

# *Appendix 2*

## *Supplemental Notes*



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## Note 1: Commonly Used Variables

Certain common variables, such as parents' education, race/ethnicity, community type, poverty, and geographic region are used by different surveys cited in *The Condition of Education 2007*. The definitions for these variables can vary across surveys and sometimes vary between different time periods of a single survey. This supplemental note describes how several common variables, used in various indicators in this volume, are defined in each of the surveys. In addition, this note describes certain terms used in several indicators.

### PARENTS' EDUCATION

Parents' level of education is generally measured by either the mother's highest level of education attained or the highest level of education attained by either parent. *Indicators 2 and 29*, based on the National Household Education Surveys Program (NHES), use the highest level of education attained by the child's mother and/or father. For these indicators, both mother's and father's education were constructed using three items: (1) the highest grade completed, (2) whether he and/or she obtained a vocational or technical degree after high school, and (3) whether he and/or she obtained a high school equivalency degree if he or she had not completed high school. *Indicators 11, 12, and 13* report parents' highest level of education based on a question in the National Assessment of Educational Progress (NAEP) that asked students in 8th and 12th grades to indicate the highest level of education completed by each parent. Students could choose from "did not finish high school," "graduated from high school," "some education after high school," "graduated from college," and "I don't know." *Indicator 16*, based on the Early Childhood Longitudinal Survey, Kindergarten Class of 1998–99 (ECLS-K), spring 2004 data collection, is derived from parent interview information on the mother's educational attainment (and is imputed using hot-deck procedures if missing). Respondents reported the mother's highest level of education and these responses

were coded "8th grade or below," "9th–12th grade," "high school diploma/equivalent," "voc/tech program," "some college," "bachelors degree," "graduate/professional school, no degree," "masters degree (MS, MA)," and "doctorate or professional degree." For this volume, the responses were collapsed into a four-category variable: less than high school, high school diploma or equivalent, some college or vocational technical degree, and bachelor's degree or higher. The 260 children without mothers in the household in the 5th-grade year (1.5 percent of the sample) do not have values for this variable.

### RACE/ETHNICITY

Classifications indicating racial/ethnic heritage are based primarily on the respondent's self-identification, as is the case with data collected by the U.S. Census Bureau, or in rare instances, on observer identification. These categories are in accordance with the Office of Management and Budget's standard classification scheme.

Ethnicity is based on the following categorization:

- *Hispanic or Latino*: A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race.

Race is based on the following categorization:

- *American Indian or Alaska Native*: A person having origins in any of the original peoples of North and South America (including Central America) who maintains tribal affiliation or community attachment.
- *Asian*: A person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippines, Thailand, and Vietnam.

## Note 1: Commonly Used Variables

Continued

- *Black*: A person having origins in any of the Black racial groups of Africa.
- *Native Hawaiian or Other Pacific Islander*: A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
- *White*: A person having origins in any of the original peoples of Europe, North Africa, or the Middle East.
- *More than one race*: A person who selected two or more of the following racial categories when offered the option of selecting one or more racial designations: White, Black, Asian, Native Hawaiian, or American Indian.

Race categories presented in *The Condition of Education 2007* exclude persons of Hispanic ethnicity; thus, the race/ethnicity categories are mutually exclusive. Not all categories are shown in all indicators. In some cases, categories are omitted because there are insufficient data in some of the smaller categories or because survey sampling plans did not distinguish between groups (between Asians and Pacific Islanders, for example). In other cases, omissions occur because only comparable data categories are shown. For example, the category “More than one race,” which was introduced in the 2000 Census and became a regular category for data collection in the Current Population Survey (CPS) in 2003, is sometimes excluded from indicators that present a historical series of data with constant categories, and it is sometimes included within the category “Other.”

The introduction of the category “More than one race” follows a change in the Office of Management and Budget’s standard classification scheme for race/ethnicity. This change has required changes to the questions asked by the CPS, and it will require further changes to the questions asked of future federal survey participants. As a result of the new classification scheme, distributions by race/ethnicity for 2003

CPS data and for later years may differ somewhat from those in earlier years. In the Census population estimates for July 1, 2005, about 1.5 percent of the national population were classified as “More than one race.” (For further details, see <http://www.census.gov/popest/national/asrh/NC-EST2005-srh.html>.)

In *The Condition of Education 2007*, the above definitions of race/ethnicity apply to *indicators 4, 5, 6, 7, 9, 11, 12, 13, 14, 16, 18, 19, 20, 22, 23, 24, 25, 26, 27, and 36.*

Over time, the National Household Education Survey (NHES) has had different response options for race/ethnicity. In 1991 and 1995, the response options were limited to White, Black, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, and Other. In 1999 and 2001, the response options included White, Black, Hispanic, Asian/Pacific Islander, American Indian/Alaska Native, Other, and More than one race. In addition to these categories, in 2005, Asian and Pacific Islander were separated into two race options. *Indicators 2, 10, and 29* present data by race/ethnicity using the NHES.

The race/ethnicity variable for the Schools and Staffing Survey (SASS) is constructed using two questions: “Are you of Hispanic or Latino origin?” and “What is your race?” with possible responses of White, Black or African-American, Asian, Native Hawaiian or Other Pacific Islander, and American Indian or Alaska Native. Prior to 2003–04, SASS did not distinguish between Asian and Pacific Islander. For the first time, in 2003–04, respondents were able to select multiple race categories. In *The Condition of Education 2007*, these definitions of race/ethnicity apply to *indicators 33 and 34.*

### COMMUNITY TYPE

There are various classification systems that federal departments and agencies use to define community types. Indicators in *The Condition of Education* rely on one or a combination of

## Note 1: Commonly Used Variables

### Continued

the following three classification systems: the Office of Management and Budget's system of *metropolitan areas*, which is used by the Census Bureau; the Census Bureau's system of *urbanized/urban/rural areas*; and the National Center for Education Statistics' system of *locale codes*. All three of these classification systems were revised in 2000 and were fully in effect by 2003.

#### Metropolitan Areas

The Census Bureau's Current Population Survey (CPS) classifies community type based on the concept of a metropolitan area, which has changed in its application over time. Between 1990 and 2000, the Census and the CPS used the term "metropolitan area" (MA) to refer collectively to Metropolitan Statistical Areas (MSAs), Primary Metropolitan Statistical Areas (PMSAs), and Consolidated Metropolitan Statistical Areas (CMSAs) (defined below). In 2000, the Census adopted the term "Core Based Statistical Area" (CBSA), which refers collectively to metropolitan statistical areas and (the newly introduced concept of) micropolitan statistical areas.

#### Metropolitan Areas—1990 Standards

The Office of Management and Budget (OMB) defines and designates metropolitan areas, following standards established by the interagency Federal Executive Committee on Metropolitan Areas, with the aim of producing definitions that are as consistent as possible for all MAs nationwide. Under its 1990 standards, the OMB defined an MA as "a large population nucleus together with adjacent communities that have a high degree of economic and social integration with that core." The Census Bureau used this definition for an MA from 1990 to 2000. (See <http://www.census.gov/prod/cen1990/cph-s/cph-s-1-1.pdf> for more details.)

In order to be designated as an MA under the 1990 standards, an area had to meet one or both of the following criteria: (1) include a

city with a population of at least 50,000 or (2) include a Census Bureau-defined urbanized area of at least 50,000 and have a total MA population of at least 100,000 (75,000 in New England). Under the 1990 standards, the "central county" (or counties) contained either the central city (defined below) or at least 50 percent of the population of the central city, or had at least 50 percent of its population in an urbanized area. Additional "outlying counties" were included in the MA if they met specified requirements of commuting to the central counties and selected requirements of metropolitan character (such as population density and percent urban). In New England, MAs were defined in terms of cities and towns, following rules analogous to those used with counties elsewhere.

The individual counties (or other geographic entities) comprising each MA were either designated as a Metropolitan Statistical Area (MSA) or, if the MA was large enough (1 million in population or more), as a Consolidated Metropolitan Statistical Area (CMSA) composed of two or more Primary Metropolitan Statistical Areas (PMSAs). For example, the PMSA "Milwaukee-Waukesha, WI" combined with the PMSA "Racine, WI" to form the CMSA of "Milwaukee-Racine, WI." CMSAs could span states, as was the case with the CMSA "Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD." (In June 1999, there were 258 MSAs and 18 CMSAs in the United States, which included a total of 73 PMSAs.)

All territory, population, and housing units inside of MAs were characterized as *metropolitan*. Any territory, population, or housing units located outside of an MA were defined as *nonmetropolitan*. The largest city in each MA was designated a *central city*, and additional cities could qualify as such if specified requirements were met concerning population size and commuting patterns. (In June 1999, there were 542 central cities in the United States plus 12 in Puerto Rico.)

## Note 1: Commonly Used Variables

Continued

Together these classifications were used to define a location's MA Status as

1. Central city,
2. Balance of an MA (meaning any territory that is metropolitan but not in a central city), or
3. Nonmetropolitan.

This classification scheme for community type is used by the School Crime Supplement (SCS) to the National Crime Victimization Survey (NCVS) (U.S. Department of Justice, Bureau of Justice Statistics); however, the community type labels differ. NCVS uses the following labels to identify the community type of its respondents' home residence:

- *Urban*: a central city of an MA.
- *Suburban*: balance of an MA (outside of a central city but in the MA).
- *Rural*: nonmetropolitan area.

In *The Condition of Education 2007*, these labels and definitions apply to *indicator 36*.

### Metropolitan and Micropolitan Statistical Areas—2000 Standards

In 2000, the OMB defined metropolitan and micropolitan statistical areas as “a core area containing a substantial population nucleus, together with adjacent communities having a high degree of economic and social integration with that core.” Together metropolitan and micropolitan statistical areas are considered to constitute the “Core Based Statistical Area” (CBSA). Currently defined metropolitan and micropolitan statistical areas are based on the application of OMB's 2000 standards to 2000 decennial census data. (Current metropolitan and micropolitan statistical area definitions were announced by OMB effective June 6, 2003.)

In order to be designated as a CBSA under the 2000 standards, an area must contain at least

one “urban” area (that is, an urbanized area or urban cluster—see definitions of urbanized area and urban cluster below) with a population of 10,000 or more. Each metropolitan statistical area—now referred to as a “metro area” to distinguish it from the metropolitan statistical areas referred to as “MSAs” under the 1990 standards—must have at least one urbanized area of 50,000 or more inhabitants. Each micropolitan statistical area must have at least one urban cluster of at least 10,000 but less than 50,000 population. Under the standards, the county (or counties) in which at least 50 percent of the population resides within urban areas of 10,000 or more population, or that contains at least 5,000 people residing within a single urban area of 10,000 or more population, is identified as a “central county” (counties). Additional “outlying counties” are included in the CBSA if they meet specified requirements of commuting to or from the central counties. Counties or equivalent entities form the geographic “building blocks” for metropolitan and micropolitan statistical areas throughout the United States and Puerto Rico. (As of June 6, 2000, there were 362 metropolitan statistical areas and 560 micropolitan statistical areas in the United States. In addition, there were eight metro areas and five micropolitan statistical areas in Puerto Rico.) (See <http://www.census.gov/population/www/estimates/aboutmetro.html> for more details.)

Together these classifications are used to define a location's CBSA status (or, if no micropolitan statistical areas are included, metro area status) as

1. Principal city of a CBSA (or metro area).
2. Located in a CBSA (or metro area), but not in the principal city.
3. Not located in a CBSA (or metro area).

As with the previous MA status classifications under the 1990 standards, the CBSA status classifications under the 2000 standards do

## Note 1: Commonly Used Variables

### Continued

not equate to an urban-rural classification; all counties included in metropolitan and micropolitan statistical areas (and many other counties) contain both.

In *The Condition of Education 2007*, no indicators use these labels and definitions. However, some indicators use the NCES 2002-revised locale codes that are based on the metro area labels and definitions.

#### Urbanized, Urban, and Rural Areas

The Census Bureau divides the entire geographic area of the United States, Puerto Rico, and the Island Areas according to a concept of urban and rural areas. As with metropolitan statistical areas, the Census Bureau revised the urban/rural concept and criteria for the 2000 Census. The criteria in place between 1990 and 2000, however, were used to create NCES locale codes (described below). Thus, this supplemental note explains the 1990–2000 criteria in detail for readers to understand fully the locale code definitions.

From the adoption of the urban/rural concept for the 1950 Census until the 2000 Census, an *urbanized area* consisted of one or more “central places” and the adjacent densely settled surrounding “urban fringe” that together had a minimum population of 50,000 people. A “place” was either an incorporated governmental unit, such as a city, village, borough, or town, or a Census Designated Place (CDP), which was an unincorporated population cluster for which the Census Bureau delineates boundaries in cooperation with state and local agencies. All of the territory within the urbanized area that was outside the central place or places comprised the “urban fringe.” Territory included in the urban fringe generally had a population density of at least 1,000 people per square mile but could include lower density territory that contained nonresidential urban land uses (e.g., areas zoned for commercial or industrial use or reserved for recreational purposes) or served to link outlying densely settled

territory with the main body of the urbanized area. The Census Bureau defined as *urban* any incorporated places (cities, towns, villages, etc.) or CDPs outside urbanized areas that contained a population of 2,500 or more.

The Census Bureau also expanded the definition of places to include *extended cities*. Extended cities were incorporated places whose boundaries encompassed substantial amounts of low-density territory (less than 100 people per square mile), relative to the overall land area of the place. The Census Bureau then identified both urban and rural territory in such places, thus providing exceptions to the general rule that places were classified as entirely urban or entirely rural. There were 182 extended cities in 1990. The decision to ignore place boundaries when defining urban areas for the 2000 Census (see below) made the extended city concept obsolete; under the 2000 criteria, any place potentially can be divided into urban and rural components. No survey employed in this volume of *The Condition of Education* includes extended cities in its community type definition.

The Census Bureau then classified all territory, population, and housing units not classified as urbanized or urban as *rural*. (For further details, see <http://www.census.gov/population/censusdata/urdef.txt>.)

Beginning with the 2000 Census, the Census Bureau has employed new definitions of urban areas based on the concepts of an urbanized area and an urban cluster, the former being similar to the urbanized area under the 1990 definitions and the latter replacing the concept of urban fringe and urban areas. Urbanized areas and urban clusters consist of densely settled census block groups and census blocks that meet specified minimum population density requirements. Urbanized areas continue to have minimum populations of 50,000; urban clusters have populations of at least 2,500 and less than 50,000. Place boundaries are no longer taken into consideration when defining

## Note 1: Commonly Used Variables

Continued

these two types of urban areas. (Under the previous classification system, place boundaries were used to determine the urban/rural classifications of territory: all incorporated places that had at least 2,500 people were classified as urban if they were outside an urbanized area.) Thus, the Census Bureau's current urban area classification provides a seamless, nationally consistent method of defining urban areas that is not affected by varying state laws governing incorporation and annexation. For further details on the revised definitions, see [http://www.census.gov/geo/www/ua/ua\\_2k.pdf](http://www.census.gov/geo/www/ua/ua_2k.pdf). (For differences between the 1990 Census and 2000 Census Urbanized Area Criteria, see [http://www.census.gov/geo/www/ua/uac2k\\_90.html](http://www.census.gov/geo/www/ua/uac2k_90.html).)

In *The Condition of Education 2007*, indicator 29 uses these definitions with the labels urban (as an abbreviation for urbanized areas and urban clusters) and rural.

### Locale Code

In the NCES Common Core of Data (CCD), the community type of schools is classified according to a "Locale Code" that is defined according to a mix of OMB (metropolitan area) and Census Bureau (urban/rural) classifications. There are eight categories within the school locale code classification: (1) large city; (2) midsize city; (3) urban fringe of a large city; (4) urban fringe of a midsize city; (5) large town; (6) small town; (7) nonmetropolitan rural; and (8) metropolitan rural. These categories roughly equate to a central city/suburb/large town/small town/rural scheme, identifying the general character of each school's location. "Large city" and "midsize city" schools are located in principal cities (formerly referred to as "central cities") of metropolitan statistical areas, and a threshold of 250,000 people is used to distinguish between a large city and a midsize city. The two "urban fringe" categories identify suburban schools within metropolitan statistical areas. The "large town" and "small

town" categories identify schools in smaller urban centers (25,000 up to 50,000 people) and small towns (2,500 up to 25,000 people) that are located outside metropolitan areas; many of these communities represent the urban centers/small towns that serve a largely rural countryside. The two rural categories recognize that rural territory exists in both metropolitan areas and nonmetropolitan territory. *Indicator 40* modifies this classification such that *city* includes categories 1 and 2; *suburban* includes categories 3 and 4; *town* includes categories 5 and 6; and *rural* includes categories 7 and 8.

Each school is assigned to one of these categories based on the inside/outside principal city, urban/rural, and metropolitan/nonmetropolitan status of the census block in which the school is located. Schools are assigned to specific census blocks through a process called "geocoding" in which the address of the school is mapped in relation to census geography. The associated census geographic information is then used to assign the school to a specific locale code category based on a mix of characteristics. For instance, a school located in a Census Bureau-defined urbanized area (that is, inside an OMB-defined metropolitan statistical area and outside of a principal city) would be classified as an "urban fringe" school; the specific urban fringe category is determined by the population size of the largest principal city in the metropolitan statistical area in which the school is located. Likewise, a school located outside a Census Bureau-defined "urban" area (urbanized or urban area; or urbanized area or urban cluster, depending upon the relevant standards—1990 or 2000) is classified as rural; then it is further distinguished by whether it is inside or outside the boundaries of a metropolitan statistical area.

In the context of assigning school locale codes, it is important to note that a school located in a Census Bureau-defined urban area that is inside the boundaries of a metropolitan statistical area will be classified as "urban fringe" regardless

## Note 1: Commonly Used Variables

Continued

Category	Under 1990 Standards (definitions in use from 1990–91 to 2002–03)	Under 2000 Standards (definitions in use since 2002–03)
Large city	Central city of a MA, with the city having a population of 250,000 or more.	Principal city of a metro area, with the city having a population of 250,000 or more.
Midsize city	A central city of a MA, with the city having a population less than 250,000.	Central city of a metro area, with the city having a population less than 250,000.
Urban fringe of a large city	Any incorporated place, Census-designated place, or nonplace territory within a MA with a large city and defined as urbanized or urban by the Census Bureau.	Any incorporated place, Census-designated place, or nonplace territory within a metro area with a large city and defined as urbanized or urban cluster by the Census Bureau.
Urban fringe of a midsize city	Any incorporated place, Census-designated place, or nonplace territory within a MA with a midsize city and defined as urbanized or urban by the Census Bureau.	Any incorporated place, Census-designated place, or nonplace territory within a metro area with a midsize city and defined as urbanized or urban cluster by the Census Bureau.
Large town	An incorporated place or Census-designated place with a population greater than or equal to 25,000 and located outside a MA.	Any incorporated place or Census-designated place with a population greater than or equal to 25,000 and located outside of a metro area.
Small town	An incorporated place or Census-designated place with population less than 25,000 and greater than or equal to 2,500 and located outside a MA.	Any incorporated place or Census-designated place with a population less than 25,000 and greater than or equal to 2,500 and located outside of a metro area.
Rural (Rural, outside MA or metro area)	Any incorporated place, Census-designated place, or nonplace territory defined as rural by the Census Bureau and not within a MA with a large or midsize city.	Any incorporated place, Census-designated place, or nonplace territory defined as rural by the Census Bureau and not within a metro area with a large or midsize city.
Rural Urban Fringe (Rural, inside MA or metro area)  (This category was not used before 1998.)	Any incorporated place, Census-designated place, or nonplace territory defined as rural by the Census Bureau and within a MA with a large or midsize city.	Any incorporated place, Census-designated place, or nonplace territory defined as rural by the Census Bureau and within a metro area with a large or midsize city.

## Note 1: Commonly Used Variables

Continued

of the distance from the large or midsize city with which it is associated. Further, if a school does not provide NCES with an address that can be geocoded to a specific census block (such as a P.O. Box or rural route/box number types of addresses) and clerical research cannot determine the specific location of the school in terms of Census Bureau geography, the locale code assignment process assigns the school an “urban fringe” code if the school is located in a metropolitan statistical area.

School districts’ locale codes are assigned through the use of these school locale codes, according to classification rules, such as the following: if 50 percent or more of students in the district attend schools that are located in a single locale code, that code is assigned to the district. If not, schools are placed into one of three groups: large or midsize city; urban fringe or rural, inside an MA (or metro area); and large town, small town, or rural, outside an MA (or metro area). The group with the largest number of students is determined, and then the locale code within the group having the largest number of students is assigned to the district. If the number of students between two or more groups is the same, then the least urban locale code is assigned. Districts with no schools or students are given a locale code of “N.” (For more information on the Locale Code, download the “General” Documentation for the school year of interest from the Common Core of Data (CCD) Public Elementary/Secondary School Universe Survey Data webpage at <http://nces.ed.gov/ccd/pubschuniv.asp>, and then search the document for occurrences of “Locale Code.”)

Besides being used for the CCD, the eight-level locale codes are used to categorize community type in other NCES surveys. Typically, however, the locale codes are collapsed into three categories. For example, in the Schools and Staffing Survey (SASS), the community type of a school is categorized according to its address as follows:

- *Central city*: in a large or midsize central (or principal) city.
- *Urban fringe/large town*: in the urban fringe of a large or midsize city; a large town; or a rural area, inside of an MA (or metro area).
- *Small town/rural*: in a small town or rural area, outside of an MA (or metro area).

In *The Condition of Education 2007*, these labels under the 1990 standards for pre-2002–03 data and under the 2000 standards for 2002–03 (and subsequent) data apply to *indicators 4* and *32*.

The locale codes can also be collapsed into four categories, depending on the survey used. The school locale variable for the Fast Response Survey System (FRSS) was based on the eight-category locale variable from CCD, recoded into a four-category analysis variable as follows:

- *City*: A large or midsize central city of a Consolidated Metropolitan Statistical Area (CMSA) or Metropolitan Statistical Area (MSA).
- *Urban fringe*: Any incorporated place, Census-designated place, or nonplace territory within a CSMA or MSA of a large or midsize city, and defined as urban by the Census Bureau.
- *Town*: Any incorporated place or Census-designated place with a population greater than or equal to 2,500 and located outside a CMSA or MSA.
- *Rural*: Any incorporated place, Census-designated place, or nonplace territory defined as rural by the Census Bureau.

In *The Condition of Education 2007*, these labels apply to the *Special Analysis*.

The locale code for indicators using data from the National Assessment of Educational Prog-

## Note 1: Commonly Used Variables

### Continued

ress (NAEP) is also collapsed into a four-level variable, as follows:

- *Central large city*: in a large central (or principal) city.
- *Central midsize city*: in a midsize central (or principal) city.
- *Urban fringe/large town*: in the urban fringe of a large or midsize city; a large town; or a rural area, inside of an MA (or metro area).
- *Small town/rural*: in a small town or rural area, outside of an MA (or metro area).

In *The Condition of Education 2007*, these labels apply to *indicators 11* and *12*.

### POVERTY

Data on household income and the number of people living in the household are combined with estimates of the poverty threshold published by the Census Bureau to determine the poverty status of children (or adults). The thresholds used to determine poverty status for an individual differ for each survey year. The weighted average poverty thresholds for various household sizes for 1990, 1995, and 2000 through 2005 are shown in the table on the next page. (For thresholds for other years, see <http://www.census.gov/hhes/www/poverty/threshld.html>.)

In *indicator 2*, children in families whose incomes are below the poverty threshold are classified as *poor*; those in families with incomes at or above the poverty threshold are classified as *nonpoor*. *Indicators 6, 19, and 29* modify the categories of poverty to *poor, near-poor, and nonpoor*. *Poor* is defined to include those families whose incomes are below the poverty threshold, *near-poor* is defined as those in families with incomes at 100–199 percent of the poverty threshold, and *nonpoor* is defined as those in families with incomes at 200 percent or more of the poverty threshold.

*Indicator 16* modifies the categories of poverty to examine poverty across rounds of the Early Childhood Longitudinal Survey, Kindergarten Class of 1998–99 (ECLS-K). This composite variable classified children into three categories: (1) below the poverty threshold, all rounds; (2) at or above the poverty threshold, all rounds; and (3) in and out of poverty across rounds. The composite was derived from poverty status variables for kindergarten, 1st grade, 3rd grade, and 5th grade. The poverty status variables were created using the federal poverty thresholds (described above) and were derived from household income and the number of household members.

Eligibility for the National School Lunch Program also serves as a measure of poverty status. The National School Lunch Program is a federally assisted meal program operated in public and private nonprofit schools and residential child care centers. Unlike the poverty thresholds discussed above, which rely on dollar amounts determined by the Census Bureau, eligibility for the National School Lunch Program relies on the federal income poverty guidelines of the Department of Health and Human Services. To be eligible for free lunch, a student must be from a household with an income at or below 130 percent of the federal poverty guideline; to be eligible for reduced-price lunch, a student must be from a household with an income at or below 185 percent of the federal poverty guideline. Title I basic program funding relies on free lunch eligibility numbers as one (of four) possible poverty measures for levels of Title I federal funding. In *The Condition of Education 2007*, eligibility for the National School Lunch Program applies to *indicators 11, 12, 13, and 32*.

### Small Area Income and Poverty Estimates (SAIPE) Program

The goal of the Census Bureau's Small Area Income and Poverty Estimates (SAIPE) program is to make intercensal estimates of median income

## Note 1: Commonly Used Variables

Continued

### Weighted average poverty thresholds, by household size: Selected years, 1990–2005

Household size	Poverty threshold	Household size	Poverty threshold
<b>1990</b>		<b>2002</b>	
2	\$8,509	2	\$11,756
3	10,419	3	14,348
4	13,359	4	18,392
5	15,792	5	21,744
6	17,839	6	24,576
7	20,241	7	28,001
8	22,582	8	30,907
9 or more	26,848	9 or more	37,062
<b>1995</b>		<b>2003</b>	
2	9,933	2	12,015
3	12,158	3	14,680
4	15,569	4	18,810
5	18,408	5	22,245
6	20,804	6	25,122
7	23,552	7	28,544
8	26,237	8	31,589
9 or more	31,280	9 or more	37,656
<b>2000</b>		<b>2004</b>	
2	11,239	2	12,334
3	13,738	3	15,067
4	17,603	4	19,307
5	20,819	5	22,831
6	23,528	6	25,788
7	26,754	7	29,236
8	29,701	8	32,641
9 or more	35,060	9 or more	39,048
<b>2001</b>		<b>2005</b>	
2	11,569	2	12,755
3	14,128	3	15,577
4	18,104	4	19,971
5	21,405	5	23,613
6	24,195	6	26,683
7	27,517	7	30,249
8	30,627	8	33,610
9 or more	36,286	9 or more	40,288

SOURCE: U.S. Census Bureau, Current Population Survey (CPS). Retrieved March 14, 2007, from <http://www.census.gov/hhes/www/poverty/threshld.html>.

## Note 1: Commonly Used Variables

### Continued

and numbers in poverty for states, counties, and school districts. *Indicator 40* employs SAIPE's school district estimates of the population of children ages 5–17 and the number of related children ages 5–17 in families in poverty. *Indicator 40* employs the SAIPE data, rather than the free-lunch-eligible data, to measure poverty by school district because SAIPE data are available for all regular operating school districts, while free-lunch-eligible data are missing for a sizable number of school districts. Further, the SAIPE poverty data are constructed using consistent methodology, while the designation

of who is free lunch eligible may differ from school to school. More information about SAIPE is available at <http://www.census.gov/hhes/www/saipe/>.

### GEOGRAPHIC REGION

The regional classification systems below represent the four geographical regions of the United States as defined by the Census Bureau of the U.S. Department of Commerce. In *The Condition of Education 2007*, indicators 3, 4, 5, 6, 37, and 38 use this system.

#### U.S. Census Bureau, Regional Classification

Northeast	South	Midwest	West
Connecticut	Alabama	Illinois	Alaska
Maine	Arkansas	Indiana	Arizona
Massachusetts	Delaware	Iowa	California
New Hampshire	District of Columbia	Kansas	Colorado
New Jersey	Florida	Michigan	Hawaii
New York	Georgia	Minnesota	Idaho
Pennsylvania	Kentucky	Missouri	Montana
Rhode Island	Louisiana	Nebraska	Nevada
Vermont	Maryland	North Dakota	New Mexico
	Mississippi	Ohio	Oregon
	North Carolina	South Dakota	Utah
	Oklahoma	Wisconsin	Washington
	South Carolina		Wyoming
	Tennessee		
	Texas		
	Virginia		
	West Virginia		

## Note 2: The Current Population Survey (CPS)

The Current Population Survey (CPS) is a monthly survey of a nationally representative sample of all U.S. households. The survey's scientifically selected sample consists of approximately 50,000 households from the 50 states and the District of Columbia. The population surveyed is referred to as the civilian, noninstitutional population. Members of the armed forces, inmates in correctional institutions, and patients in long-term medical or custodial facilities are not included in the sample. The CPS has been conducted for more than 50 years. The U.S. Department of Commerce, Census Bureau, conducts the survey for the Bureau of Labor Statistics, asking a knowledgeable adult household member (known as the "household respondent") to answer all the questions on all of the month's questionnaires for all members of the household.

The CPS collects data on the social and economic characteristics of the civilian, noninstitutional population, including information on income, education, and participation in the labor force. However, the CPS does not collect all this information every month. Each month a "basic" CPS questionnaire is used to collect data about participation in the labor force of each household member, age 15 or older, in every sampled household. In addition, different supplemental questionnaires are administered each month to collect information on other topics.

In March and October of each year, the supplementary questionnaires contain some questions of relevance to education policy. The Annual Social and Economic Supplement, or March CPS Supplement, is a primary source of detailed information on income and work experience in the United States. The labor force and work experience data from this survey are used to profile the U.S. labor market and to make employment projections. Data from this survey are also used to generate the annual Population Profile of the United States, reports on geographical mobility, educational attainment, and detailed analyses of wage rates, earnings, and poverty status. The October Supplement contains basic annual

school enrollment data for preschool, elementary and secondary, and postsecondary students, as well as educational background information needed to produce dropout estimates on an annual basis. In addition to the basic questions about education, interviewers also ask questions about school enrollment for all household members age 3 or older.

CPS interviewers initially used printed questionnaires. However, since 1994, the Census Bureau has used Computer-Assisted Personal and Telephone Interviewing (CAPI and CATI) to collect data. Both technologies allow interviewers to use a complex questionnaire and increase consistency by reducing interviewer error. Further information on the CPS can be found at <http://www.census.gov/cps>.

### DEFINITION OF SELECTED VARIABLES

#### Employment Status

*Indicators 19 and 20* use data from the March CPS and its supplement, which include questions on employment of adults in the previous week, to determine employment status. Respondents could report that they were employed (either full or part time), unemployed (looking for work or on layoff), or not in the labor force (due to being retired, having unpaid employment, or some other reason).

*Indicator 45* uses data from the October CPS and its supplement, which also includes questions on employment of adults in the previous week to determine employment status. Employed persons include those 16 years and over who, during the reference week, (1) did any work at all (at least 1 hour) as paid employees, or (2) were not working but who had jobs or businesses from which they were temporarily absent because of vacation, illness, bad weather, childcare problems, maternity or paternity leave, labor-management dispute, job training, or other family or personal reasons, whether or not they were paid for the time off or were seeking other jobs.

## Note 2: The Current Population Survey (CPS)

### Continued

#### Hours Worked per Week

*Indicator 45* presents data on the number of hours worked per week. This estimate is the number of hours a respondent worked in all jobs in the week previous to the time of survey. The population for this variable includes any employed person who also worked in the week previous to the time of survey. The sum of the categories may not equal the total percentage employed because those who were employed, but did not work in the previous week, were excluded.

#### Family Income

*Indicator 25* uses data on family income that are collected as part of the October CPS to measure a student's economic standing. The October CPS determines family income from a single question asked of the household respondent. Family income includes all monetary income from all sources (including jobs, business, interest, rent, and social security payments) over a 12-month period. The income of nonrelatives living in the household is excluded, but the income of all family members age 15 or older (age 14 or older before 1989), including those temporarily living away, is included.

In *indicator 25*, family income of a recent high school graduate is defined as the income of the household where the graduate has membership. A household is defined as all individuals whose usual place of residence at the time of the interview is the sample unit. The following considerations guide the determination of household members:

- *Persons staying in the sample housing unit at the time of the interview:* Persons for whom the household is their usual place of residence are included in the household membership. Persons who are living in the household temporarily (such as students) and who have living quarters held elsewhere are not considered part of the household, unless they are living with their spouse or children.

- *Persons who usually live in the sample housing unit and are absent at the time of the interview:* Individuals who are temporarily absent and who have no other usual place of residence are classified as household members even if they are not present in the household during the survey week. If such persons are away temporarily attending school, they are considered part of the household unless they are living with their spouse or children.

Families in the bottom 20 percent of all family incomes are classified as low income; families in the top 20 percent of all family incomes are classified as high income; and families in the 60 percent between these two categories are classified as middle income. The table on the next page shows the current dollar amount of the breakpoints between low and middle income and between middle and high income used in *indicator 25*. For example, low income for families in 2005 is defined as the range from \$0 to \$16,800; middle income is defined as the range from \$16,800 to \$80,700; and high income is defined as \$80,700 or more.

#### Median Earnings

*Indicator 20* uses data on earnings that are collected as part of the March CPS. The March CPS collects information on earnings from individuals who were full-year workers (individuals who were employed 50 or more weeks in the previous year) and full-time workers (which refers to those who were usually employed 35 or more hours per week). Earnings include all wage and salary income. Unlike mean earnings, median earnings does not change or changes very little in response to extreme observations.

#### Race/Ethnicity

Over time, the CPS has had different response options for race/ethnicity. From 1972 through 1988, the response options were limited to White, Black, Hispanic, and Other. From 1989 through 1995, the response options included

## Note 2: The Current Population Survey (CPS)

Continued

Dollar value (in current dollars) at the breakpoint between low- and middle-income and between middle- and high-income categories of family income: October 1972–2005

Year	Breakpoints between low- and middle-income	Breakpoints between middle- and high-income
1972	\$3,600	\$13,600
1973	3,900	14,800
1974	—	—
1975	4,400	17,000
1976	4,600	18,300
1977	4,900	20,000
1978	5,300	21,600
1979	5,800	23,700
1980	6,100	25,300
1981	6,500	27,100
1982	7,200	31,200
1983	7,300	32,300
1984	7,500	34,200
1985	7,900	36,400
1986	8,400	38,100
1987	8,800	39,600
1988	9,300	42,100
1989	9,500	43,900
1990	9,600	46,200
1991	10,500	48,300
1992	10,700	49,600
1993	10,800	50,600
1994	11,900	55,500
1995	11,700	56,100
1996	12,300	58,100
1997	12,800	60,800
1998	13,900	64,900
1999	14,700	68,200
2000	15,300	71,900
2001	16,300	75,000
2002	16,700	75,400
2003	16,600	75,500
2004	16,300	77,200
2005	16,800	80,700

—Not available.

SOURCE: U.S. Department of Commerce, Census Bureau, Current Population Survey (CPS), October Supplement, 1972–2005.

## Note 2: The Current Population Survey (CPS)

### Continued

White, Black, American Indian/Aleut Eskimo, Asian/Pacific Islander, Hispanic, and Other. From 1996 through 2002, the response options included White, Black, American Indian/Aleut Eskimo, Asian/Pacific Islander, and Hispanic. From 2003 through the present, the response options included White, Black, American Indian/Alaskan Native, Asian, Hawaiian/Pacific Islander, and Hispanic and allowed respondents to select more than one race category. Race categories presented in *The Condition of Education 2007* exclude persons of Hispanic ethnicity; thus, the race/ethnicity categories are mutually exclusive. *Indicators 5, 19, 20, 23, 25, 27, and 45* present data by race/ethnicity using CPS data. See *supplemental note 1* for more information on race/ethnicity.

### Enrolled in School

In *indicator 20*, which presents the racial/ethnic distribution of public school students, the data for 1979 and 1980 are missing because the data for the variable “attending school” were judged unacceptable due to an error in the design of the questionnaire; therefore, the records are all blank.

### Status Dropout Rate

*Indicator 23* reports status dropout rates by race/ethnicity. The status dropout rate is one of a number of rates reporting on high school dropout and completion behavior in the United States. Status dropout rates measure the percentage of individuals within a given age range who are not enrolled in high school and who lack a high school credential, irrespective of when they dropped out. Because they measure the extent of the dropout problem for the sampled population, status dropout rates can be used to estimate the need for further education and training for dropouts in that population. Status dropout rates should not be confused with event dropout rates, which measure the proportion of students who drop out of high school in a given year, and which have been reported in a previous volume of *The Condition of Education*

(NCES 2004-077, *indicator 16*; see also NCES 2005-046).

*Indicator 23* uses the October CPS data to estimate the status dropout rate, or the percentage of civilian, noninstitutionalized young people ages 16 through 24 who are out of high school and who have not earned a high school credential (either a diploma or equivalency credential such as a General Educational Development certificate [GED]). Status dropout rates count as dropouts individuals who never attended school and immigrants who did not complete the equivalent of a high school education in their home country. The inclusion of these individuals is appropriate because the status dropout rate is designed to report the percentage of youth and young adults in the United States who lack what is now considered a basic level of education. However, the status dropout rate should not be used as an indicator of the performance of U.S. schools, because it counts as dropouts individuals who may have never attended a U.S. school.

The numerator of the status dropout rate for a given year is the number of individuals ages 16 through 24 who, as of October of that year, had not completed high school and were not currently enrolled in school. The denominator is the total number of individuals ages 16 through 24 in the United States in October of that year.

The CPS October Supplement items used to identify status dropouts include (1) “Is ... attending or enrolled in regular school?” and (2) “What is the highest level of school ... completed or the highest degree ... received?” See the Educational Attainment section, below, for details on how the second question changed from 1972 to 1992. Beginning in 1986, the Census Bureau instituted new editing procedures for cases with missing data on school enrollment, i.e., missing data relating to the first October supplement item, above. This was done in an effort to improve data quality. The effect of the editing changes was evaluated by applying both the old

## Note 2: The Current Population Survey (CPS)

Continued

and new editing procedures to the data from 1986. The effect of the changes was an increase in the number of students enrolled in school and a slightly lowered status dropout rate (12.2 percent based on the old procedures, and 12.1 percent based on the new ones). The difference in the two rates was not statistically significant. While the change in the procedures occurred in 1986, the new procedures are reflected in *indicator 23* beginning in 1987.

### Youth Neither Enrolled nor Working

The March CPS Supplement added questions to collect information on the educational enrollment of all respondents, as well as their employment status in 1986. To construct the variable for *indicator 19*, all youth ages 16–19 were categorized as being in one of four categories: enrolled in an education institution but not working; working but not enrolled; both enrolled and working; or neither enrolled nor working. Respondents who were unemployed and looking for work as well as those who were unemployed and not in the labor force (i.e., not looking for work) were both considered not working.

### Educational Attainment

Data from CPS questions on educational attainment are used in *indicators 19, 20, 25, and 27*. From 1972 to 1991, two CPS questions provided data on the number of years of school completed: (1) “What is the highest grade ... ever attended?” and (2) “Did ... complete it?” An individual’s educational attainment was considered to be his or her last fully completed year of school. Individuals who completed 12 years were deemed to be high school graduates, as were those who began but did not complete the first year of college. Respondents who completed 16 or more years were counted as college graduates.

Beginning in 1992, the CPS combined the two questions into the following question: “What is the highest level of school ... completed or the highest degree ... received?” This change

means that some data collected before 1992 are not strictly comparable with data collected from 1992 onward and that care must be taken when making such comparisons. The new question revision changed the response categories from highest grade completed to highest level of schooling or degree completed. In the revised response categories, several of the lower grade levels are combined into a single summary category such as “1st, 2nd, 3rd, or 4th grades.” Several new categories are used, including “12th grade, no diploma”; “High school graduate, high school diploma, or the equivalent”; and “Some college but no degree.” College degrees are now listed by type, allowing for a more accurate description of educational attainment. The new question emphasizes credentials received rather than the last grade level attended or completed. The new categories include the following:

- High school graduate, high school diploma, or the equivalent (e.g., GED)
- Some college but no degree
- Associate’s degree in college, occupational/vocational program
- Associate’s degree in college, academic program
- Bachelor’s degree (e.g., B.A., A.B., B.S.)
- Master’s degree (e.g., M.A., M.S., M.Eng., M.Ed., M.S.W., M.B.A.)
- Professional school degree (e.g., M.D., D.D.S., D.V.M., LL.B., J.D.)
- Doctorate degree (e.g., Ph.D., Ed.D.)

### High School Completion

The pre-1992 questions about educational attainment did not specifically consider high school equivalency certificates (GEDs). Consequently, an individual who attended 10th grade, dropped out without completing that grade, and who subsequently received a high

## Note 2: The Current Population Survey (CPS)

### Continued

school equivalency credential would not have been counted as completing 12th grade. The new question counts these individuals as if they are high school completers. Since 1988, an additional question has also asked respondents if they have a high school degree or the equivalent, such as a GED. People who respond “yes” are classified as high school completers. Before 1988, the number of individuals who earned a high school equivalency certificate was small relative to the number of high school graduates, so that the subsequent increase caused by including equivalency certificate recipients in the total number of people counted as “high school completers” was small in the years immediately after the change was made.

Before 1992, the CPS considered individuals who completed 12th grade to be high school graduates. The revised question added the response category “12th grade, no diploma.” Individuals who select this response are not counted as graduates. Historically, the number of individuals in this category has been small.

#### College Completion

Some students require more than 4 years to earn an undergraduate degree, so some researchers are concerned that the completion rate, based on the pre-1992 category “4th year or higher of college completed,” overstates the number of respondents with a bachelor’s degree (or higher). In fact, however, the completion rates among those ages 25–29 in 1992 and 1993 were similar to the completion rates for those in 1990 and 1991, before the change in the question’s wording. Thus, there appears to be good reason to conclude that the change has not affected the completion rates reported in *The Condition of Education 2007*.

#### Some College

Based on the question used in 1992 and in subsequent surveys, an individual who attended college for less than a full academic year would respond “some college but no degree.” Before 1992, the appropriate response would have

been “attended first year of college and did not complete it,” thereby excluding those individuals from the calculation of the percentage of the population with 1–3 years of college. With the new question, such respondents are placed in the “some college but no degree” category. Thus, the percentage of individuals with some college might be larger than the percentage with 1–3 years of college because “some college” includes those who have not completed an entire year of college, whereas “1–3 years of college” does not include them. Therefore, it is not appropriate to make comparisons between the percentage of those with “some college but no degree” using the post-1991 question and the percentage of those who completed “1–3 years of college” using the two pre-1992 questions.

In *The Condition of Education*, the “some college” category for years preceding 1992 includes only the responses “1–3 years of college.” After 1991, the “some college” category includes those who responded “some college but no degree,” “Associate’s degree in college, occupational/vocational program,” and “Associate’s degree in college, academic program.” The effect of this change to the “some college” category is indicated by the fact that in 1992, 48.9 percent of 25- to 29-year-olds reported completing some college or more, compared with 45.3 percent in 1991 (see *indicator 27*, table 27-2). The 3.6 percent difference is statistically significant. Some of the increase between 1991 and 1992 may be the result of individuals who completed less than 1 year of postsecondary education responding differently to the “completed some college” category; that is, including themselves in the category in 1992, but not including themselves in the category in 1991.

Another potential difference in the “some college” category is how individuals who have completed a certificate or other type of award other than a degree respond to the new questions introduced in 1992 about their educa-

## Note 2: The Current Population Survey (CPS)

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Continued

tional attainment. Some may answer “some college, no degree”; others may indicate only high school completion; and still others may equate their certificate with one of the types of associate’s degrees. No information is available on the tendencies of individuals with a postsecondary credential other than a bachelor’s or higher degree to respond to the new attainment question introduced in 1992.

### Parental Education

Parents’ education is defined as either the highest educational attainment of the two parents who reside with the student or, if only one parent is in the residence, the highest educational attainment of that parent. When neither parent resides with the student, it is defined as the highest educational attainment of the householder. *Indicator 25* presents data by parents’ education.

## Note 3: Other Surveys

### AMERICAN COMMUNITY SURVEY (ACS)

The Census Bureau introduced the American Community Survey (ACS) in 1996. When fully implemented in 2005, it will provide a large monthly sample of demographic, socioeconomic, and housing data comparable in content to the Long Form of the Decennial Census. Aggregated over time, these data will serve as a replacement for the Long Form of the Decennial Census. The survey includes questions mandated by federal law, federal regulations, and court decisions.

Beginning in 2005, the survey has been mailed to approximately 250,000 addresses in the United States and Puerto Rico each month, or about 2.5 percent of the population annually. A larger proportion of addresses in small governmental units (e.g., American Indian reservations, small counties, and towns) will receive the survey. The monthly sample size is designed to approximate the ratio used in Census 2000, requiring more intensive distribution in these areas.

National-level data from ACS are available starting with the year 2000. Under the current timetable, annual results will be available for areas with populations of 65,000 or more beginning in the summer of 2006, for areas with populations of 20,000 or more in the summer of 2008, and for all areas—down to the census tract level—by the summer of 2010. This schedule is based on the time it will take to collect data from a sample size large enough to produce accurate results for different size geographic units.

*Indicator 6* uses data from the ACS for the years 2000–05. For further details on the survey, see <http://www.census.gov/acs/www/>.

### COMMON CORE OF DATA (CCD)

The NCES Common Core of Data (CCD), the Department of Education's primary database on public elementary and secondary education

in the United States, is a comprehensive annual, national statistical database of information concerning all public elementary and secondary schools (approximately 94,000) and school districts (approximately 17,000). The CCD consists of five surveys that state education departments complete annually from their administrative records. The database includes a general description of schools and school districts; data on students and staff, including demographics; and fiscal data, including revenues and current expenditures.

*Indicators 3, 4, 24, 30, 32, 37, 38, 39, and 40* use data from the CCD. Further information about the database is available at <http://nces.ed.gov/ccd/>.

### EARLY CHILDHOOD LONGITUDINAL STUDY, KINDERGARTEN CLASS OF 1998–99 (ECLS-K)

The Early Childhood Longitudinal Study, Kindergarten Class of 1998–99 (ECLS-K) is an ongoing study conducted by NCES. Launched in fall 1998, the study follows a nationally representative sample of children from kindergarten through 8th grade. The purpose of the ECLS-K is twofold: to be both descriptive and analytic. First, the ECLS-K provides descriptive national data on children's status at entry into school; children's transition into school; and children's progression through 5th grade. Second, the ECLS-K provides a rich dataset that enables researchers to study how a wide range of family, school, community, and individual variables affect children's early success in school.

A nationally representative sample of 21,260 children who enrolled in 1,277 kindergarten programs participated in the initial survey during the 1998–99 school year. These children were selected from both public and private kindergartens that offered full- and half-day programs. The sample consists of children from different racial/ethnic and socioeconomic backgrounds and includes an oversample of Asian/

## Note 3: Other Surveys

Continued

Pacific Islander children. All kindergarten children within the sampled schools were eligible for the sampling process, including language minority and special education students. The sample design for the ECLS-K is a dual-frame, multistage sample. First, 100 Primary Sampling Units (PSUs), which are counties or groups of counties, were selected. Schools within the PSUs were then selected. Public schools were selected from a public school frame, and private schools were selected from a private school frame that oversampled private kindergartens. In fall 1998, approximately 23 kindergartners were selected within each of the sampled schools.

Data on the kindergarten cohort were collected in the fall and spring of the kindergarten year from the children, their parents, and their teachers. In addition, information was collected from children's schools and school districts in the spring of the kindergarten year. During the 1999–2000 school year, when most of the cohort moved to the 1st grade, data were collected from a 30 percent subsample of the cohort in the fall and from the full sample in the spring. In kindergarten, over 90 percent of the fall assessments took place in October and November of 1998, and over 90 percent of the spring assessments took place in April and May of 1999. Spring 1st-grade data were obtained between March and July of 2000, and spring 3rd-grade data were obtained between March and July of 2002, with 80 percent of each of the spring 1st-grade and spring 3rd-grade assessments conducted between early April and late May. Spring 5th-grade data were collected from February through June of 2004, with over 75 percent of the child assessments completed by the end of April.

Trained evaluators assessed children in their schools and collected information from parents over the telephone. Teachers and school administrators were contacted in their schools and asked to complete questionnaires. The children and their families, teachers, and schools provided information on children's cognitive,

social, emotional, and physical development. Information was also collected on the children's home environment, home educational practices, school and classroom environments, curricula, and teacher qualifications.

The ECLS-K 5th-grade direct cognitive assessment battery was designed to assess children's academic achievement in the spring of 5th grade and to provide a means of measuring growth since kindergarten entry. Therefore, the cognitive assessments (the K–1 assessment and the 3rd- and 5th-grade assessments) were designed to have overlapping items, i.e., items that were included in at least two rounds of data collection.

In *indicator 16*, which is a cross-sectional analysis of the ECLS-K study, findings are representative of students in school in spring 2004 who were in kindergarten in fall 1998, including students who may have been in kindergarten for the second time in fall 1998 and students who were not assessed in English at some point in the study.

Further information on the survey is available at <http://nces.ed.gov/ecls/kindergarten.asp/>.

### EDUCATION LONGITUDINAL STUDY OF 2002 (ELS:2002)

The Education Longitudinal Study of 2002 (ELS:2002) is the fourth major national longitudinal survey of high school students conducted by NCES. Three previous surveys are similar: the National Longitudinal Study of the High School Class of 1972 (NLS:72), the High School and Beyond Longitudinal Study of 1980 (HS&B:80), and the National Education Longitudinal Study of 1988 (NELS:88). Like its predecessors, ELS:2002 is designed to provide information to researchers, policymakers, and the public about high school students' experiences and activities, as well as to track subsequent changes in these young people's lives when they leave high school, enroll in college, and subsequently enter the workforce

## Note 3: Other Surveys

### Continued

or when they enter the workforce immediately after high school.

ELS:2002 sampled and collected data from 10th-graders in spring 2002 (the base year), along with data from their English and mathematics teachers, their school's librarian and principal, and one parent for each student. The base-year data include 10th-graders' scores on cognitive tests in reading and mathematics. About 750 schools were selected (in both the public and private sectors). In these schools, about 15,000 students—along with about 13,000 of their parents, 7,000 of their teachers, 700 of their principals, and 700 of their librarians—completed base-year surveys.

The first follow-up collected data from cohort members 2 years later, when most of them were 12th-graders in the spring of 2004. The sample of 12th-graders was also augmented with students who were not sophomores in 2002 (or not in the country) to provide a nationally representative sample of 12th-graders. Special questionnaires were administered to the sophomore cohort members who were no longer in school as a result of dropping out or graduating early. A mathematics test was administered to the 12th-graders, and their high school transcripts were collected from the schools.

ELS:2002 has collected information on students' experiences while in high school (including their coursetaking, achievement, extracurricular activities, social lives, employment, and risk-taking behaviors); students' aspirations, life goals, attitudes, and values; and the influence of family members, friends, teachers, and other people in their lives.

The second follow-up was administered in the spring of 2006, when many of the 12th-graders were enrolled in college and some had entered the workforce. Data were collected on the colleges that students applied to, the financial aid offers they received, the colleges they attended, and the financial aid they received while in college.

A third follow-up is tentatively scheduled for the spring of 2010, when many of the sample members who attend college will have graduated.

Following the same cohort of students over time allows data users to monitor changes in students' lives, including their progress through high school, participation in postsecondary education (entry, persistence, achievement, and attainment), early experiences in the labor market, family formation, and civic participation. In addition, by combining data about students' school programs, coursetaking experiences, and cognitive outcomes with information from teachers and principals, the ELS:2002 data support investigation of numerous educational policy issues.

*Indicators 21* and *22* use data from ELS:2002. For further details on the survey, see <http://nces.ed.gov/surveys/els2002/overview.asp>.

### HIGH SCHOOL AND BEYOND (HS&B)

The Education Longitudinal Studies program began over 30 years ago with the implementation of the National Longitudinal Study of 1972 (NLS-72). High School and Beyond (HS&B), the second in the series of NCES longitudinal studies, was launched in 1980. HS&B included one cohort of high school seniors comparable to the NLS-72 sample; however, the study also extended the age span and analytical range of NCES longitudinal studies by surveying a sample of high school sophomores. Base-year data collection took place in the spring term of the 1979–80 academic year with a two-stage probability sample. More than 1,000 schools served as the first-stage units, and 58,000 students within these schools were the second-stage units. Both cohorts of HS&B participants were resurveyed in 1982, 1984, and 1986; the sophomore group also was surveyed in 1992. In addition, to better understand the school and home contexts of the sample members, data

## Note 3: Other Surveys

Continued

were collected from teachers (a teacher comment form in the base year asked for teacher perceptions of HS&B sample members), principals, and a subsample of parents. High school transcripts were collected for a subsample of sophomore cohort members. As in NLS-72, postsecondary transcripts were collected for both HS&B cohorts; however, the sophomore cohort transcripts cover a much longer time span (to 1993).

With the study design expanded to include a sophomore cohort, HS&B provided critical data on the relationships between early high school experiences and students' subsequent educational experiences in high school. For the first time, national data were available that showed students' academic growth over time and how family, community, school, and classroom factors were associated with student learning. Researchers were able to use data from the extensive battery of achievement tests within the longitudinal study to assess growth in knowledge and cognitive skills over time. Moreover, data were then available to analyze the school experiences of students who later dropped out of high school and, eventually, to investigate their later educational and occupational outcomes.

*Indicators 21 and 22* use data from HS&B-So:80. Further information about the survey is available at <http://www.nces.ed.gov/surveys/hsb/>.

### INTEGRATED POSTSECONDARY EDUCATION DATA SYSTEM (IPEDS)

The Integrated Postsecondary Education Data System (IPEDS) is the core program that NCES uses for collecting data on postsecondary education. (Before IPEDS, some of the same information was collected by the Higher Education General Information Survey [HEGIS].) *Indicators 8, 9, 26, 28, and 44* use data from HEGIS. IPEDS is a single, comprehensive system that encompasses all identified institutions whose primary purpose is to provide postsecondary education.

IPEDS consists of institution-level data that can be used to describe trends in postsecondary education at the institution, state, and/or national levels. For example, researchers can use IPEDS to analyze information on (1) enrollments of undergraduates, first-time freshmen, and graduate and first-professional students by race/ethnicity and sex; (2) institutional revenue and expenditure patterns by source of income and type of expense; (3) salaries of full-time instructional faculty by academic rank and tenure status; (4) completions (awards) by type of program, level of award, race/ethnicity, and sex; (5) characteristics of postsecondary institutions, including tuition, room and board charges, calendar systems, and so on; (6) status of postsecondary vocational education programs; and (7) other issues of interest.

Participation in IPEDS was a requirement for the 6,600 institutions that participated in Title IV federal student financial aid programs such as Pell Grants or Stafford Loans during the 2005–06 academic year. Title IV institutions include traditional colleges and universities, 2-year institutions, and for-profit degree- and non-degree-granting institutions (such as schools of cosmetology), among others. Each of these three categories is further disaggregated by control (public, private not-for-profit, and private for-profit), resulting in nine institutional categories, or sectors. In addition, 83 administrative offices (central and system offices) listed in the IPEDS universe were expected to provide minimal data through a shortened version of the Institutional Characteristics component. Four of the U.S. service academies are included in the IPEDS universe as if they were Title IV institutions. Institutions that do not participate in Title IV programs may participate in the IPEDS data collection on a voluntary basis.

IPEDS data for 1999 were imputed using alternative procedures. See NCES 2007-017, *Guide to Sources*, for more information.

*Indicators 8, 9, 26, 28, 42, and 44* use data from the IPEDS. The institutional categories

## Note 3: Other Surveys

### Continued

used in the surveys are described in *supplemental note 9*. Further information about IPEDS is available at <http://nces.ed.gov/ipeds/>.

### NATIONAL ASSESSMENT OF ADULT LITERACY (NAAL)

The National Assessment of Adult Literacy (NAAL), conducted by NCES in 2003, and its earlier sister survey, the 1992 National Adult Literacy Survey (NALS), assess the literacy of adults age 16 or older living in households or prisons. Respondents were asked to demonstrate that they understood the meaning of information found in texts they were asked to read.

The assessment defines literacy as “using printed and written information to function in society, to achieve one’s goals, and to develop one’s knowledge and potential.” Results are reported on three literacy scales:

- Prose literacy: the knowledge and skills needed to perform document tasks (i.e., to search, comprehend, and use information from continuous texts).
- Document literacy: the knowledge and skills needed to perform document tasks (i.e., to search, comprehend, and use information from noncontinuous texts in various formats).
- Quantitative literacy: the knowledge and skills required to perform quantitative tasks (i.e., to identify and perform computations, either alone or sequentially, using numbers embedded in printed materials).

Within each of these three literacy scales, respondents were grouped based upon their achievement level. *Below Basic* indicates no more than the most simple and concrete literacy skills; *Basic* indicates skills necessary to perform simple and everyday literacy activities; *Intermediate* indicates skills necessary to perform moderately challenging literacy activities;

and *Proficient* indicates skills necessary to perform more complex and challenging literacy activities.

To compare results between 1992 and 2003, the 1992 results were rescaled using the criteria and methods established for the 2003 assessment.

*Indicator 18* uses information from NAAL and NALS. Further information about NAAL can be found at <http://nces.ed.gov/naal/>.

### NATIONAL CRIME VICTIMIZATION SURVEY (NCVS)

The National Crime Victimization Survey (NCVS) is the nation’s primary source of information on criminal victimization. Initiated in 1972 and redesigned in 1992, the NCVS annually collects detailed information on the frequency and nature of the crimes of rape, sexual assault, robbery, aggravated and simple assault, theft, household burglary, and motor vehicle theft experienced by Americans and their households each year. The survey measures crimes reported to police as well as those not reported. The NCVS sample consists of about 53,000 households. U.S. Census Bureau personnel interview all household members age 12 or older within each sampled household to determine whether they had been victimized by the measured crimes during the 6 months preceding the interview. About 75,235 persons age 12 or older are interviewed each 6 months. Households remain in the sample for 3 years and are interviewed seven times at 6-month intervals. The first of these seven household interviews is used only to bind future interviews by establishing a time frame in order to avoid duplication of crimes reported in the six subsequent interviews. After their seventh interview, households are replaced by new sample households. Data are obtained on the frequency, characteristics, and consequences of criminal victimization in the United States. The survey enables the Bureau of Justice Statistics (BJS) to estimate the likelihood of victimization for the

## Note 3: Other Surveys

Continued

population as a whole, as well as for segments of the population such as women, the elderly, members of various racial groups, city dwellers, or other groups. The NCVS provides the largest national forum for victims to describe the impact of crime and the characteristics of violent offenders.

*Indicator 36* uses data from NCVS. Further information about the survey is available at <http://www.census.gov/rodet/www/ncvs.html>.

### NATIONAL EDUCATION LONGITUDINAL STUDY OF 1988 (NELS:88)

The National Education Longitudinal Study of 1988 (NELS:88) is the third major secondary school student longitudinal study sponsored by NCES. The two studies that preceded NELS:88, the National Longitudinal Study of the High School Class of 1972 (NLS-72) and the High School and Beyond Longitudinal Study of 1980 (HS&B:80), surveyed high school seniors (and sophomores in HS&B) through high school, postsecondary education, and work and family formation experiences. Unlike its predecessors, NELS:88 begins with a cohort of 8th-grade students. In 1988, some 25,000 8th-graders and their parents, teachers, and school principals were surveyed. Follow-ups were conducted in 1990, 1992, and 1994, when a majority of these students were in 10th and 12th grades, and then 2 years after their scheduled high school graduation. A fourth follow-up was conducted in 2000.

NELS:88 is designed to provide trend data about critical transitions experienced by young people as they develop, attend school, and embark on their careers. It complements and strengthens state and local efforts by furnishing new information on how school policies, teacher practices, and family involvement affect student educational outcomes (i.e., academic achievement, persistence in school, and participation in postsecondary education). For the base year, NELS:88 includes a multifaceted student questionnaire, four cognitive tests, and

separate questionnaires for parents, teachers, and schools.

In 1990, when the students were in 10th grade, the students, school dropouts, teachers, and school principals were surveyed. The 1988 survey of parents was not a part of the 1990 follow-up. In 1992, when most of the students were in 12th grade, the second follow-up conducted surveys of students, dropouts, parents, teachers, and school principals. Also, information from the students' transcripts was collected.

In 1994, the third follow-up of students took place. By this time, most of the survey participants had graduated from high school, and many had begun postsecondary education or entered the workforce. This follow-up focused on issues related to postsecondary access, employment, and whether high school dropouts had earned a high school credential (and, if so, by what route). In 2000, the fourth (and final) NELS:88 follow-up occurred. By this time, most of the participants had been out of high school for 8 years. The study focused on postsecondary enrollment and completion, transitions into the labor force, and family formation. For those who had enrolled in any postsecondary education, postsecondary transcripts were collected from each institution attended.

*Indicator 22* uses data from NELS:88/90, "First Follow-up, 1990." Further information about the survey is available at <http://nces.ed.gov/surveys/nels88/>.

### NATIONAL HOUSEHOLD EDUCATION SURVEYS PROGRAM (NHES)

The National Household Education Surveys Program (NHES), conducted in 1991, 1993, 1995, 1996, 1999, 2001, 2003, and 2005, collects data on educational issues that cannot be addressed by school-level data. Each survey collects data from households on at least two topics; topics include adult education, early childhood program participation, parental

## Note 3: Other Surveys

### Continued

involvement in education, and before- and afterschool activities.

NHES surveys the civilian, noninstitutionalized U.S. population in the 50 states and the District of Columbia. Interviews are conducted using computer-assisted telephone interviewing. Data are collected from adults and occasionally from older children (grades 6–12). When children are sampled, data about them are collected from the parent or guardian who is most knowledgeable.

Although NHES is conducted primarily in English, provisions are made to interview persons who speak only Spanish. Questionnaires are translated into Spanish, and bilingual interviewers, who are trained to complete the interview in either English or Spanish, are employed. NHES only conducts interviews in English and Spanish, so if no respondent in the household can speak at least one of these two languages, then the interview is not completed.

*Indicators 2, 10, and 29* use data from the NHES. Further information about the program is available at <http://nces.ed.gov/nhes/>.

### NATIONAL POSTSECONDARY STUDENT AID STUDY (NPSAS)

The National Postsecondary Student Aid Study (NPSAS) is based on a nationally representative sample of all students in postsecondary education institutions, including undergraduate, graduate, and first-professional students. For NPSAS:04, information was obtained from approximately 80,000 undergraduates and 11,000 graduate or first-professional students from about 1,400 postsecondary institutions. These students represented nearly 19 million undergraduate students, 3 million graduate students, and 300,000 first-professional students who were enrolled at some time between July 1, 2003, and June 30, 2004.

NPSAS is a comprehensive nationwide study designed to determine how students and their

families pay for postsecondary education and to describe some demographic and other characteristics of those enrolled. Students attending all types and levels of institutions are represented, including private (both not-for-profit and for-profit) and public 4-year colleges and universities, community colleges, and less-than-2-year institutions.

To be eligible for inclusion in the institutional sample, an institution must have satisfied the following conditions: (1) offers an education program designed for persons who have completed secondary education; (2) offers an academic, occupational, or vocational program of study lasting 3 months or longer; (3) offers access to the general public; (4) offers more than just correspondence courses; and (5) is located in the 50 states, the District of Columbia, or the Commonwealth of Puerto Rico.

Part-time and full-time students enrolled in academic or vocational courses or programs at these institutions, and not concurrently enrolled in a high school completion program, are eligible for inclusion in NPSAS. The first NPSAS, conducted in 1986–87, sampled students enrolled in fall 1986. Since the 1989–90 NPSAS, students who enrolled at any time during the year have been eligible for inclusion in the survey. This design change provides the opportunity to collect data necessary to estimate full-year financial aid awards.

Unless otherwise specified, all estimates in *The Condition of Education* using data from NPSAS include students in the 50 states, the District of Columbia, and the Commonwealth of Puerto Rico.

Each NPSAS survey provides information on the cost of postsecondary education, the distribution of financial aid, and the characteristics of both aided and nonaided students and their families. Following each survey, NCES publishes three major reports: *Student Financing of Undergraduate Education*, *Student Financing of Graduate and First-Professional Education*,

## Note 3: Other Surveys

Continued

and *Profile of Undergraduates in U.S. Post-secondary Education Institutions* (see NCES 2006-184, 2006-185, 2006-186).

*Indicators 46, 47, and 48* use data from NPSAS. Further information about the survey is available at <http://nces.ed.gov/surveys/npsas/>.

### PRIVATE SCHOOL UNIVERSE SURVEY (PSS)

The Private School Universe Survey (PSS) was established in 1988 to ensure that private school data dating back to 1890 would be collected on a more regular basis. With the help of the Census Bureau, the PSS is conducted biennially to provide the total number of private schools, students, and teachers, and to build a universe of private schools in the 50 states and the District of Columbia to serve as a sampling frame of private schools for NCES sample surveys.

In the most recent PSS data collection, conducted in 2003–04, the survey was sent to 31,848 qualified private schools, and it had a response rate of 94.6 percent.

*Indicator 4* uses data from the PSS. Further information on the surveys is available at <http://nces.ed.gov/surveys/pss/>.

### SCHOOLS AND STAFFING SURVEY (SASS)

The Schools and Staffing Survey (SASS) is the nation's largest sample survey of America's elementary and secondary schools. First conducted in 1987–88, SASS periodically surveys the following:

- surveys public schools and collects data on school districts, schools, principals, teachers, and library media centers;
- surveys private schools and collects data on schools, principals, teachers, and library media centers;
- surveys schools operated by the Bureau of Indian Affairs (BIA) and collects data on schools, principals, teachers, and library media centers; and
- surveys public charter schools and collects data on schools, principals, teachers, and library media centers.

To ensure that the samples contain sufficient numbers for estimates, SASS uses a stratified probability sample design. Public and private schools are oversampled into groups based on certain characteristics. After the schools are stratified and sampled, the teachers within the schools are stratified and sampled based on their characteristics. For the 2003–04 SASS, a sample of public charter schools was included in the sample as part of the public school questionnaire.

*Indicators 33, 34, and 35* use data from the SASS. Further information about the survey is available at <http://nces.ed.gov/surveys/SASS/>.

## Note 4: National Assessment of Educational Progress (NAEP)

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The National Assessment of Educational Progress (NAEP), governed by the National Assessment Governing Board (NAGB), is administered regularly in a number of academic subjects. Since its creation in 1969, NAEP has had two major goals: to assess student performance reflecting current educational and assessment practices and to measure change in student performance reliably over time. To address these goals, NAEP includes a main assessment and a long-term trend assessment. The two assessments are administered to separate samples of students at separate times, use separate instruments, and measure different educational content. Thus, results from the two assessments should not be compared.

### MAIN NAEP

*Indicators 11, 12, 13, and 14* are based on the main NAEP. Begun in 1990, the main NAEP periodically assesses students' performance in several subjects in grades 4, 8, and 12, following the curriculum frameworks developed by NAGB and using the latest advances in assessment methodology. NAGB develops the frameworks using standards developed within the field, using a consensus process involving educators, subject-matter experts, and other interested citizens. Each round of the main NAEP includes a student assessment and background questionnaires (for the student, teacher, and school) to provide information on instructional experiences and the school environment at each grade.

Since 1990, NAEP assessments have also been conducted to give results for participating states. States that choose to participate receive assessment results that report on the performance of students within the state. In its content, the state assessment is identical to the assessment conducted nationally. However, because the national NAEP samples were not, and are not, currently designed to support the reporting of accurate and representative state-

level results, separate representative samples of students are selected for each participating jurisdiction/state.

Beginning with the 2002 assessments, a combined sample of public schools was selected for both the state and national NAEP. This was done in response to the NCES/NAGB redesign of 1998. It was thought that drawing a subset of schools from all of the state samples to produce national estimates would reduce burden by decreasing the total number of schools participating in the state and national NAEP. From this group of schools, representing 50 states, a subsample was identified as the national subset.

Therefore, the national sample is a subset of the combined sample of students assessed in each participating state, plus an additional sample from the states that did not participate in the state assessment. This additional sample ensures that the national sample is representative of the total national student population. The full dataset is analyzed together, allowing all data to contribute to the final results and setting a single scale for the assessment. All results are then reported in the scale score metric used for the specific assessment.

The content and nature of the main NAEP evolve to match instructional practices, so the ability to measure change reliably over time is limited. As standards for instruction and curriculum change, so does the main NAEP. As a result, data from different assessments are not always comparable. However, recent main NAEP assessment instruments for science and reading have typically been kept stable for short periods, allowing for comparisons across time. For example, from 1990 to 2005, in general, assessment instruments in the same subject areas were developed using the same framework, shared a common set of questions, and used comparable procedures to sample and address student populations. In 2005, the NAGB revised the grade 12 mathematics

## Note 4: National Assessment of Educational Progress (NAEP)

Continued

framework to reflect changes in high school mathematics standards and coursework. As a result, even though many questions are repeated from previous assessments, the 2005 results cannot be directly compared with those from previous years. For some subjects that are not assessed frequently, such as civics and the arts, no trend data are available. For more information regarding the 2005 framework revisions, see <http://nces.ed.gov/nationsreportcard/mathematics/whatmeasure.asp>.

The main NAEP results are reported in *The Condition of Education* in terms of both average scale scores and achievement levels. The achievement levels define what students who are performing at the *Basic*, *Proficient*, and *Advanced* levels of achievement should know and be able to do. NAGB establishes achievement levels whenever a new main NAEP framework is adopted. As provided by law, NCES, upon review of congressionally mandated evaluations of NAEP, has determined that achievement levels are to be used on a trial basis and should be interpreted with caution. NAEP achievement levels have been widely used by national and state officials. The policy definitions of the achievement levels that apply across all grades and subject areas are as follows:

- *Basic*: This level denotes partial mastery of prerequisite knowledge and skills that are fundamental for proficient work at each grade assessed.
- *Proficient*: This level represents solid academic performance for each grade assessed. Students reaching this level have demonstrated competency over challenging subject matter, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter.
- *Advanced*: This level signifies superior performance at each grade assessed.

In some indicators, the percentage of students at or above *Proficient* or at or above *Basic* are reported. The percentage of students at or above *Proficient* includes students at the *Advanced* achievement level. Similarly, the percentage of students at or above *Basic* includes students at the *Basic*, those at the *Proficient*, and those at the *Advanced* achievement levels.

Unlike estimates from other sample surveys presented in this report, NAEP estimates that are potentially unstable (large standard error compared with the estimate) are not flagged as potentially unreliable. This practice for NAEP estimates is consistent with the current output from the NAEP online data analysis tool. The reader should always consult the appropriate standard errors when interpreting these findings. For additional information on NAEP, including technical aspects of scoring and assessment validity and more specific information on achievement levels, see <http://nces.ed.gov/nationsreportcard/>.

### Student Accommodations

Until 1996, the main NAEP assessments excluded certain subgroups of students identified as “special needs students,” including students with disabilities and students with limited English proficiency. For the 1996 and 2000 mathematics assessments and the 1998 and 2000 reading assessments, the main NAEP included a separate assessment with provisions for accommodating these students (e.g., extended time, small group testing, mathematics questions read aloud, and so on). Thus, for these years, there are results for both the unaccommodated assessment and the accommodated assessment. For the 2002, 2003, and 2005 reading and 2003 and 2005 mathematics assessments, the main NAEP did not include a separate unaccommodated assessment; only a single accommodated assessment was administered. The switch to a single accommodated assessment instrument was made after it was determined

## Note 4: National Assessment of Educational Progress (NAEP)

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### Continued

that accommodations in NAEP did not have any significant effect on student scores. *Indicators 11 and 12* present NAEP results with and without accommodations.

#### LONG-TERM TREND NAEP

The long-term trend NAEP measures basic student performance in reading, mathematics, science, and writing. *Indicator 15* reports findings from the long-term reading and mathematics assessments. Since the mid-1980s, the long-term

trend NAEP has used the same instruments to provide a means to compare performance over time, but the instruments do not necessarily reflect current teaching standards or curricula. Results have been reported for students at ages 9, 13, and 17 in mathematics, reading, and science, and at grades 4, 8, and 11 in writing. Results from the long-term trend NAEP are presented as mean scale scores because, unlike the main NAEP, the long-term trend NAEP does not define achievement levels.

## Note 5: International Assessments

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### TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY (TIMSS)

*Indicator 17* uses data collected as part of the Trends in International Mathematics and Science Study (TIMSS). Under the auspices of the International Association for the Evaluation of Educational Achievement (IEA), TIMSS assessed the science and mathematics achievement of students in 41 countries in grades 3, 4, 7, and 8, and in the final year of secondary school in 1995. Information about how mathematics and science learning takes place in each country was also collected. TIMSS asked students, their teachers, and their school principals to complete questionnaires about the curriculum, schools, classrooms, and instruction. The TIMSS assessment was repeated in 1999 in 45 countries at grade 8, and again in 2003 in 25 countries at grade 4 and 45 countries at grade 8 so that changes in achievement over time could be tracked. Moreover, TIMSS is closely linked to the curricula of the participating countries, providing an indication of the degree to which students have learned the concepts in mathematics and science that they have encountered in school.

### 2003 TIMSS

For the 2003 assessment, the international desired population consisted of all students in the country who were enrolled in the upper of the two adjacent grades that contained the greatest proportion of 9- and 13-year-olds at the time of testing (Populations 1 and 2, respectively, except only the upper of the two adjacent grades). In the United States and most countries, this corresponded to grades 4 and 8. In all, 25 countries participated at grade 4, and 46 countries participated at grade 8. (A list of participating countries is available on the TIMSS website at <http://nces.ed.gov/timss>.)

Approximately one-third of the 1995 4th-grade assessment items and one-half of the 1999 8th-grade assessment items were used in the 2003 assessment. Development of the 2003 assessment began with an update of the assessment frameworks to reflect changes in the curriculum and instruction of participating countries. “Problem-solving and inquiry” tasks were added to the 2003 assessment to assess how well students could draw on and integrate information and processes in mathematics and science as part of an investigation or in order to solve problems.

For further information on TIMSS, see <http://nces.ed.gov/timss>.

## Note 6: International Standard Classification of Education

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### LEVELS OF EDUCATION

*Indicators 41 and 43* use the International Standard Classification of Education (ISCED) (OECD 1999) to compare educational systems in different countries. The ISCED is the standard used by many countries to report education statistics to UNESCO and the Organization for Economic Cooperation and Development (OECD). The ISCED divides educational systems into the following seven categories, based on six levels of education.

*Education preceding the first level (early childhood education)* usually begins at age 3, 4, or 5 (sometimes earlier) and lasts from 1 to 3 years when it is provided. In the United States, this level includes nursery school and kindergarten.

*Education at the first level (primary or elementary education)* usually begins at age 5, 6, or 7 and continues for about 4 to 6 years. For the United States, the first level starts with 1st grade and ends with 6th grade.

*Education at the second level (lower secondary education)* typically begins at about age 11 or 12 and continues for about 2 to 6 years. For the United States, the second level starts with 7th grade and ends with 9th grade. Education at the lower secondary level continues the basic programs of the first level, although teaching is typically more subject focused, often using more specialized teachers who conduct classes in their field of specialization. The main criterion for distinguishing lower secondary education from primary education is whether programs begin to be organized in a more subject-oriented pattern, using more specialized teachers who conduct classes in their field of specialization. If there is no clear breakpoint for this organizational change, the lower secondary education is considered to begin at the end of 6 years of primary education. In countries with no clear division between lower secondary and upper secondary education, and where lower secondary education lasts for more than 3

years, only the first 3 years following primary education are counted as lower secondary education.

*Education at the third level (upper secondary education)* typically begins at age 15 or 16 and lasts for approximately 3 years. In the United States, the third level starts with 10th grade and ends with 12th grade. Upper secondary education is the final stage of secondary education in most OECD countries. Instruction is often organized along subject-matter lines, in contrast to the lower secondary level, and teachers typically must have a higher level, or more subject-specific, qualification. There are substantial differences in the typical duration of programs both across and between countries, ranging from 2 to 5 years of schooling. The main criteria for classifications are (1) national boundaries between lower and upper secondary education; and (2) admission into educational programs, which usually requires the completion of lower secondary education or a combination of basic education and life experience that demonstrates the ability to handle the subject matter in upper secondary schools.

*Education at the fourth level (postsecondary nontertiary education)* straddles the boundary between secondary and postsecondary education. This program of study, which is primarily vocational in nature, is generally taken after the completion of secondary school, typically lasts from 6 months to 2 years, and may be considered as an upper secondary or postsecondary program in a national context. Although the content of these programs may not be significantly more advanced than upper secondary programs, these programs serve to broaden the knowledge of participants who have already gained an upper secondary qualification. This level of education is included for select countries in *indicator 41*.

*Education at the fifth level (first stage of tertiary education)* includes programs with more

## Note 6: International Standard Classification of Education

Continued

advanced content than those offered at the two previous levels. Entry into programs at the fifth level normally requires successful completion of either of the two previous levels.

Tertiary-type A programs provide an education that is largely theoretical and is intended to provide sufficient qualifications for gaining entry into advanced research programs and professions with high-skill requirements. Entry into these programs normally requires the successful completion of an upper secondary education; admission is competitive in most cases. The minimum cumulative theoretical duration at this level is 3 years of full-time enrollment. In the United States, tertiary-type A programs include first university programs that last 4 years and lead to the award of a bachelor's degree, second university programs that lead to a master's degree, and professional programs that lead to a first-professional degree.

Tertiary-type B programs are typically shorter than tertiary-type A programs and focus on practical, technical, or occupational skills for

direct entry into the labor market, although they may cover some theoretical foundations in the respective programs. They have a minimum duration of 2 years of full-time enrollment at the tertiary level. In the United States, such programs are often provided at community colleges and lead to an associate's degree.

*Education at the sixth level (advanced research qualification)* is provided in graduate and professional schools that generally require a university degree or diploma as a minimum condition for admission. Programs at this level lead to the award of an advanced, postgraduate degree, such as a Ph.D. The theoretical duration of these programs is 3 years of full-time enrollment in most countries (for a cumulative total of at least 7 years at levels five and six), although the length of actual enrollment is often longer. Programs at this level are devoted to advanced study and original research.

For *indicators 41* and *43*, postsecondary education includes the fifth and sixth levels, except as noted.

## Note 7: Measures of Student Persistence and Progress

Various measures have been developed to provide information about student persistence and progress through elementary and secondary education. Three measures are presented in this report: status dropout rate (*indicator 23*), the public school averaged freshman graduation rate (*indicator 24*), and the educational attainment of 25- to 29-year-olds (*indicator 27*). The three indicators in this volume that present these measures each employ a different analytic method and dataset to document a different aspect of the complex high school graduation and dropout process. No one data source provides comprehensive information on the graduation and dropout process on an annual basis, but these three indicators presented here complement one another and draw upon the particular strength of their respective data. Each indicator is not without its limitations, however, which makes it critical to have multiple indicators when addressing the question of student persistence. A brief description of the relevant methodology and data used by each indicator follows.

### STATUS DROPOUT RATE

*Indicator 23* reports status dropout rates by race/ethnicity. Status dropout rates measure the extent of the dropout problem for a population and as such can be used to estimate the need for further education and training in that population. This indicator uses October Current Population Survey (CPS) data to estimate the percentage of the civilian, noninstitutionalized population ages 16 through 24 who are not in high school and who have not earned a high school credential (either a diploma or an equivalency credential such as a General Educational Development [GED] certificate), irrespective of when they dropped out. An advantage of using CPS data to compute this status dropout rate is that it can be computed on an annual basis for various demographic subgroups of adults and can be used to report a national rate that includes dropouts of public and private schools. The disadvantages of using

CPS data to compute status dropout rates is that they (1) exclude all military personnel and incarcerated or institutionalized persons and (2) include as dropouts individuals who never attended U.S. schools, including immigrants who did not complete the equivalent of a high school education in their home country.

### PUBLIC SCHOOL AVERAGED FRESHMAN GRADUATION RATE

*Indicator 24* examines the percentage of public high school students who graduate on time by using the averaged freshman graduation rate (AFGR). The AFGR is a measure of the percentage of the incoming freshman class that graduates 4 years later. The AFGR is the number of graduates with a regular diploma divided by the estimated count of incoming freshmen 4 years earlier as reported through the NCES Common Core of Data (CCD), the survey system based on state education departments' annual administrative records. The estimated count of incoming freshmen is calculated by summing 10th-grade enrollment 2 years before the graduation year, 9th-grade enrollment 3 years before the graduation year, and 8th-grade enrollment 4 years before the graduation year and dividing this amount by 3. The intent of this averaging is to account for the high rate of grade retention in the freshman year, which adds 9th-grade repeaters from the previous year to the number of students in the incoming freshman class each year. Enrollment counts include a proportional distribution of students not enrolled in a specific grade. An advantage of using CCD data to calculate the AFGR is that they are available on an annual basis by state; however, the demographic details are limited.

### EDUCATIONAL ATTAINMENT OF 25- TO 29-YEAR-OLDS

*Indicator 27* examines the educational attainment of adults just past the age when most would traditionally be expected to complete

## Note 7: Measures of Student Persistence and Progress

Continued

their postsecondary education. This indicator uses March CPS data to estimate the percentage of civilian, noninstitutionalized people ages 25 through 29 who are out of high school and who have earned a high school credential (either a diploma or an equivalency credential such as a GED); the rate can be reported by race/ethnicity and other demographic variables. The rate does not differentiate between those who graduated from public schools, who graduated from private schools, or who earned a GED. The rate also includes individuals who never attended high school in the United States. An advantage of using CPS data to compute the educational attainment rate is that it can be computed on an annual basis for various demographic subgroups of adults and can be used to report a national rate that includes public and private schools. A disadvantage of using CPS data to compute the educational attainment rate is that these data exclude all military personnel and incarcerated or institutionalized persons.

Even though *indicators 23, 24, and 27* document different aspects of student persistence, a number of important differences between these indicators should be noted and recognized as likely factors responsible for the divergence between their respective estimates. General differences can be found in the population of interest, information source, and data collection time frame. For example, the three indicators focus on different populations: *indicator 23* focuses on 16- through 24-year-olds between 1972 and 2005; *indicator 24* focuses on the number of

graduates in 2003–04 based on the 2000–01 freshman class; and *indicator 27* focuses on 25- through 29-year-olds between 1971 and 2006. The source of information used to construct the indicators also varies. *Indicator 24* is produced from the CCD, a universe survey system based on state education departments' annual administrative records, while *indicators 23 and 27* use data from the CPS, a sample survey of the civilian noninstitutional population.

Given such differences, one would not expect to see identical or even similar estimates. In fact, very reasonable differences should be apparent. For example, if one estimate measures only regular diplomas completed on time, it should be smaller than one that is constructed to measure both regular diplomas and GEDs. Once accounting for these methodological differences, the divergence between estimates tends to be in the correct direction and of the right magnitude.

This supplemental note is intended to provide only a brief overview of some of the commonly available data that address the complex issue of high school completion. For more detail on methods used to analyze dropout and graduation rates in these indicators and other related measures of student persistence and progress, see *supplemental notes 2 and 3* and the publications by Seastrom et al. (NCES 2006-604; NCES 2006-605) and Laird, DeBell, and Chapman (NCES 2007-024).

## Note 8: Student Disabilities

*Indicators 7 and 31* use data from the U.S. Department of Education’s Office of Special Education Programs (OSEP), which collects information on students with disabilities as part of the implementation of the Individuals with Disabilities Education Act (IDEA). OSEP classifies disabilities according to 13 categories. (For more detailed definitions of these categories, see the part B and C data dictionaries at <http://www.ideadata.org>.)

### DISABILITY CATEGORIES

#### 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.

#### Deaf-blindness

Concomitant hearing and visual impairments, the combination of which causes such severe communication and other developmental and educational problems that the student cannot be accommodated in special education programs solely for children with deafness or children with blindness.

#### Developmental Delay

This term may apply to children ages 3 through 9 who are experiencing developmental delays in one or more of the following areas: physical development, cognitive development, communication development, social or emotional development, or adaptive development, and who therefore need special education and related services. It is optional for states to adopt and use this term to describe any child within its jurisdiction. A local education agency (LEA)

may use the term if its state has adopted it for use, but it must conform its use of the term to that of the state.

#### 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:

1. An inability to learn that cannot be explained by intellectual, sensory, or health factors.
2. An inability to build or maintain satisfactory interpersonal relationships with peers and teachers.
3. Inappropriate types of behavior or feelings under normal circumstances.
4. A general pervasive mood of unhappiness or depression.
5. A tendency to develop physical symptoms or fears associated with personal or school problems.

The term includes schizophrenia. The term does not apply to children who are socially maladjusted, unless it is determined that they have an emotional disturbance.

#### 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 in this section.

Although children and youth with deafness are not included in the definition of hearing impairment, they are counted in the hearing impairment category.

#### Mental Retardation

Significantly subaverage general intellectual functioning, existing concurrently with deficits

## Note 8: Student Disabilities

Continued

in adaptive behavior and manifested during the developmental period, that adversely affects a child's educational performance.

### Multiple Disabilities

Concomitant impairments (such as mental retardation-blindness, mental retardation-orthopedic impairment, etc.), the combination of which causes such severe educational needs that they cannot be accommodated in special education programs solely for one of the impairments. The term 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 congenital anomaly (e.g., clubfoot, absence of some member, etc.), impairments caused by disease (e.g., poliomyelitis, bone tuberculosis, etc.), 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, that

- is due to chronic or acute health problems such as asthma, attention deficit disorder or attention deficit hyperactivity disorder, diabetes, epilepsy, a heart condition, hemophilia, lead poisoning, leukemia, nephritis, rheumatic fever, and sickle cell anemia; and
- adversely affects a child's educational performance.

### 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 an 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. The term does not include learning problems that are primarily the result of visual, hearing, or motor disabilities, of mental retardation, of emotional disturbance, or of environmental, cultural, or economic disadvantage.

### 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. The term 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. The term does not apply to brain injuries that are congenital or degenerative, or to brain injuries induced by birth trauma.

### Visual Impairments

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

## Note 9: Classification of Postsecondary Education Institutions

The U.S. Department of Education’s Integrated Postsecondary Education Data System (IPEDS) employs various categories to classify postsecondary institutions. This note outlines the different categories used in varying combinations in *indicators 8, 9, 26, 28, 42, 44, 47, and 48.*

### BASIC IPEDS CLASSIFICATIONS

The term “postsecondary institutions” is the category used to refer to institutions with formal instructional programs and a curriculum designed primarily for students who have completed the requirements for a high school diploma or its equivalent. For many analyses, however, comparing all institutions from across this broad universe of postsecondary institutions would not be appropriate. Thus, postsecondary institutions are placed in one of three levels, based on the highest award offered at the institution:

- *4-year-and-above institutions:* Institutions or branches that award a 4-year degree or higher in one or more programs, or a postbaccalaureate, post-master’s, or post-first-professional certificate.
- *2-year but less-than-4-year institutions:* Institutions or branches that confer at least a 2-year formal award (certificate, diploma, or associate’s degree) or that have a 2-year program creditable toward a baccalaureate degree.
- *Less-than-2-year institutions:* Institutions or branches that have programs lasting less than 2 years that result in a terminal occupational award or are creditable toward a degree at the 2-year level or higher.

Postsecondary institutions are further divided according to these criteria: degree-granting versus non-degree-granting; type of financial control; and Title IV-participating versus non-Title IV-participating.

*Degree-granting* institutions offer associate’s, bachelor’s, master’s, doctoral, and/or first-professional degrees that a state agency recognizes or authorizes. *Non-degree-granting* institutions offer other kinds of credentials and exist at all three levels. The number of 4-year-and-above non-degree-granting institutions is small compared with the number of non-degree granting institutions at both the 2-year but less-than-4-year and less-than-2-year levels.

IPEDS classifies institutions at each of the three levels of institutions by type of financial control: *public*; *private not-for-profit*; or *private for-profit* (e.g., proprietary schools). Thus, IPEDS divides the universe of postsecondary institutions into nine different “sectors.” In some sectors (for example, private for-profit 4-year institutions), the number of institutions is small relative to other sectors. Institutions in any of these nine sectors can be degree- or non-degree-granting.

Institutions in any of these nine sectors can also be Title IV-participating or not. For an institution to participate in federal Title IV Higher Education Act, Part C, financial aid programs, it must offer a program of study at least 300 clock hours in length; have accreditation recognized by the U.S. Department of Education; have been in business for at least 2 years; and have a Title IV participation agreement with the U.S. Department of Education. All indicators in this volume using IPEDS data are restricted to Title IV-participating institutions.

In some indicators based on IPEDS data, 4-year-and-above degree-granting institutions are further classified according to the highest degree awarded. *Doctoral* institutions award at least 20 doctoral degrees per year. *Master’s* institutions award at least 20 master’s degrees per year. The remaining institutions are considered to be *other 4-year* institutions. The number of degrees awarded by an institution in a given year is obtained for each institution from data published in the IPEDS “Completions Survey” (IPEDS-C).

## Note 9: Classification of Postsecondary Education Institutions

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Continued

*Indicators 8, 26, 42, 44, and 47* include 2-year (short for 2-year but less-than-4-year) and 4-year-and-above degree-granting institutions in their analyses.

*Indicators 9, 28, and 48* include 4-year-and-above degree-granting institutions.

## Note 10: Fields of Study for Postsecondary Degrees

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The general categories for fields of study used in *indicators 28* and *42* were derived from the 2000 edition of the *Classification of Instructional Programs* (CIP-2000). To facilitate trend comparisons, in some instances aggregations of some categories have been made. These aggregations are as follows:

*Agriculture and natural resources*: agriculture, agriculture operations and related sciences; and natural resources and conservation.

*Business*: business, management, marketing, and related support services; and personal and culinary services.

*Communication, journalism, and related programs*: communications, journalism, and related programs; and communications technologies/technicians and support services.

*Engineering*: engineering; engineering technologies/technicians; construction trades; and mechanic and repair technologies/ technicians.

Data may differ from previously published figures as data from earlier years have been reclassified when necessary to make them conform to the new taxonomy. Further information about the CIP-2000 is available at <http://nces.ed.gov/pubs2002/cip2000/>.

## Note 11: Finance

### USING THE CONSUMER PRICE INDEX (CPI) TO ADJUST FOR INFLATION

The Consumer Price Indexes (CPIs) represent changes in the prices of all goods and services purchased for consumption by households. Indexes vary for specific areas or regions, periods of time, major groups of consumer expenditures, and population groups. *Indicators 20, 37, 38, 39, 40, 44, 46, and 47* in *The Condition of Education* use the U.S. All Items CPI for All Urban Consumers (CPI-U).

The CPI-U is the basis for both the calendar year CPI and the school year CPI. The calendar year CPI is the same as the annual CPI-U. The school year CPI is calculated by adding the monthly CPI-U figures, beginning with July of the first year and ending with June of the following year, and then dividing that figure by 12. The school year CPI is rounded to three decimal places. Data for the CPI-U are available on the Bureau of Labor Statistics (BLS) website (see below). Also, figures for both the calendar year CPI and the school year CPI can be obtained from the *Digest of Education Statistics, 2006* (NCES 2007-017), an annual publication of the National Center for Education Statistics (NCES).

Although the CPI has many uses, its principal function in *The Condition of Education* is to convert monetary figures (salaries, expenditures, income, etc.) into inflation-free dollars to allow comparisons over time. For example, due to inflation, the buying power of a teacher's salary in 1998 is not comparable to that of a teacher's salary in 2002. In order to make such a comparison, the 1998 salary must be converted into 2002 constant dollars by multiplying the 1998 salary by a ratio of the 2002 CPI over the 1998 CPI. As a formula, this is expressed as

$$1998 \text{ salary} \times \frac{(2002 \text{ CPI})}{(1998 \text{ CPI})} = 1998 \text{ salary in } 2002 \text{ constant dollars}$$

The reader should be aware that there are alternative price indexes to the CPI that could be used to make these adjustments. These alternative adjustments might produce findings that differ from the ones presented here. For more detailed information on how the CPI is calculated or the other types of CPI indexes, go to the BLS website (<http://www.bls.gov/cpi/>).

### CLASSIFICATIONS OF EXPENDITURES FOR ELEMENTARY AND SECONDARY EDUCATION

*Indicators 38, 39, and 40* examine expenditures for public elementary and secondary education. *Indicator 38* uses six categories of expenditures: total expenditures, instruction expenditures, administration expenditures, operation and maintenance expenditures, capital expenditures, and other expenditures. *Indicator 39* uses instruction expenditures in its analysis. *Indicator 40* uses two categories of expenditures in its analysis: total expenditures and current expenditures.

*Total expenditures* for elementary and secondary education include all expenditures allocable to per student costs: these are all current expenditures for regular school programs, interest on school debt, and capital outlay. Expenditures on education by other agencies or equivalent institutions (e.g., the Department of Health and Human Services and the Department of Agriculture) are included.

*Current expenditures* include expenditures for instruction, administration, operation and maintenance, and other expenditures with the exception of capital expenditures (capital outlays and interest on debt) and current expenditures for nonelementary and nonsecondary programs (see Total expenditures, above). Thus, current expenditures include such items as salaries for school personnel, fixed charges, student transportation, school books and materials, and energy costs.

*Instruction expenditures* include salaries and benefits for teachers and instructional aides,

## Note 11: Finance

### Continued

supplies, and purchased services such as instruction via television. Also included are tuition expenditures to other local education agencies.

*Administration expenditures* include expenditures for general administration (salary, benefits, supplies, and contractual fees for boards of education staff and executive administration) and school administration (salary, benefits, supplies, and contractual fees for the office of the principal, full-time department chairpersons, and graduation expenses).

*Operation and maintenance expenditures* include salary, benefits, supplies, and contractual fees for supervision of operations and maintenance; operating buildings (heating, lighting, ventilating, repair, and replacement); care and upkeep of grounds and equipment; vehicle operations and maintenance (other than student transportation); security; and other operations and maintenance services.

*Capital expenditures* include interest on school debt and capital outlays. Capital expenditures represent the value of educational capital acquired or created during the year in question—that is, the amount of capital formation regardless of whether the capital outlay was financed from current revenue or by borrowing. Capital expenditures include outlays on construction, land and existing structures, instructional equipment, and all other equipment.

*Other expenditures* include funds for student support (health, attendance, and speech pathology services); other instructional staff (curriculum development, staff training, libraries, and media and computer centers); student transportation; other support services, including business support services and central support services; food services; enterprise operations (operations funded by sales of products or services together with amounts for direct program support made by state education agencies for local school districts); and other current

expenditures (adult education, community colleges, private school programs funded by local and state education agencies, and community services).

### CLASSIFICATIONS OF REVENUE

In *indicator 37*, revenue is classified by source (federal, state, or local). Revenue from federal sources includes direct grants-in-aid to schools or agencies, funds distributed through a state or intermediate agency, and revenue in lieu of taxes to compensate a school district for non-taxable federal institutions within a district's boundary. Revenue from state sources includes both direct funds from state governments and revenue in lieu of taxation. Revenue from local sources includes revenue from such sources as local property and nonproperty taxes; investments; and revenue from student activities, textbook sales, transportation and tuition fees, and food services. Intermediate revenue comes from sources that are not local or state education agencies, but operate at an intermediate level between local and state education agencies and possess independent fundraising capability—for example, county or municipal agencies. Intermediate revenue is included in local revenue totals. In *indicator 37*, local revenue is classified as either local property tax revenue or other local revenue.

In *indicator 37*, alternative local government revenue numbers for Texas were used in the calculation of the percentage distribution for the South in 1992–93 because, for that state, much of the revenue that was classified as local government property taxes was classified as revenue from intermediate sources. The alternative Texas local government property tax revenue for 1992–93 was calculated by applying the average of the proportions of the 1991–92 and 1993–94 local government property tax revenue to all local government revenue to the 1992–93 total for all local government revenue. Other local government revenue was calculated in a similar fashion.

## Note 11: Finance

Continued

### THE VARIATION IN EXPENDITURES PER STUDENT AND THE THEIL COEFFICIENT

*Indicator 39* uses the *Theil coefficient* to measure the variation in expenditures per pupil in regular public school elementary and secondary schools in the United States.

The Theil coefficient was developed by Henri Theil to measure the amount of information conveyed by a single message that an event has occurred. It was derived from the study of what Theil called the “information concept.” If we know an event is likely (i.e., the probability of the event is close to 1.0), then the amount of information conveyed is low (i.e., it is no surprise that the event occurred). But if the probability is low (i.e., near zero), a message saying it occurred provides a significant amount of information. Intuitively, and later rigorously proven by Theil and others, the function of the amount of information conveyed is logarithmic (i.e.,  $h(z) = \ln(1/z)$ , where  $h$  = information function and  $z$  = probability of event).

Having developed the information function as a measure of the amount of information conveyed, Theil then suggested that this information function could also be used as a measure of dispersion. For example, if instructional expenditures per pupil in the nation are relatively close together (i.e., low disparity), then relatively little information would be provided by random draws of the districts (i.e., the  $1/z$ , the probabilities, are high, but the value of the information function, the sum of the logarithms, is low). In contrast, if instructional expenditures per pupil are very dissimilar, then probabilities for drawing a given level of expenditures are lower, and the information gained from a random draw will be high. Thus, the information function can be a measure of dispersion, and a comparison of the values of Theil coefficients for groups within a set (i.e., districts within the nation) will indicate relative dispersion and any variations that may exist among them. The Theil coefficient was subse-

quently used to measure the trends in variation of a number of items, including expenditures per student (see NCES 2000-020 and Murray, Evans, and Schwab 1998).

The Theil coefficient has a convenient property when the individual units of observation (e.g., school districts) can be aggregated into subgroups (e.g., states): the Theil coefficient for the aggregation of all the individual units of observation can be decomposed into a measure of the variation within the subgroups and a measure of the variation between the subgroups. Hence, in the examination of the variation in instructional expenditures in the United States, the national variation can be decomposed into measures of between-state and within-state variation.

The between-state Theil coefficient,  $T_B$ , equals:

$$T_B = \sum_{k=1}^K (P_k \bar{X}_k / \bar{X}) \ln(\bar{X}_k / \bar{X})$$

where  $P_k$  is the enrollment in state  $k$ ,  $\bar{X}_k$  is the student-weighted mean expenditure per student in state  $k$ , and  $\bar{X}$  is the student-weighted mean expenditure per student for the country.

The within-state Theil coefficient,  $T_w$ , equals:

$$T_w = \sum_{k=1}^K (P_k \bar{X}_k / \bar{X}) T_k$$

where  $T_k$  is the Theil coefficient for state  $k$ .

$T_k$  equals:

$$T_k = \frac{\sum_{j=1}^{J_k} P_{jk} X_{jk} \ln(X_{jk} / \bar{X}_k)}{\sum_{j=1}^{J_k} P_{jk} X_{jk}}$$

where  $P_{jk}$  is the enrollment of district  $j$  in state  $k$  and  $X_{jk}$  is the mean expenditure per student of district  $j$  in state  $k$ .

The national Theil coefficient,  $T$ , is

$$T = T_w + T_B$$

## Note 11: Finance

### Continued

#### CLASSIFICATIONS OF EXPENDITURES FOR INTERNATIONAL COMPARISONS

*Indicator 41* presents international data on public and private expenditures for instructional and noninstructional educational institutions. Instructional educational institutions are educational institutions that directly provide instructional programs (i.e., teaching) to individuals in an organized group setting or through distance education. Business enterprises or other institutions providing short-term courses of training or instruction to individuals on a “one-to-one” basis are not included. Noninstructional educational institutions are educational institutions that provide administrative, advisory, or professional services to other educational institutions, although they do not enroll students themselves. Examples include national, state, and provincial bodies in the private sector; organizations that provide education-related services such as vocational and psychological counseling; and educational research.

*Public expenditures* refer to the spending of public authorities at all levels. *Total public expenditures* used for the calculation in *indicator 41* correspond to the nonrepayable current and capital expenditures of all levels of the government directly related to education. Expenditures that are not directly related to education (e.g., culture, sports, youth activities, etc.) are, in principle, not included. Expenditures on education by other ministries or equivalent

institutions (e.g., Health and Agriculture) are included. Public subsidies for students’ living expenses are excluded to ensure international comparability of the data.

*Private expenditures* refer to expenditures funded by private sources (i.e., households and other private entities). “Households” mean students and their families. “Other private entities” include private business firms and nonprofit organizations, including religious organizations, charitable organizations, and business and labor associations. Private expenditures comprise school fees; the cost of materials such as textbooks and teaching equipment; transportation costs (if organized by the school); the cost of meals (if provided by the school); boarding fees; and expenditures by employers on initial vocational training. Private educational institutions are considered to be service providers and do not include sources of private funding.

*Current expenditures* include final consumption expenditures (e.g., compensation of employees, consumption of intermediate goods and services, consumption of fixed capital, and military expenditures); property income paid; subsidies; and other current transfers paid. Capital expenditures include spending to acquire and improve fixed capital assets, land, intangible assets, government stocks, and non-military, nonfinancial assets, as well as spending to finance net capital transfers.

## Note 12: Measuring High School Coursetaking

There are various ways to measure the academic coursework that students complete. For example, one can measure the number of courses a student has completed in different subjects (e.g., whether a student completed two, three, or four courses in mathematics). If one is interested in how common it is for students to complete certain courses, one can measure the percentage of high school students who have completed those courses. Yet another method is to measure the highest level of coursework completed in different subjects (e.g., whether a student's most academically challenging mathematics course was algebra I, trigonometry, or calculus). Based on these three methods, analysts have created different measures to categorize high school coursetaking. This supplemental note describes the coursetaking taxonomies used in the Special Analysis of *The Condition of Education 2007*.

All of the coursetaking data used in the Special Analysis come from transcripts of graduates of public and private high schools, which were collected as part of the U.S. Department of Education's National Assessment of Educational Progress (NAEP), Education Longitudinal Study of 2002 (ELS:2002), National Education Longitudinal Study of 1988 (NELS:88), and the High School & Beyond study (HS&B). It is important to note that comparability cannot be perfect because (1) the Secondary School Taxonomy (SST) was revised in 1998, (2) these data come from different transcript collections, thus introducing the possibility of minor variations in the coding methodology even though steps were taken to replicate the data collection and coding methodology in each study, and (3) these data used slightly different sample selection criteria when determining high school graduation status.

The high school courses taken by students are organized according to the Classification of Secondary School Courses (CSSC) and the Secondary School Taxonomy (SST). All courses in a student's transcript are coded with a CSSC

value after checking course titles on the student's transcripts with course catalogs from the student's high school describing the contents of those courses. These coded courses are then assigned to broader course groupings, forming the academic levels in each subject area, using the Secondary School Taxonomy (SST).

Course credits are expressed in Carnegie units. A Carnegie unit is a standard of measurement used for secondary education that is equivalent to the completion of a course that meets one period per day for one school year, where a period is typically at least 40 minutes.

Transcript studies are a reliable source of information but they do have limitations. One limitation is that transcript studies can describe the intended—but not the actual—curriculum. The content and instructional methods of one course taught in one school by a certain teacher may be different from the content and instructional methods of another course classified as having the same CSSC code taught in another school, or even the same school, by a different teacher. Nevertheless, validation studies and academic research have shown significant differences between the highest level of academic courses completed by students and their scores on tests of academic achievement (Chaney, Burgdorf, and Atash 1997).

### ACADEMIC PIPELINES

Academic “pipelines” organize transcript data in English, science, mathematics, and foreign language into levels based on the normal progression and difficulty of courses within these subject areas. Each level includes courses either of similar academic challenge and difficulty or at the same stage in the progression of learning in that subject area. In the mathematics pipeline, for example, algebra I is placed at a level lower in the pipeline continuum than is algebra II because algebra I is traditionally completed before algebra II and is generally less academically difficult or complex.

## Note 12: Measuring High School Coursetaking

### Continued

Classifying transcript data into these levels allows one to infer that high school graduates who have completed courses at the higher levels of a pipeline have completed more advanced coursework than graduates whose courses fall at the lower levels of the pipeline. Tallying the percentage of graduates who completed courses at each level permits comparisons of the percentage of high school graduates in a given year who reach each of the levels, as well as comparisons among different graduating classes.

In classifying students' courses from their transcripts according to a pipeline, only the courses completed with a passing grade in a subject area are included and not courses attempted. The inability to identify the number and types of courses attempted is due to inconsistent school reporting procedures. For example, many students retake courses they fail. In these instances, some schools report all courses attempted, while others report only the last course taken, substituting the passing grade. The pipeline also does not provide information on how many courses graduates completed in a particular subject area. Graduates are placed at a particular level in the pipeline based on the level of their highest completed course, regardless of whether they completed courses that would fall lower in the pipeline. Thus, graduates who completed year 3 of (or 11th-grade) French did not necessarily complete the first 2 years.

### MATHEMATICS PIPELINE

Originally developed by Burkam and Lee (NCES 2003-01), the mathematics pipeline progresses from no mathematics courses or nonacademic courses to low, middle, and advanced academic coursework. Each level in the pipeline represents the highest level of mathematics coursework that a graduate completed in high school. Thus, a graduate whose highest course is at the low academic level progressed no further in the mathematics pipeline and did not complete a traditional algebra I course, a prerequisite for higher level mathematics in

high school. The mathematics pipeline has eight levels; however, two of these levels can be combined to create a "middle academic level," and the top three levels can be combined to create an "advanced academic level."

#### No Mathematics

Includes graduates who completed either no coursework in mathematics or only basic or remedial-level mathematics. It is thus possible for a graduate to have taken one or more courses in mathematics, but to be placed in the no mathematics level.

#### Nonacademic Level

Highest completed courses are in general mathematics or basic skills mathematics, such as general mathematics I or II; basic mathematics I, II, or III; consumer mathematics; technical or vocational mathematics; and mathematics review.

#### Low Academic Level

Highest completed courses are preliminary courses (e.g., prealgebra) or mathematics courses of reduced rigor or pace (e.g., algebra I taught over the course of 2 academic years). Considered to be more academically challenging than nonacademic courses, courses at this level include prealgebra; algebra I, part I; algebra I, part II; and geometry (informal).

#### Middle Academic Level

The middle academic level is divided into two sublevels, each of which is considered to be more academically challenging than the nonacademic and low academic levels, though the first level is not considered as challenging as the second level.

##### *Algebra I/Geometry Level*

Highest completed courses include algebra I; plane geometry; plane and solid geometry; unified mathematics I and II; and pure mathematics.

## Note 12: Measuring High School Coursetaking

Continued

### *Algebra II Level*

Highest completed course is algebra II or unified mathematics III.

### **Advanced Academic Level**

The advanced academic level is divided into three sublevels, each of which is considered more academically challenging than the non-academic, low academic, and middle academic levels, though the first level is not considered as challenging as the second level, nor the second level as challenging as the third.

### *Trigonometry/Algebra III Level*

Highest completed course is algebra III; algebra/trigonometry; algebra/analytical geometry; trigonometry; trigonometry/solid geometry; analytical geometry; linear algebra; probability; probability/statistics; statistics; statistics (other); or an independent study.

### *Precalculus Level*

Highest completed course is precalculus or an introduction to analysis.

### *Calculus Level*

Highest completed course is Advanced Placement (AP) calculus; calculus; or calculus/analytical geometry.

### **SCIENCE PIPELINE**

Unlike mathematics and other subjects, such as foreign languages, coursework in science does not follow a common or easily defined sequence. Depending on a school's curriculum, students can choose from several courses with minimal sequencing requirements. Consequently, the method used to construct the science pipeline differs from that used to construct the mathematics pipeline. First, all science courses were placed in one of four groups based on subject matter: (1) life science (e.g., biology, ecology, zoology); (2) chemistry; (3) physics; and (4) all other physical sciences (e.g., geology, earth science, physical science). Second, a pipeline was constructed for each of these

four groups. Third, the pipelines for chemistry, physics, and all other physical sciences were combined into a single pipeline (a physical science pipeline). Finally, the physical science and life science pipelines were combined to create a single science pipeline. The final pipeline has seven levels; however, for the Special Analysis, two of these levels were combined into one category (low academic level).

### **No Science**

No science includes graduates who did not complete any courses in science or who completed only basic or remedial-level science. It is possible for a graduate to have taken one or more courses in science but to be placed in the no science level.

### **Low Academic Level**

The low academic level is composed of two levels, each of which is considered to be more academically challenging than no science.

### *Primary Physical Science*

Highest completed course is in basic physical sciences: applied physical science; earth science; college preparatory earth science; or unified science.

### *Secondary Physical Science and Basic Biology*

Highest completed course is astronomy; geology; environmental science; oceanography; general physics; basic biology I; or consumer or introductory chemistry.

### **General Biology**

Highest completed course is general biology I; secondary life sciences (including ecology, zoology, marine biology, and human physiology); or general or honors biology II.

### **Chemistry I or Physics I**

Highest completed course is introductory chemistry, chemistry I, organic chemistry, physical chemistry, consumer chemistry, general physics, or physics I.

## Note 12: Measuring High School Coursetaking

### Continued

#### Chemistry I and Physics I

Highest completed courses include one level I chemistry course (see above) and one level I physics course (see above).

#### Chemistry II or Physics II or Advanced Biology

Highest completed course is advanced biology, International Baccalaureate (IB) biology II, IB biology III, AP biology, field biology, genetics, biopsychology, biology seminar, biochemistry and biophysics, biochemistry, botany, cell and molecular biology, cell biology, microbiology, anatomy, and miscellaneous specialized areas of life sciences, chemistry II, IB chemistry II, IB chemistry III, AP chemistry, physics II, IB physics, AP physics B, AP physics C: mechanics, AP physics C: electricity/magnetism, or physics II without calculus.

#### ENGLISH PIPELINE

English language and literature courses do not fit neatly into an ordered hierarchical framework. Instead of building on previously studied content, the English curriculum is stratified by the level of academic challenge and intensity of work required within a specific content area rather than among different courses. For example, within the general English curriculum, most schools have three tracks that vary by level of academic challenge: below-grade-level or low academic-level courses, at-grade or regular courses, and above-grade or honors courses. Thus, unlike the mathematics and science pipelines that are based on progress within a content continuum (e.g., algebra I, geometry, algebra II, trigonometry, and calculus), the English pipeline is constructed to reflect the proportion of coursework completed by graduates in each track. It reflects the quality of a graduate's English coursetaking rather than the progression from low-level to more challenging coursework. The English pipeline has seven categories; however, for the Special Analysis, two of these levels were combined into one category (low academic level).

#### No English

No courses classified as English were ever completed by the graduate. It is possible for a graduate to have taken one or more unclassified English courses and be placed in the no English level. For the most part, these unclassified courses were English coursework for blind and deaf students or English as a Second Language courses.

#### Low Academic Level

The low academic level is divided into two sublevels, the second of which is considered to be more academically challenging than the first.

##### *50 Percent or More Low Academic-Level English*

The number of completed courses classified as low academic level, when divided by the total number of completed low academic-, regular-, and honors-level courses, yields a percentage between 50 and 100.

##### *Some, but Less than 50 Percent Low Academic-Level Courses*

The number of completed courses classified as low academic level, when divided by the total number of completed low academic-, regular-, and honors-level courses, yields a percentage less than 50. It is possible for a graduate to have also completed less than 50 percent honors-level courses and be classified under this category if the percentage of low academic-level courses completed was equal to or greater than the percentage of honors-level courses completed.

#### Regular

All completed English courses classified at grade level; no low academic-level or honors-level courses.

#### Advanced Academic Level

The advanced academic level is divided into three sublevels.

## Note 12: Measuring High School Coursetaking

Continued

### *Some, but Less than 50 Percent Honors-Level Courses*

The number of completed courses classified as honors level, when divided by the total number of completed low academic-, regular-, and honors-level courses, yields a percentage less than 50. It is possible for a graduate to have also completed less than 50 percent low academic-level courses and be classified under this category if the percentage of low academic-level courses completed was less than the percentage of honors-level courses completed.

### *50 Percent or More, but Less than 75 Percent Honors-Level Courses*

The number of completed courses classified as honors level, when divided by the total number of completed low academic-, regular-, and honors-level courses, yields a percentage of 50 or greater and less than 75.

### *75 Percent or More Honors-Level Courses*

The number of completed courses classified as honors level, when divided by the total number of completed low academic-, regular-, and honors-level courses, yields a percentage between 75 and 100.

### FOREIGN LANGUAGE PIPELINE

Coursework in a foreign language follows an ordered, sequential path. Most high school students who study a foreign language progress along such a path, which is typically a sequence of four year-long courses in the language. Not all students do this, however. Some students begin their studies in the middle of a sequence because they have prior knowledge of the language. Some repeat the same year of study. And a few (about 7 percent of 1988 graduates) study more than one language. The highest level of completed coursework in the foreign language pipeline thus may not indicate the total number of years a graduate has studied a foreign language or languages. The distribution

of graduates among the various levels of foreign language courses was determined by the level of the most academically advanced course those graduates completed.

The foreign language pipeline originally did not classify all foreign language study: before 2004, only courses in French, German, Latin, and Spanish were counted because these were the most commonly offered foreign languages. The next four most commonly offered foreign languages (Italian, Japanese, Hebrew, and Russian) each accounted for less than 1 percent of 1988 graduates who studied foreign languages in the unweighted NELS:88 sample that was used to create the pipeline. Adding these four languages to the four most common languages in the pipeline originally made less than 0.1 percent difference in the percentage of graduates who studied a single language, though it made more difference (yet less than 1 percent difference) in the percentage of graduates who never studied a language and who studied more than one language.

Beginning with 2004 transcript data, the foreign language pipeline expanded its definition of foreign language coursetaking to include any classes in Amharic (Ethiopian), Arabic, Chinese (Cantonese or Mandarin), Czech, Dutch, Finnish, French, German, Greek (Classical or Modern), Hawaiian, Hebrew, Italian, Japanese, Korean, Latin, Norse (Norwegian), Polish, Portuguese, Russian, Spanish, Swahili, Swedish, Turkish, Ukrainian, or Yiddish. Compared with the pre-2004 definition, this expanded definition increased the percentage of students who had completed a foreign language course at year 3 or higher by 1 percent. It decreased the percentage of students classified as having completed no foreign language study by 1.8 percent.

Under both definitions, the foreign language pipeline has six categories. For the Special Analysis, however, two of these levels were combined into one category (year 2 or less).

## Note 12: Measuring High School Coursetaking

### Continued

#### None

No courses classified as foreign language study were ever completed by graduate. Only courses included in the foreign language pipeline definition are counted as foreign language study (see above), so it is possible for a graduate to have taken one or more courses of some other foreign language and be placed in this category.

#### Year 1 (1 year of 9th-grade instruction) or less

Graduate completed no more than either a full Carnegie unit (1 academic year of coursework) of 9th-grade (year 1) foreign language instruction or half a Carnegie unit of 10th-grade (year 2) foreign language instruction.

#### Year 2 (1 year of 10th-grade instruction)

Graduate completed either a full Carnegie unit (1 academic year of coursework) of 10th-grade (year 2) foreign language instruction or half a

Carnegie unit of 11th-grade (year 3) foreign language instruction.

#### Year 3 (1 year of 11th-grade instruction)

Graduate completed either a full Carnegie unit (1 academic year of coursework) of 11th-grade (year 3) foreign language instruction or half a Carnegie unit of 12th-grade (year 4) foreign language instruction.

#### Year 4 (1 year of 12th-grade instruction)

Graduate completed either a full Carnegie unit (1 academic year of coursework) of 12th-grade (year 1) foreign language instruction or half a Carnegie unit of 13th-grade (year 5) foreign language instruction.

#### AP Instruction

Graduate completed an AP foreign language course.