⓒ Native language version or bilingual version with or without accommodations or adaptations
  - Ⓓ This student would not participate.

THANK YOU FOR YOUR COOPERATION.



**Cornell University**  
**ILR School**  
**Employment and Disability Institute**

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