

THE NATIONAL ASSESSMENT OF EDUCATIONAL PROGRESS

**Proposed Items to Enhance the
Measurement of Socioeconomic Status
for the 2009 NAEP Student
Background Questionnaires**

**To Be Pilot Tested in
2007**

Prepared for: The National Assessment Governing Board

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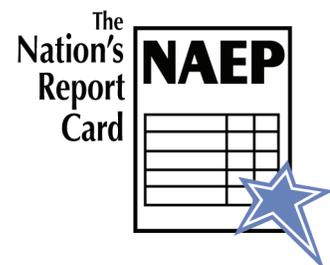


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Introduction:

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Overview

As specified in the National Assessment Governing Board's (NAGB) *Background Information Framework for NAEP*, current law requires every NAEP assessment to collect data on students' socioeconomic status (SES). However, the *Framework* also acknowledges that "there has been considerable concern over many years about the quality of SES measures in NAEP, both for reporting to the public and for analysis by researchers" (p. 25). To address this concern, the National Assessment Governing Board has requested that NAEP conduct studies aimed towards developing a reliable and valid *composite index* of SES. Specifically, the *Framework* states that "***NAEP may never be able to produce a full composite of income, education, and occupation, but efforts ought to be made to find an approximation that is more reliable than the current set of individual proxy variables***" [bold and italics in original text] (p. 25). And further: "***to the extent that an index can be sharpened by additional information from readily available sources, such as zip codes and/or census data, this option should be considered as well***" [bold and italics in original text] (p. 27).

In response to these directives, the National Center for Educational Statistics (NCES), in collaboration with an SES Working Group composed of leading research sociologists¹, has developed a new, enhanced set of SES items for field testing, analysis, and evaluation in the 2007 NAEP student background questionnaires (BQs). NCES and the SES Working Group also propose to pilot test revised versions of two existing student background questionnaire items (mother's and father's educational attainments). The existing and enhanced BQ items cover four facets of socioeconomic status:

- Parent Educational Attainment
- Occupational/Employment Status
- Financial Resources
- Household Composition

The validity of the proposed items has been empirically supported in other surveys and research. These new and revised items will supplement current BQ questions used to report SES. NCES will use these items and, establish a link to Census data in order to develop and evaluate a new composite SES measure. NCES expects that the eventual composite SES measure will not require administration of all of the enhanced BQ items.

¹ The SES Working Group members in 2005 were Robert Hauser, Claudia Buchmann, Sam Lucas, David Armor, and David Grissmer.

Issues with National School Lunch as a Measure of SES

For many years, for NAEP reporting purposes, eligibility for the National School Lunch Program (NSLP) has been used to indicate low SES. However, NSLP was never an ideal measure. Students meet the NSLP criterion if their family incomes fall below 125 percent of the official federal poverty guideline (eligible for free lunch) or between 125 percent and 175 percent of the poverty line (eligible for reduced-price lunch). The NSLP misses students who are eligible but do not apply. This problem becomes evident when we examine NAEP data in comparison with Census data.

As seen in the 2002 NAEP data, there is a sharp fall in eligibility with increases in grade level. Among black and Hispanic students, 70 percent of 4th graders were reported eligible; 60 percent of 8th graders were reported eligible, and just over 40 percent of 12th graders, were reported eligible. However, this sharp decline is not credible. Although a modest decline in poverty with age may be seen in Census data, it is generally not this large.²

Another threat to the credibility of this measure comes from changes in policies regarding implementation of the NSLP. During the past decade, NSLP has been offered through school-wide, multi-year eligibility (in addition to traditional individual eligibility). In 2005, 6 percent of Grade 4 schools and 3 percent of Grade 8 schools in NAEP sample used school-wide eligibility. According to U.S. Department of Education policy, all students in these schools are considered NSLP-eligible, but many of them do not meet the formal eligibility criteria.

Finally, because the federal definition of poverty has changed only with price-adjustment of the original line drawn in the 1960s – while the standard of living has gradually improved across the decades – official poverty has come to refer to a relatively more deprived segment of the population.³ All of these factors have combined to degrade the value of NSLP as a measure of SES, either at one point in time or across NAEP administrations. There are also issues with other measures that are currently available in the Background Questionnaire or from school records (i.e., Title I, possessions in the home, and parent education).

Item Development for Student Questionnaires

In considering how to address the multiple challenges to the quality of the current SES measures, NCES based its selection and adaptation of the items on a thorough literature review and on consultations with the SES Working Group. The proposed items, which are also consistent with the composite components called for in NAGB's *Background Information Framework for NAEP*, were tested in two rounds of focus groups. The focus groups, which comprised 4th-, 8th-, and 12th-grade students, took place in the fall of 2005 and in January, 2006. The enhanced items have been substantially revised in light of findings from these groups.

² U.S. Bureau of the Census, *Current Population Reports*, Series P-60, Income and Poverty in the United States.

³ National Research Council, Panel on Poverty and Family Assistance. (1995). *Measuring Poverty: a New Approach*, Edited by Constance F. Citro and Robert T. Michael. Washington, D.C: National Academy Press.

Organization of the Review Booklet

The items that we propose to measure the four facets of SES are discussed in subsequent sections of this document.

- Tabs 1, 2, 3, and 4 describe how we propose to measure four facets of SES. These sections place our measures in the context of previous research, provide a rationale for our recommendations and document the text for each item that we propose including in the 2007 BQs.
- Tabs 5 and 6 contain the proposed student socioeconomic status questions along with the current core questions. Except for formatting, items are shown as respondents would see them.

I. PARENT EDUCATIONAL ATTAINMENT

NAEP currently asks Grades 8 and 12 students to specify their parents' highest levels of education. Previous research conducted by Roger Levine had established that Grade 4 students were extremely inaccurate. Consequently this item was removed at that grade level. Recently collected data from focus groups and comparisons with other more credible data sources indicate that Grade 8 and 12 responses to this question maybe as inaccurate or incomplete as the previously deleted 4th grade data. Because this is the only parent education information acquired in NAEP, and until we can establish a better source for this information through the use of Census data, NCES and the SES Working Group recommend two enhancements to the current question:

- Delete "I don't know" to reduce unusable data. In 2003, 21 percent of 8th grade students that took the NAEP reading assessment answered "I don't know" to the question on father's education; 14 percent answered "I don't know" to the question on mother's education.
- Include additional and clearer choices to create better definition and differentiation of higher levels of educational attainment.

NCES proposes to pilot test this item in the 2007 reading pilot test samples for Grades 8 and 12 to determine whether the changes improve the quality of information on parental educational attainment.

Rationale for the Proposed Changes

The sociological literature generally measures parent educational attainment in one of two ways: (1) by asking how many years of education parents have completed or (2) by asking the highest degree parents have attained (allowing options for parents who pursued but did not complete a degree).⁴ Research on the advantages of using number of years versus highest degree has found that the highest-degree formulation tends to have a stronger association with other measures of social and economic standing, particularly with regard to income and occupational prestige.⁵

⁴ Smith, T. (1994). Some Aspects of Measuring Education. *General Social Survey Methodological Reports: Methodological Report 83*. Chicago: The National Opinion Research Center.

⁵ Ibid.

I. PARENT EDUCATIONAL ATTAINMENT (CONT'D.)

At both the 8th and 12th grades, there is some nonresponse to the NAEP BQ items about parent educational attainment. In the case of father's education, since 1990 about 20 percent of students reported "I don't know" and about 1 percent left the item blank at the 8th grade level; in the same period, about 13 percent of 8th graders failed to report mother's educational attainment. Nonresponse was lower, but still a problem at the 12th grade level. Since 1990 roughly nine percent of 12th graders failed to report father's educational attainment, while five percent failed to report mother's educational attainment. It is our belief that while the forced choice format may increase the percent of nonresponse overall we will have more useable data that may approach a similar level of accuracy with the current student-provided data.

However we note that the distributions of student reports in NAEP disagree with those in comparable Census data. Each October, the Current Population Survey (CPS) – the monthly labor force survey carried out by the U.S. Bureau of the Census – asks about the educational attainments of parents and the grades in which children are enrolled in school. The distributions of NAEP reports of parents' educational attainments (among students who responded) are quite different from the CPS distributions of the educational attainments of parents of children at the same grade levels. For example, Table 1 (below) shows the distribution of the attainment of the more educated parent by grade level and race-ethnicity in the NAEP reading assessment of 2002 and in the October 2001 CPS. Both sets of data refer to the 2001-2002 school year.

Table 1: Educational Attainment of Parent, 2001-2002 School Year

	White		Black		Hispanic	
	CPS	NAEP	CPS	NAEP	CPS	NAEP
Grade 8						
She/He did not finish high school	6	5	13	6	43	25
She/He graduated from high school	29	19	45	22	26	25
She/He had some education after high school	27	22	26	24	23	23
She/He graduated from college	37	55	16	49	8	28
Total	100	100	100	100	100	100
Grade 12						
She/He did not finish high school	7	4	18	7	41	27
She/He graduated from high school	32	19	34	22	23	23
She/He had some education after high school	26	25	28	31	25	23
She/He graduated from college	35	52	20	41	11	28
Total	100	100	100	100	100	100

Note: In NAEP parental education level was assessed from two items. In 2002, the items read "How far in school did your mother go?" and "How far in school did your father go?" Though students are asked about the education of both of their parents, only the response indicating the higher level of education between the two parents is selected for reporting. In the data from the October Current Population Survey (CPS), a responsible adult in the household reports educational attainment of all household members. The detailed replies were recoded into the same categories used in NAEP, and the higher level of educational attainment of the two parents was tabulated.

I. PARENT EDUCATIONAL ATTAINMENT (CONT'D.)

At both grade levels and for each race-ethnic group there are striking differences between the educational attainments of parents reported in the two surveys. NAEP participants always overstate the educational attainments of their parents. For example, among 12th grade whites, 55 percent of NAEP respondents reported that their higher educated parent graduated from college, while the Census estimate is only 37 percent. Moreover, the differences between the NAEP and CPS estimates are almost as large within each race-ethnic group at the 12th grade level as at the 8th grade level.

While we do not believe that student responses will ever approach the accuracy of parent responses, we think that a more specific and detailed set of questions about parents' educational attainments should be pilot tested in 2007. Ultimately, if we are successful in linking Census data with NAEP data, we believe that an amalgam of both student and Census data will give NAEP more accurate estimates of parent educational attainment.

Respondent: Student Grades 8 and 12

Trend: No

Item: **How far in school did your mother go? Fill in only one oval. (Q11)**

- A. She did not finish high school.
- B. She graduated from high school.
- C. She completed some education after high school but did not graduate.
- D. She graduated from a technical school, a junior college, a community college, or another type of two-year school.
- E. She graduated from a four-year college.
- F. She has a master's degree (M.B.A., M.S., M.A.) or equivalent.
- G. She has a Ph.D., M.D., law degree (J.D.), or other advanced degree.

Item: **How far in school did your father go? Fill in only one oval. (Q12)**

- A. He did not finish high school.
- B. He graduated from high school.
- C. He completed some education after high school but did not graduate.
- D. He graduated from a technical school, a junior college, a community college, or another type of two-year school.
- E. He graduated from a four-year college.
- F. He has a master's degree (M.B.A., M.S., M.A.) or equivalent.
- G. He has a Ph.D., M.D., law degree (J.D.), or other advanced degree.

II. OCCUPATIONAL/EMPLOYMENT STATUS

Social scientists have long recognized that the concept of “division of labor” (i.e., of occupation) underlies social and economic stratification; contemporary research further highlights the relationship between socioeconomic status and occupation.⁶ Entry into specific occupations is strongly affected by educational qualifications, while employment is the major source of income. Thus, occupational positions are strongly tied to education and income.⁷

Currently, NAEP does not ask about parent’s occupations or employment status (working for pay or not working for pay). As described below, NCES and the SES Working Group have not identified an appropriate question to ask of 4th and 8th graders about their parents’ occupations.⁸ Because of the importance of employment in social and economic standing, NCES proposes a question on parent *employment status*.

Rationale for Employment Status Items

We first attempted to develop a suitable measure of occupational status. We tested two versions of a multiple-choice question that lists occupational categories and examples of jobs within categories: a version based on Stricker’s work⁹ and a highly scaffolded version that leads students through locating their parents’ occupations and providing a response. We tested these versions in focus groups with students in Grades 4, 8, and 12. Students experienced difficulty in locating their parents’ specific occupations and reported that the task required a burdensome amount of reading. Despite the fact that an item of this kind has been included in the PISA assessment within the United States, we believe that it will provide very little useable data given the increased burden and are not recommending including such a measure in NAEP. Rather, we will seek to approximate this information by drawing from aggregate level occupational status data collected by the U.S. Bureau of the Census. This procedure will be tested as part of NCES’s ongoing efforts to develop a composite measure of SES for NAEP.

⁶ Ganzeboom, H. B.G. & Treiman, D.J. (1996). Internationally Comparable Measures of Occupation Status for the 1988 International Standard Classification. *Social Science Research*, 25, 201–39.

⁷ Hauser, R. M. & Warren, J.R., (1997). "Socioeconomic Indexes for Occupations: A Review, Update, and Critique." Pp. 177-298 in *Sociological Methodology 1997*, edited by Adrian E. Raftery. Cambridge: Basil Blackwell.

⁸ Hauser, R. M. (1994). Measuring Socioeconomic Status in Studies of Child Development. *Child Development*, 65, 1541–45 and Adams, R. & Wu, M. (Eds.). (2002). PISA 2000 Technical Report. Paris: Organisation for Economic Co-operation and Development.

⁹ Stricker, L. J. (1988). Measuring Social Status with Occupational Information: A Simple Method, *Journal of Applied Social Psychology*, 18(5), 423–437.

II. OCCUPATIONAL/EMPLOYMENT STATUS (CONT'D.)

Employment status is not a perfect substitute for occupational position, but previous research shows that it affects educational outcomes. For example, children from households with non-working parents are more likely to fall behind in school and to drop out of school, even among children with otherwise similar social characteristics.^{10, 11} Findings from our focus groups indicate that 4th, 8th, and 12th grade students do understand and can respond to questions about their parents' employment status. Therefore, we recommend the inclusion of the following two questions:

Respondent: Student Grades 4, 8, and 12

Trend: No

Item: **Does your mother usually have a job for which she is paid? Fill in only one oval. (Grade 4 Q15; Grades 8 and 12 Q18)**

- A. Yes
- B. No

Item: **Does your father usually have a job for which he is paid? Fill in only one oval. (Grade 4 Q16; Grades 8 and 12 Q19)**

- A. Yes
- B. No

¹⁰ Hauser, R. M., Pager, D. I., & Simmons, S. J. (2004). "Race-Ethnicity, Social Background, and Grade Retention." Pp. 97-114 in *Can Unlike Students Learn Together? Grade Retention, Tracking, and Grouping*, Edited by Herbert J. Walberg, Arthur J. Reynolds, and Margaret C. Wang. Greenwich, Connecticut: Information Age Publishing.

¹¹ Hauser, R. M., Simmons, S. J., & Pager, D. I. (2004). "High School Dropout, Race-Ethnicity, and Social Background From the 1970s to the 1990s." Pp. 85-106 in *Dropouts in America: Confronting the Graduation Rate Crisis*, Edited by Gary Orfield. Cambridge, Massachusetts: Harvard Educational Publishing Group.

III. FINANCIAL RESOURCES

NAEP currently asks Grades 4, 8, and 12 students five questions about access to educational resources at home (i.e., to a newspaper, to magazines, to books, to a computer, and to an encyclopedia). Because these educational resources are indirect and weak measures of financial resources, NCES and the SES Working Group propose two additional items to measure family income and wealth.

Monetary resources provide a direct means of acquiring goods and services, so social scientists have devised numerous indicators of financial means.¹² For example, surveys about income may include questions about money received through wages, stock dividends, and interest allocations, as well as through welfare, child support, and alimony payments.¹³

Related to income is the concept of wealth, which is defined as “accumulated assets, typically accrued through inheritance, investment, and other forms of savings.”¹⁴ Unlike income, wealth encompasses both liquid and non-liquid household assets, including common investments such as homes.¹⁵ Historically, most families’ primary residence accounts for the largest proportion of their wealth.¹⁶

Questions about economic resources may become complex and are often sensitive, but the relationships between income and possessions and between home ownership and wealth suggests simple and unobtrusive indicators of economic standing.

Rationale for Economic Standing Items

We discuss the rationales separately for income and home ownership.

¹² Krieger, N.D., Williams, R. & Moss, N.E. (1997). Measuring Social Class in US Public Health Research: Concepts, Methodologies, and Guidelines. *Annual Review of Public Health, 183*, 41–78.

¹³ Ibid.

¹⁴ Krieger, N.D., Williams, R. & Moss, N.E. (1997). Measuring Social Class in US Public Health Research: Concepts, Methodologies, and Guidelines. *Annual Review of Public Health, 183*, 41–78: 363.

¹⁵ Duncan, G.J., & Petersen, E. (2001). The long and short of asking questions about income, wealth, and labor supply. *Social Science Research, 30*(2), 248–263 and Krieger, N.D., Williams, R. & Moss, N.E. (1997). Measuring Social Class in US Public Health Research: Concepts, Methodologies, and Guidelines. *Annual Review of Public Health, 183*, 41–78.

¹⁶ Keister, L.A. & Moller, S. (2000). Wealth Inequality in the United States. *Annual Review of Sociology, 26*, 63–81 and Spilerman, S. (2000) Wealth and Stratification Processes. *Annual Review of Sociology, 26*, 497–524.

III. FINANCIAL RESOURCES (CONT'D.)

A. Income

To achieve a more discriminating SES measure, NCES proposes to expand the list of possessions in the home to include additional items that are known to show significant variation across SES subgroups. These additional items will be listed in a separate question in the 2007 pilot test to avoid any possible effect on responses to the existing NAEP questions about possessions in the home. NCES anticipates that these items may be combined with the existing items about possessions in future administrations. The items focus on the size of the student's home and the family's possession of labor-saving devices that are more common among higher income than lower income families. In addition to considering variation in ownership by income, we chose items that are not likely to become obsolete in future years.

Respondent: Student Grades 4, 8, and 12

Trend: No

Item: **Which of the following items do you have in your home? Fill in one oval on each line. (Grade 4 Q17; Grades 8 and 12 Q20)**

- a. *Access to the Internet*
- b. *Cell phone*
- c. *Clothes dryer just for my family*
- d. *Electric dishwasher*
- e. *Electric garbage disposal*
- f. *More than six rooms (not including bathrooms)*
- g. *More than one bathroom*
- h. *A bedroom of my own*
- i. *Air conditioning in my whole home*
- j. *Three or more cars, small trucks, or sport utility vehicles*

- A. We have
- B. We do NOT have

III. FINANCIAL RESOURCES (CONT'D.)

B. Wealth

Home ownership is a strong and unobtrusive indicator of wealth and of residential stability. Previous research shows that it has a large, independent effect on educational outcomes such as falling behind in school and dropping out of school.¹⁷

In student focus group testing we have found that this item is likely to yield accurate data (provided that students are told that a home is owned even if there are mortgage payments). This item is commonly ascertained in social surveys, and nonresponse is very low. For example, in the monthly Current Population Survey of the Bureau of the Census, this is one of the first items asked when a new household enters the sample.¹⁸ Nonresponse to this item was about 2 percent in a recent follow-up survey of Wisconsin high school graduates.

Respondent: Student Grades 8 and 12

Trend: No

Item: **Does your family own or rent your home, or have some other living arrangement? Fill in only one oval. (Grades 8 and 12 Q21)**

- A. Own (or pay mortgage)
- B. Rent
- C. Other

¹⁷ See Hauser, Pager, & Simmons and Simmons, Pager, & Hauser, *op.cit.*

¹⁸ U.S. Bureau of the Census. (2002). "The Current Population Survey: Design and Methodology." *Technical Paper*. No. 63RV. Washington, D.C.: Government Printing Office, p. 5-1.

III. FINANCIAL RESOURCES (CONT'D.)

Data that Justify the Options Included in the Item Regarding Possessions in the Home

In this section we briefly present data that describe the ownership of specific goods, as related to household income or to prevalence in the general U.S. population. We used the data to justify listing these goods in the items that asked students about the possessions in their home: Grade 4, Item 17 and Grades 8 and 12, Item 20. The text of those items is as follows.

Which of the following items do you have in your home? Fill in one oval on each line. (Grade 4 Q17; Grades 8 and 12 Q20)

- a. *Access to the Internet*
- b. *Cell phone*
- c. *Clothes dryer just for my family*
- d. *Electric dishwasher*
- e. *Electric garbage disposal*
- f. *More than six rooms (not including bathrooms)*
- g. *More than one bathroom*
- h. *A bedroom of my own*
- i. *Air conditioning in my whole home*
- j. *Three or more cars, small trucks, or sport utility vehicles*

- A. We have
- B. We do NOT have

As described in the rationale, the item concerning possessions in the home was developed as a measure of financial resources. Therefore, based on evidence that differences in income are associated with large differences in households' owning consumer goods, we included consumer goods in the item. Housing characteristics, such as number of bathrooms, were chosen on the basis of their prevalence in the population. As part of the pilot test, we will assess the strength of each of these possessions as indicators of financial resources. Conceivably, some will be stronger indicators than others, and these relationships will need to be assessed empirically.

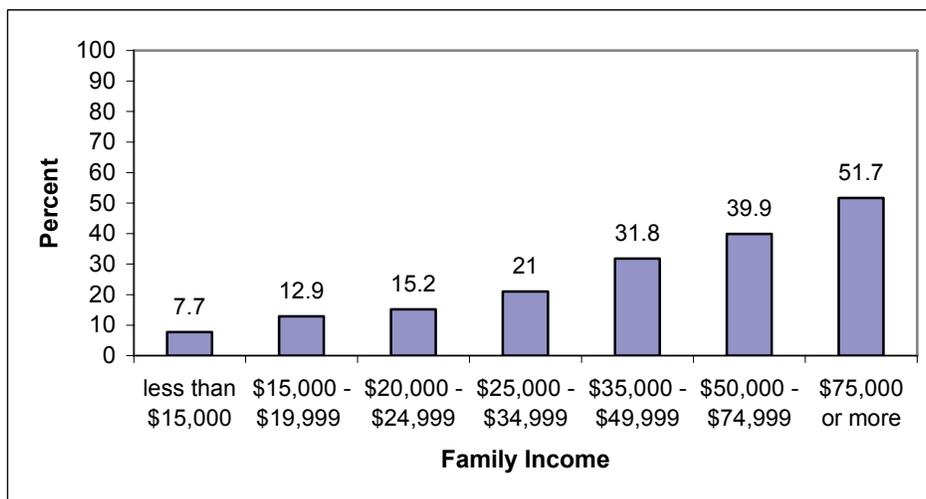
The following figures and tables document evidence for each possession included in Grade 4, Item 17 and Grades 8 and 12, Item 20. The goods are presented in the same order as they appear in the item.

III. FINANCIAL RESOURCES (CONT'D.)

A. Access to the Internet

In 2000, home Internet use in families with children between the ages of three and 17 varied by income. Among families with incomes of \$75,000 or higher, 51.7 percent used the Internet at home; in contrast, only 7.7 percent of families with incomes under \$15,000 did so.

Figure 1: Home Internet Use by Family Income for Families with Children Aged 3 – 17



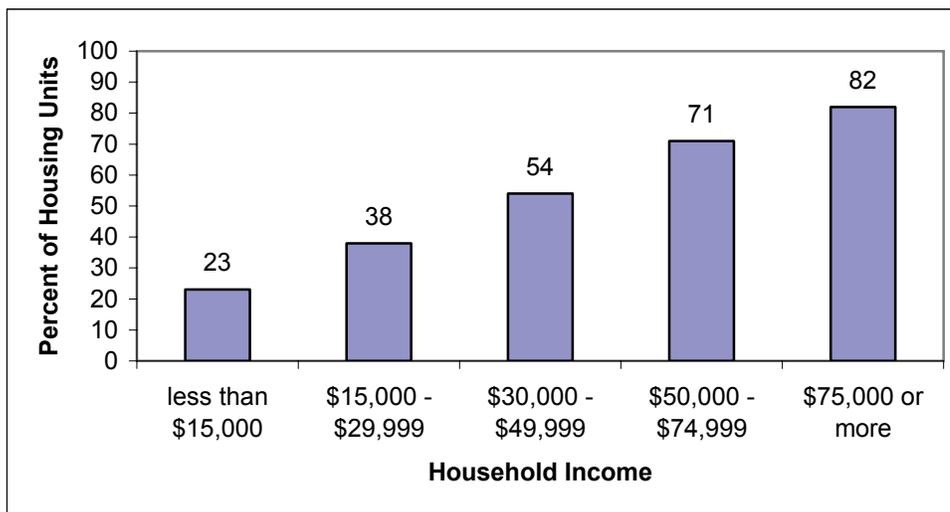
Source: U.S. Census Bureau, Current Population Survey, August 2000, as presented in U.S. Census Bureau. (2001). *Home Computers and Internet Use in the United States: August 2000*. (Current Population Report No. P23-207). Washington, DC: Author.

III. FINANCIAL RESOURCES (CONT'D.)

B. Cell phone

Although cell phones may seem ubiquitous, their possession varies by household income. The proportion of households owning cell phones ranges from 23 percent of households with incomes less than \$15,000 to 82 percent of households with incomes of \$75,000 or more (see Figure 2).

Figure 2: Percent of Housing Units with Cell Phone(s), by Household Income



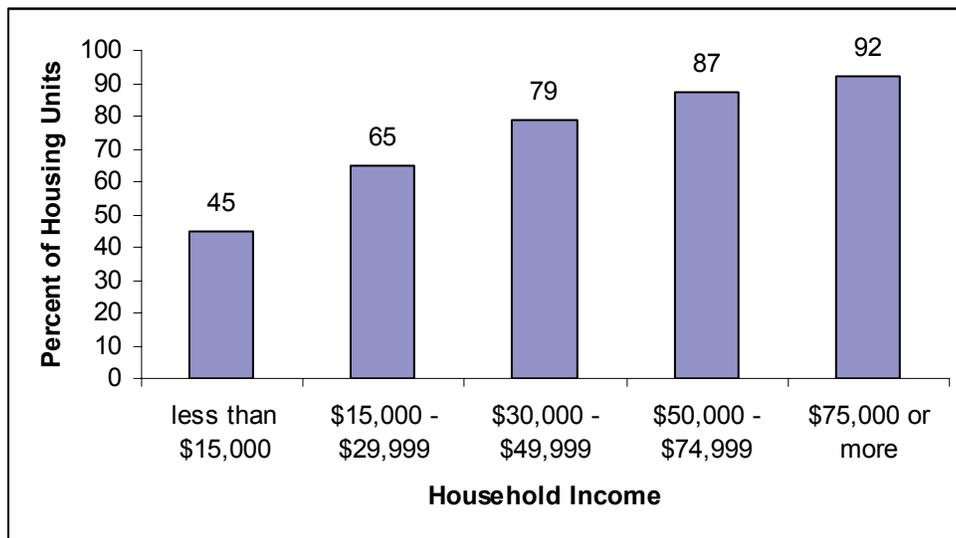
Source: Energy Information Administration, 2001 Residential Energy Consumption Survey as presented in Department of Energy. (2004). *The Effect of Income on Appliances in U.S. Households*. Retrieved on February 8, 2006, from <http://www.eia.doe.gov/emeu/recs/appliances/appliances.html>

III. FINANCIAL RESOURCES (CONT'D.)

C. Clothes dryer just for my family

Family ownership of a clothes dryer also varies by household income (see Figure 3). Almost all the households with incomes of \$75,000 or more had a clothes dryer in 2001 (92%). In comparison, only 45 percent of households with less than \$15,000 in income had one.

Figure 3: Percent of Housing Units with a Clothes Dryer, by Household Income



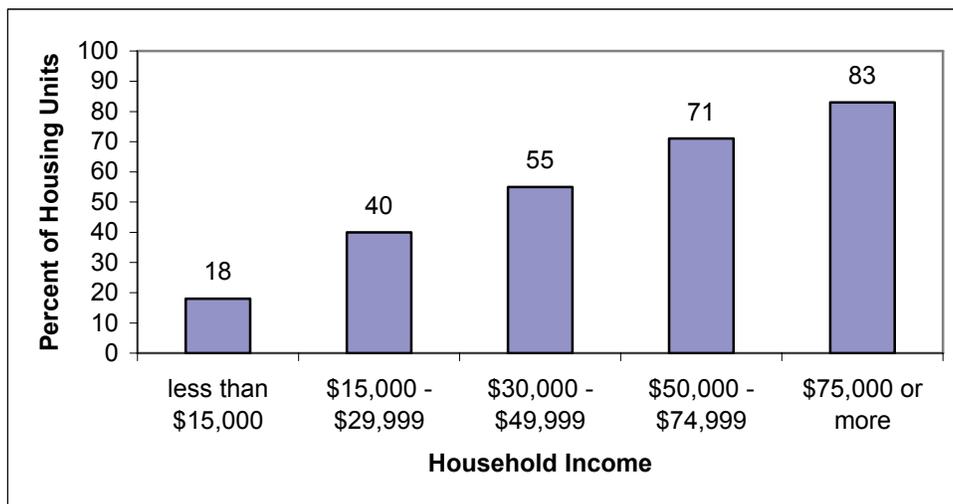
Source: Energy Information Administration, 2001 Residential Energy Consumption Survey as presented in Department of Energy. (2004). *The Effect of Income on Appliances in U.S. Households*. Retrieved on February 8, 2006, from <http://www.eia.doe.gov/emeu/recs/appliances/appliances.html>

III. FINANCIAL RESOURCES (CONT'D.)

D. Electric dishwasher

The dishwasher is another of the durable goods for which ownership rates differ substantially across income levels. In 2001, 83 percent of households with incomes of \$75,000 or more had a dishwasher, compared to only 18 percent of households with incomes less than \$15,000 (see Figure 4).

Figure 4: Percent of Housing Units with Dishwashers, by Household Income



Source: Energy Information Administration, 2001 Residential Energy Consumption Survey as presented in Department of Energy. (2004). *The Effect of Income on Appliances in U.S. Households*. Retrieved on February 8, 2006, from <http://www.eia.doe.gov/emeu/recs/appliances/appliances.html>

III. FINANCIAL RESOURCES (CONT'D.)

E. Electric garbage disposal

Table 2 presents “Gini coefficients” for the ownership rates of selected consumer goods by income deciles. Positive coefficients indicate that the ownership rates are greater for higher-income individuals than for those with lower incomes: the greater the value of the coefficient, the greater the ownership disparity. (Negative coefficients would indicate the reverse—that lower-income individuals had higher ownership rates than those with higher incomes.) Thus, according to these 1995 coefficients, garbage disposals were more likely to be owned by higher-income individuals.

Table 2: “Gini coefficients” for Ownership Rates of Selected Consumer Durables, by Income Decile

	1980	1995
Microwave Ovens	.28	.07
Dishwashers	.29	.23
Clothes Dryers	.17	.12
Garbage Disposals	.26	.21
Motor vehicles	.09	.07
Freezers	.06	.07
Clothes washers	.08	.09
Refrigerators	.01	.01
Stoves	.01	.01

Source: Based on tabulations from the Consumer Expenditure Survey, U.S. Bureau of Labor Statistics, as presented in Greenspan, A. (1998). *Income Inequality: Issues and Policy Options*. Remarks presented at the 1998 symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming. Remarks retrieved on February 10, 2006 from <http://www.federalreserve.gov/boarddocs/speeches/1998/19980828.htm>

Note: The Gini coefficient is defined as one minus twice the area under the cumulative probability distribution (CPD). The Ginis computed here do not have the properties of “true” Gini coefficients, which must assume a value between zero and one. The Ginis calculated here would be negative if lower-income individuals exhibited a higher ownership rate than higher-income individuals. For goods with ownership rates that are relatively equal across deciles, regardless of the ownership rate, the probability distributions are fairly flat, with values for pi close to 0.1. For goods that are more concentrated among the affluent households, the probability distributions tend to rise across the income deciles.

III. FINANCIAL RESOURCES (CONT'D.)

F. More than six rooms (not including bathrooms)

Based on the 2000 Census the median number of rooms in U.S. homes is 5.3. This number does not include bathrooms, porches, balconies, foyers, halls, and half-rooms.¹⁹

G. More than one bathroom

H. A bedroom of my own

I. Air conditioning in my whole home

Table 3 presents changes in the percentage of housing units with more than one bathroom between 1973 and 1993. Additionally, the table gives the percentage of housing units with central air conditioning over this time period. In 1993, 53 percent of occupied housing units had more than one bathroom, whereas 44 percent had central air conditioning. The percent of homes with three or more bedrooms remained relatively stable from 1973 to 1993, increasing by only six percent over that 20-year period.

Table 3: Percent of Housing Units with Selected Characteristics: 1973 and 1993

	1973	1993
More than one bathroom	31	53
Three or more bedrooms	50	56
Central air conditioning	17	44

Source: U.S. Census Bureau, Current Population Survey, August 2000, as presented in U.S. Census Bureau. Statistical Brief. (1995). *Home Sweet Home – America's Housing, 1973 – 1993*. Retrieved on February 10, 2006 from http://www.census.gov/aprd/www/statbrief/sb95_18.pdf.

J. Three or more cars, small trucks, or sport utility vehicles

Based on 2000 U.S. Census data for owner-occupied housing units, 1.9 vehicles were available per household. For renter-occupied housing units, 1.2 vehicles were available per household. Further, among the owner-occupied housing units in 2000, 79.8 percent had two or fewer vehicles available, whereas 93.4 percent of the renter-occupied housing units had two or fewer vehicles available.²⁰

¹⁹ U.S. Census Bureau. (2000). *American FactFinder – Detailed Tables*. Retrieved on February 10, 2006 from <http://factfinder.census.gov>.

²⁰ U.S. Census Bureau. (2000). *American FactFinder – Detailed Tables*. Retrieved on February 10, 2006 from <http://factfinder.census.gov>.

IV. HOUSEHOLD COMPOSITION

Because household composition is strongly correlated with socioeconomic status²¹ and student achievement—and because respondents in Grades 4, 8, and 12 are likely to be able to answer such questions accurately²²—we also recommend asking students about the composition of their households (i.e., family structure and number of siblings). This recommendation is consistent with NAGB’s *Background Information Framework for NAEP*, which states that number of siblings and family status “may be of considerable importance in constructing an SES index” (p. 26). NCES and the SES Working Group propose questions on the following household composition topics: family structure (i.e., presence in the home of adults and other children) and number of siblings.

Rationale for Questions on Household Composition and Number of Siblings

We discuss the rationales separately for family structure and number of siblings.

²¹ McLanahan, S. (1985). Family Structure and the Reproduction of Poverty. *The American Journal of Sociology*, 90(4), 873–901 and Acock, A.C. & Kiecolt, K.J. (1989). Is it Family Structure or Socioeconomic Status? Family Structure during Adolescence and Adult Adjustment, *Social Forces*, 68(2), 553–571 and Biblarz, T.J., Raftery, A.E., & Bucur, A. (1997) Family Structure and Social Mobility. *Social Forces*, 75(4), 1319–1341.

²² U.S. Department of Education. National Center for Education Statistics. (1997). *NELS: 88 Survey Item Evaluation Report*. (National Center for Education Statistics No. 97-052). Retrieved on February 15, 2006, from <http://www.nces.ed.gov/pubs97/97052.pdf> .

IV. HOUSEHOLD COMPOSITION (CONT'D.)

A. Family Structure

- The proposed item about people in the home is based on an item used in NELS (The National Education Longitudinal Study) of 8th graders in 1988.
- NCES and SES Working Group propose a second item to identify students with multiple homes. Interestingly, shared-custody arrangements are more likely to occur when divorced or separated parents have higher income and education levels.²³

These two items will identify a wide range of family types that are related to socioeconomic status and students' educational achievement.²⁴

Respondent: Student Grades 4, 8, and 12

Trend: No

Item: **Which of the following people live in your home? Fill in one oval on each line. (Grade 4 Q12; Grades 8 and 12 Q15)**

- Mother*
- Stepmother/Foster mother*
- Father*
- Stepfather/Foster father*
- One or more grandparents*
- One or more brothers/sisters*
- One or more other children*
- One or more other adults*

- A. Yes
B. No

Item: **Do you live in different homes with different people during the school year? Fill in only one oval. (Grade 4 Q13; Grades 8 and 12 Q16)**

- A. Yes
B. No

²³ Cancian, M. & Meyer, D. (1998). Who Gets Custody? *Demography*. 35(2), 147-157 and Donnelly, D. & Finkelhor, D. (1993). Who Has Joint Custody? Class Differences in the Determination of Custody Arrangements. *Family Relations*, 42(1), 57 – 60.

²⁴ McLanahan, S. & Sandefur, G.D. (1994). *Growing Up With a Single Parent: What Hurts, What Helps*. Cambridge, MA: Harvard University Press.

IV. HOUSEHOLD COMPOSITION (CONT'D.)

B. Number of Siblings

Researchers have investigated how the number of siblings in a household influences a variety of outcomes, including children's IQs, educational attainment, and scholastic aptitude, and how it is correlated with the status of parents' current occupations and parents' current earnings.²⁵ The number of children affects the distribution of family resources; as the number of children increases, the resources available to each child decrease.²⁶

We have carefully considered whether to ask for the *total* number of brothers and sisters or for the number of brothers and sisters with whom the NAEP participant currently resides. We think it is better to ask for the total number of brothers and sisters. The influence of a child's numbers of siblings is not well captured by a snapshot of residence or non-residence at the survey date. It is important to ascertain demands on family resources over a period of years, including those by older (and other) siblings who are not co-resident at the survey date. Moreover, given well-known problems in allocating college students to their family homes vs. school-year residences in Censuses and other surveys, we believe that it will be easier for children to report their total number of siblings.

Also, children outside the home can affect the distribution of family financial resources in that monetary support for them does not end simply because they are no longer in the household. In 2002, a total of about \$24 billion in support was paid for children under 21 years of age living outside the household, with the median annual support amount being \$3,400. The median amount of support received by adult children in 2002 was \$4,000.²⁷

Finally, it is preferable to ask about the total number of siblings because this question has been asked in several past NAEP assessments, and use of the same question will enhance comparability across time.

For these reasons, NCES and the SES Working Group recommend an item about total number of siblings in addition to the family-structure item. This item was adapted from NELS 1988.

²⁵ Heer, D.M. (1985). Effects of Sibling Number on Child Outcome. *Annual Review of Sociology*, 11, 27- 47 and Paulhus, D. & Shaffer, D.R. (1981). Sex Differences in the Impact of Number of Older and Number of Younger Siblings on Scholastic Aptitude. *Social Psychology Quarterly*, 44(4), 363–368.

²⁶ Blake, J. (1989). *Family Size and Achievement*. Berkeley: University of California Press.

²⁷ U.S. Bureau of the Census. (2005). *Support Providers: 2002*. (Current Population Report No. P70-99). Washington, DC: Author.

IV. HOUSEHOLD COMPOSITION (CONT'D.)

Respondent: Student Grades 4, 8, and 12

Trend: No

Item: **How many brothers and sisters do you have? Include all brothers and sisters who are related to you in any way, whether they live with you or not. Fill in only one oval. (Grade 4 Q14; Grades 8 and 12 Q17)**

- A. None
- B. One
- C. Two
- D. Three
- E. Four
- F. Five
- G. Six or more

Student Questionnaire Enhanced Core – Grade 4

SECTION X

In this section, please tell us about yourself and your family. The section has 17 questions. Mark your answers in your booklet.

1. Are you Hispanic or Latino? Fill in **one or more ovals**. (VB331330)
- Ⓐ No, I am not Hispanic or Latino.
 - Ⓑ Yes, I am Mexican, Mexican American, or Chicano.
 - Ⓒ Yes, I am Puerto Rican or Puerto Rican American.
 - Ⓓ Yes, I am Cuban or Cuban American.
 - Ⓔ Yes, I am from some other Hispanic or Latino background.
2. Which of the following best describes you? Fill in **one or more ovals**. (VB331331)
- Ⓐ White
 - Ⓑ Black or African American
 - Ⓒ Asian
 - Ⓓ American Indian or Alaska Native
 - Ⓔ Native Hawaiian or other Pacific Islander

For the rest of the questions in this section, fill in only **one** oval for each question.

3. Does your family get a newspaper at least four times a week? (VB331333)

- Ⓐ Yes
- Ⓑ No
- Ⓒ I don't know.

4. Does your family get any magazines regularly? (VB331334)

- Ⓐ Yes
- Ⓑ No
- Ⓒ I don't know.

5. About how many books are there in your home? (VB331335)

- Ⓐ Few (0–10)
- Ⓑ Enough to fill one shelf (11–25)
- Ⓒ Enough to fill one bookcase (26–100)
- Ⓓ Enough to fill several bookcases (more than 100)

6. Is there a computer at home that you use? (VB331336)

- Ⓐ Yes
- Ⓑ No

7. Is there an encyclopedia in your home? It could be a set of books, or it could be on the computer. (VB331337)

- Ⓐ Yes
- Ⓑ No
- Ⓒ I don't know.

8. About how many pages a day do you have to read in school and for homework? (TB001101)

- Ⓐ 5 or fewer
- Ⓑ 6–10
- Ⓒ 11–15
- Ⓓ 16–20
- Ⓔ More than 20

9. How often do you talk about things you have studied in school with someone in your family? (VB331339)

- Ⓐ Never or hardly ever
- Ⓑ Once every few weeks
- Ⓒ About once a week
- Ⓓ Two or three times a week
- Ⓔ Every day

10. How many days were you absent from school in the last month? (VB331447)

- A None
- B 1 or 2 days
- C 3 or 4 days
- D 5 to 10 days
- E More than 10 days

11. How often do people in your home talk to each other in a language other than English? (VB331451)

- A Never
- B Once in a while
- C About half of the time
- D All or most of the time

[Note to NAGB: Question 12 would follow existing NAEP practice about the definition of “home.” This definition can be found in the Question-by-Question specifications which are used by administrators to answer student questions about the background items. This is modified from the question used in NELS 1988.]

12. Which of the following people live in your home? Fill in **one** oval on each line.

	Yes	No
a. Mother	<input type="radio"/> A	<input type="radio"/> B
b. Stepmother/Foster mother	<input type="radio"/> A	<input type="radio"/> B
c. Father	<input type="radio"/> A	<input type="radio"/> B
d. Stepfather/Foster father	<input type="radio"/> A	<input type="radio"/> B
e. One or more grandparents	<input type="radio"/> A	<input type="radio"/> B
f. One or more brothers/sisters	<input type="radio"/> A	<input type="radio"/> B
g. One or more other children	<input type="radio"/> A	<input type="radio"/> B
h. One or more other adults	<input type="radio"/> A	<input type="radio"/> B

[Note to NAGB: The purpose of question 13 is to identify children with shared-custody arrangements.]

13. Do you live in different homes with different people during the school year? Fill in only **one** oval.

(A) Yes

(B) No

14. How many brothers and sisters do you have? Include all brothers and sisters who are related to you in any way, whether they live with you or not. Fill in only **one** oval.

(A) None

(B) One

(C) Two

(D) Three

(E) Four

(F) Five

(G) Six or more

15. Does your mother usually have a job for which she is paid? Fill in only **one** oval.

(A) Yes

(B) No

16. Does your father usually have a job for which he is paid? Fill in only **one** oval.

(A) Yes

(B) No

17. Which of the following items do you have in your home? Fill in **one** oval on each line.

- | | We
have | We do
NOT
have |
|--|---------------------------|-------------------------------|
| a. Access to the Internet | <input type="radio"/> (A) | <input type="radio"/> (B) |
| b. Cell phone | <input type="radio"/> (A) | <input type="radio"/> (B) |
| c. Clothes dryer just for my family | <input type="radio"/> (A) | <input type="radio"/> (B) |
| d. Electric dishwasher | <input type="radio"/> (A) | <input type="radio"/> (B) |
| e. Electric garbage disposal | <input type="radio"/> (A) | <input type="radio"/> (B) |
| f. More than six rooms (not including bathrooms) | <input type="radio"/> (A) | <input type="radio"/> (B) |
| g. More than one bathroom | <input type="radio"/> (A) | <input type="radio"/> (B) |
| h. A bedroom of my own | <input type="radio"/> (A) | <input type="radio"/> (B) |
| i. Air conditioning in my whole home | <input type="radio"/> (A) | <input type="radio"/> (B) |
| j. Three or more cars, small trucks, or sport utility vehicles | <input type="radio"/> (A) | <input type="radio"/> (B) |

Student Questionnaire

Enhanced Core – Grades 8 and 12

SECTION X

In this section, please tell us about yourself and your family. The section has 21 questions. Mark your answers in your booklet.

1. Are you Hispanic or Latino? Fill in **one or more ovals**. (VB331330)

- Ⓐ No, I am not Hispanic or Latino.
- Ⓑ Yes, I am Mexican, Mexican American, or Chicano.
- Ⓒ Yes, I am Puerto Rican or Puerto Rican American.
- Ⓓ Yes, I am Cuban or Cuban American.
- Ⓔ Yes, I am from some other Hispanic or Latino background.

2. Which of the following best describes you? Fill in **one or more ovals**. (VB331331)

- Ⓐ White
- Ⓑ Black or African American
- Ⓒ Asian
- Ⓓ American Indian or Alaska Native
- Ⓔ Native Hawaiian or other Pacific Islander

For the rest of the questions in this section, fill in only **one** oval for each question.

3. Does your family get a newspaper at least four times a week? (VB331333)

- (A) Yes
- (B) No
- (C) I don't know.

4. Does your family get any magazines regularly? (VB331334)

- (A) Yes
- (B) No
- (C) I don't know.

5. About how many books are there in your home? (VB331335)

- (A) Few (0–10)
- (B) Enough to fill one shelf (11–25)
- (C) Enough to fill one bookcase (26–100)
- (D) Enough to fill several bookcases (more than 100)

6. Is there a computer at home that you use? (VB331336)

- (A) Yes
- (B) No

7. Is there an encyclopedia in your home? It could be a set of books, or it could be on the computer. (VB331337)

- Ⓐ Yes
- Ⓑ No
- Ⓒ I don't know

8. About how many pages a day do you have to read in school and for homework? (TB001101)

- Ⓐ 5 or fewer
- Ⓑ 6–10
- Ⓒ 11–15
- Ⓓ 16–20
- Ⓔ More than 20

9. How often do you talk about things you have studied in school with someone in your family? (VB331339)

- Ⓐ Never or hardly ever
- Ⓑ Once every few weeks
- Ⓒ About once a week
- Ⓓ Two or three times a week
- Ⓔ Every day

10. How many days were you absent from school in the last month? (VB331447)

Ⓐ None

Ⓑ 1 or 2 days

Ⓒ 3 or 4 days

Ⓓ 5 to 10 days

Ⓔ More than 10 days

Existing Item

[Note to NAGB: We will be testing whether revisions of items 11 and 12 result in improved data.]

11. How far in school did your mother go? (VB330870)

- Ⓐ She did not finish high school.
- Ⓑ She graduated from high school.
- Ⓒ She had some education after high school.
- Ⓓ She graduated from college.
- Ⓔ I don't know.

11. How far in school did your mother go? Fill in only **one** oval.

- Ⓐ She did not finish high school.
- Ⓑ She graduated from high school.
- Ⓒ She completed some education after high school but did not graduate.
- Ⓓ She graduated from a technical school, a junior college, a community college, or another type of two-year school.
- Ⓔ She graduated from a four-year college.
- Ⓕ She has a master's degree (M.B.A., M.S., M.A.) or equivalent.
- Ⓖ She has a Ph.D., M.D., law degree (J.D.), or other advanced degree.

12. How far in school did your father go? (VB330871)

- Ⓐ He did not finish high school.
- Ⓑ He graduated from high school.
- Ⓒ He had some education after high school.
- Ⓓ He graduated from college.
- Ⓔ I don't know.

12. How far in school did your father go? Fill in only **one** oval.

- Ⓐ He did not finish high school.
- Ⓑ He graduated from high school.
- Ⓒ He completed some education after high school but did not graduate.
- Ⓓ He graduated from a technical school, a junior college, a community college, or another type of two-year school.
- Ⓔ He graduated from a four-year college.
- Ⓕ He has a master's degree (M.B.A., M.S., M.A.) or equivalent.
- Ⓖ He has a Ph.D., M.D., law degree (J.D.), or other advanced degree.

13. How often do people in your home talk to each other in a language other than English? (VB331451)

- Ⓐ Never
- Ⓑ Once in a while
- Ⓒ About half of the time
- Ⓓ All or most of the time

[Note to NAGB: Item 14 administered to Grade 12 only]

14. Which of the following best describes your high school program? (HE002549)

- Ⓐ General
- Ⓑ Academic or college preparatory
- Ⓒ Vocational or technical

[Note to NAGB: Question 15 would follow existing NAEP practice about the definition of “home.” This definition can be found in the Question-by-Question specifications which are used by administrators to answer student questions about the background items. This is modified from the question used in NELS 1988.]

15. Which of the following people live in your home? Fill in **one** oval on each line.

- | | Yes | No |
|---------------------------------|-----|----|
| a. Mother | Ⓐ | Ⓑ |
| b. Stepmother/Foster mother | Ⓐ | Ⓑ |
| c. Father | Ⓐ | Ⓑ |
| d. Stepfather/Foster father | Ⓐ | Ⓑ |
| e. One or more grandparents | Ⓐ | Ⓑ |
| f. One or more brothers/sisters | Ⓐ | Ⓑ |
| g. One or more other children | Ⓐ | Ⓑ |
| h. One or more other adults | Ⓐ | Ⓑ |

[Note to NAGB: The purpose of question 16 is to identify children with shared-custody arrangements.]

16. Do you live in different homes with different people during the school year? Fill in only **one** oval.

(A) Yes

(B) No

17. How many brothers and sisters do you have? Include all brothers and sisters who are related to you in any way, whether they live with you or not. Fill in only **one** oval.

(A) None

(B) One

(C) Two

(D) Three

(E) Four

(F) Five

(G) Six or more

18. Does your mother usually have a job for which she is paid? Fill in only **one** oval.

(A) Yes

(B) No

19. Does your father usually have a job for which he is paid? Fill in only **one** oval.

(A) Yes

(B) No

20. Which of the following items do you have in your home? Fill in **one** oval on each line.

	We have	We do NOT have
a. Access to the Internet	<input type="radio"/> A	<input type="radio"/> B
b. Cell phone	<input type="radio"/> A	<input type="radio"/> B
c. Clothes dryer just for my family	<input type="radio"/> A	<input type="radio"/> B
d. Electric dishwasher	<input type="radio"/> A	<input type="radio"/> B
e. Electric garbage disposal	<input type="radio"/> A	<input type="radio"/> B
f. More than six rooms (not including bathrooms)	<input type="radio"/> A	<input type="radio"/> B
g. More than one bathroom	<input type="radio"/> A	<input type="radio"/> B
h. A bedroom of my own	<input type="radio"/> A	<input type="radio"/> B
i. Air conditioning in my whole home	<input type="radio"/> A	<input type="radio"/> B
j. Three or more cars, small trucks, or sport utility vehicles	<input type="radio"/> A	<input type="radio"/> B

21. Does your family own or rent your home, or have some other living arrangement? Fill in only **one** oval.

- A Own (or pay mortgage)
- B Rent
- C Other