Test Description with Sample Questions

Booklet

(For Students)

New in 2008

Prepared by
Educational Testing Service
Princeton, New Jersey
NOTE ON THIS BOOKLET

The purpose of this Booklet is to provide essential information on the *High Schools That Work* (HSTW) Assessment for students who will be taking that assessment. There is a longer version of the Booklet, the *Information for Sites Bulletin*, intended for all stakeholders—students and their families, teachers, administrators, state officials and any others who use the assessment data.

GENERAL BACKGROUND: THE HSTW ASSESSMENT AND ITS PURPOSE

*High Schools That Work* (HSTW) is a high school reform initiative designed and implemented by the Southern Regional Education Board (SREB). Using a research-based framework of key practices, the initiative seeks to create a culture of high expectations at participating schools in order to raise the achievement of all students and help ensure that they leave high school ready for the workplace and for postsecondary education. *HSTW* began in 1987 in a handful of schools in several SREB member states. Today, the program is active in more than 1,100 schools in 32 states and is the nation’s largest whole-school reform initiative.

*HSTW* is a data-driven reform initiative and the source of most of its data is the *HSTW* Assessment. This assessment consists of a student survey and subject tests in reading, mathematics and science. The student survey provides information on the courses taken by students as well as their perceptions of school and classroom experiences. By correlating responses given to questions on the student survey with performance on the three subject tests, participating schools, school districts, states and SREB are able to track continuous student progress in terms of the key school and classroom practices.

In the past, individual student performance on the three *HSTW* subject tests was not reported. Each participating school received a detailed site report showing changes in group performance in relation to the key practices and procedures. In 2008, for the first time, individual student reports will be issued in addition to the site reports showing group data. The *HSTW* Assessment will now also seek to gauge individual students’ readiness for college and for the workplace.

THE 2008 HSTW ASSESSMENT

The three subject tests in the assessment that will be administered in 2008 are new. They are not the same tests that were administered in years prior to 2008. SREB understands that in today’s educational environment, schools and their students are inundated with a multitude of mandatory high-stakes tests. These tests are important; students’ achievement scores carry consequences for schools and in many cases, passing the test is required for student grade promotion and graduation. Many schools may face difficulty giving the *HSTW* Assessment in the midst of these other tests. As a result, SREB, in conjunction with Educational Testing Service (ETS), undertook a process of test development to refresh the *HSTW* Assessment to add more value for schools and participating students. The new *HSTW* Assessment is different from the other tests seniors typically take. It is not a high school exit test or an admissions test for higher education. It is not a licensure test or a certification test for a particular job or profession. Rather, as stated above, it seeks to measure a
student’s overall readiness for college and for the workplace while also serving as a measure of continuous school improvement in terms of group performance from one year to the next.

WHO TAKES THE HSTW ASSESSMENT AND WHEN IS IT GIVEN?

The HSTW Assessment is administered to seniors at participating schools. It is given at the beginning of the last semester of high school so that it can reflect almost the entire high school career of the cohort while still allowing for the results to be available in time for schools and students to make use of them. In 2008, the window for administering the assessment is January 7 through February 1.

Most HSTW schools administer the assessment every other year, in even years (2004, 2006, 2008, etc.). However, some schools administer the assessment in odd years as well.

Some HSTW schools administer the assessment to all of their seniors. However, most schools administer the assessment to a random sample of about 60 seniors. Experts in survey sampling methods have determined that a sample of 60 students, if the sampling is truly random, can yield group results that are representative of how the total group of seniors would have performed. All participating schools are provided with instructions for sampling their seniors to ensure that the sampling is truly random.

Since most schools do not administer the assessment every year and not all students are selected to participate, it is important to note that only a subset of the total group of seniors at HSTW schools will have the opportunity to participate in the assessment and receive individual student reports showing their level of performance in terms of their readiness for college and the workplace. It is important to recognize that many students who are seniors during an odd year or who are not included in the testing sample during the sampling process would have performed at or above levels qualifying them for the HSTW Award of Student Achievement if they had taken the assessment (for information on the Award, see the Appendix to this Booklet).

WHERE THE ASSESSMENT WILL BE GIVEN

The HSTW Assessment is administered at the participating schools. The schools are responsible for communicating with participating students to ensure that they are briefed about where and when to report for testing and are properly oriented with regard to the nature and purpose of the assessment.

HOW LONG IS THE HSTW ASSESSMENT?

Timing of each element of the assessment:

Student Survey (untimed: times are approximate)
   Section 1: about 30 to 45 minutes. NOTE: some schools fill this section out for students
   Section 2: about 60 minutes
Reading test: 90 minutes
Mathematics test: 70 minutes
Science test: 70 minutes

The total testing time comes to about 5 and ½ hours. When administration activities — greeting students, seating them, reading general instructions, handing out and collecting test materials and answer documents, giving students breaks between parts of the assessment and so on are factored in, the actual testing session is six hours or a little longer. This is a long testing session and schools are strongly encouraged to test their students in multiple sessions over a two or three-day period.

INQUIRIES ABOUT THE TESTS

If state, district, or school personnel have any questions about the nature, purpose, or interpretation of the HSTW Assessment or about issues of testing policy and procedure, they should contact SREB. Please address inquiries to:

Allison Timberlake, Coordinator of Assessment
Southern Regional Education Board
592 10th Street, N.W.
Atlanta, GA  30318
404-875-9211

Any student who takes the HSTW Assessment has the right to ask questions and air concerns about the tests and about how they are scored and to have such questions or concerns addressed in a timely fashion. Students can register concerns about test questions or test content in general by talking with the teacher or counselor administering the assessment. Test administrators can use the ETS Irregularity Report form to document questions and concerns regarding test questions or content. Such concerns will be addressed by a test specialist at ETS and an answer will be sent, through SREB, to the test administrator.

If students or their families have questions or concerns regarding their individual score reports or how the tests were scored, they should contact SREB (see above).

ETS retains individual student score report data for six months following the assessment. Individual reports will be sent to schools for distribution to students. If a student finds he or she needs a duplicate report (e.g., due to loss of or damage to the original report), the student can order the duplicate by sending a letter of request that includes the address to which the duplicate is to be sent together with a check or money order in the amount of $10 to:

Lisa Rion
Educational Testing Service
Rosedale Road, MS 21D
Princeton, NJ  08541
SPECIAL ARRANGEMENTS

All students who are routinely included in state-mandated assessments and can function in a testing environment must be included in the pool of students from which a school’s random sample of HSTW test-takers is drawn. In compliance with 1997 IDEA regulations, this means that students with Individual Education Plans (IEPs) must be included in the sampling. All schools must abide by federal, state and local regulations regarding testing students with disabilities. If a students’ IEP calls for an amanuensis to assist with testing, it is a school’s responsibility to provide this service. ETS will provide Braille, Cassette and Large Print editions of the Student Survey and all three subject tests upon request.

Students who are English language learners (ELL) must also be included in sampling. English language learners may use a dual-language dictionary when answering the Student Survey and when taking the mathematics and science tests. Students who need this accommodation must provide their own dual-language dictionaries. Please be aware that dual-language dictionaries are NOT permitted for the Reading test because that test is measuring reading proficiency in English.

CONFIDENTIALITY OF SCORES

Student test results are used to produce reports for schools that chart the progress HSTW network schools are making in their efforts to improve teaching and learning. No individual student scores are given in these reports; no students are named in the reports. In addition, pains are taken to suppress data in the site reports when the number of students factoring into a particular calculation is small enough to make it possible to identify individuals.

Individual student score reports, issued for the first time in 2008, will be sent by ETS to the students’ schools for distribution to the students and will be released only to the HSTW testing coordinator for distribution to the individual students. SREB abides by all federal and state laws protecting the confidentiality of student data.

REVIEW OF NONSTANDARD SCORES

SREB reserves the right to cancel any test score if the test taker engages in misconduct or if there is a testing irregularity. Because there is an obligation to report scores that accurately reflect the performance of each test taker, test administration and test security standards have been designed to assure that all test takers are given the same opportunity to demonstrate their abilities and to prevent some test takers from gaining an unfair advantage over others because of testing misconduct. All testing irregularities as well as test scores believed to be earned under unusual or nonstandard circumstances are routinely reviewed.
INDIVIDUAL SCORE REPORTS

The individual student reports will show whether a student is at the basic, proficient or advanced performance level for each of the three subject tests. These performance levels are defined in terms of the degree of readiness for college or career. Students who score below the basic level on any given subject test are still developing the knowledge and skills required to meet the standard defined by the basic level for that test. Individual reports do not show numerical scores on the three tests. Please consult the Information for Sites Bulletin to find out how the performance levels are determined.

In addition to performance levels, the individual reports will also show whether a student has met the HSTW recommended curriculum, whether the student has completed one or more HSTW concentrations and whether the student qualifies for the Award of Educational Achievement. Students who qualify for the Award of Educational Achievement will receive a certificate in addition to their individual reports. These certificates will be mailed to schools at the same time as the individual reports are mailed. The Appendix to this Booklet describes the HSTW recommended curriculum, performance goals, the criteria for completing a concentration and the requirements one must fulfill in order to qualify for the Award of Educational Achievement.

Students interested in how the tests are scored, in comparability of test scores across different editions of each test, in the degree of precision of test scores and in the scoring scale used to report group data in the school-level reports should consult the Information for Sites Bulletin.

WHEN WILL SCORE REPORTS BE AVAILABLE?

Typically, score reports will be mailed to schools and distributed to students in May, before summer vacation. In 2008, score reports will be mailed to schools in June. This delay is a one-time event caused by the need to set the performance level standards for the new subject tests. In order to set these standards, data from the 2008 administration will be needed. Therefore, the standards need to be set after the administration and before score reporting.
TEST DESCRIPTION WITH SAMPLE QUESTIONS

This section is addressed most particularly to students but will be of interest to anyone who wants to know more about the content specifications for the new HSTW Assessment and wishes to see the types of questions that will be asked in the three subject tests.

Model Message for Students from their schools

As you probably know, our school is a member of a network of schools that is taking important steps to improve our services to students. Among the many steps that we have taken are improved student counseling, the availability of extra help for students who need it, the enrichment of classroom activities and our commitment to encouraging students to take more challenging courses to prepare them for further education and successful employment after graduation.

One of the ways to prove to you, your parents or guardians and to ourselves that these steps are paying off is to determine whether you and other students in your class can reach higher levels of performance than previous classes. We also want to know your views about how our classroom activities and assignments have helped you to learn and how your plans after high school connect with your experiences in high school. Next year, we will send you a brief survey to obtain your suggestions about how you believe we might improve our approach and services to students who come after you.

As a senior, your feedback and full effort on the assessment and the student survey is very important to us. The assessment has the following parts:

Student Survey: The student survey consists of two sections. Section 1 will take about 30 to 45 minutes to complete and Section 2 will take about 60 minutes to complete. The survey is composed of questions that ask about your plans after graduation, what courses you have taken and your views about the expectations of your teachers and the availability of services, including extra help and career planning.

Reading: The reading test consists of three separately timed sections. To accommodate the length of the reading passages, the test is 90 minutes long, containing two 25-minute sections and one 40-minute section. It is composed of multiple-choice and open-ended questions.

Mathematics: The mathematics test consists of three separately timed sections. The assessment is 70 minutes long, containing one 28-minute section, one 27-minute section and one 15-minute section. Calculator use is permitted for two of the sections. The test is composed of multiple-choice and open-ended questions.
Science: The science test consists of three separately timed sections. The test is 70 minutes long, containing one 28-minute section, one 27-minute section and one 15-minute section. It is composed of multiple-choice and open-ended questions.

In each of the three subjects, you will need to write your answer to the open-ended questions. Each open-ended question can contribute more toward the report of your overall performance on the assessment than each multiple-choice question does. Responses for the open-ended questions are graded on a 0 to 4 scale:

- Responses that earn a score of 4 demonstrate complete understanding. These responses correctly address all aspects of the question and fully support or justify a conclusion or result of an analysis.
- Responses that earn a score of 3 demonstrate substantial understanding. These responses correctly address most aspects of the question, but may contain one or two minor errors or minor omissions.
- Responses that earn a score of 2 demonstrate developing understanding. These responses correctly address some aspects of the question, but will also likely include a major error or omit an important component of the response.
- Responses that earn a score of 1 demonstrate minimal understanding. These responses indicate some rudimentary comprehension of a part of the question, but provide little or no evidence of being able to integrate information and present it in a clear and coherent manner.
- Responses that provide no understanding or comprehension of the question earn a score of 0.

Sample questions that are similar to some of those that appear on the assessment can be found on the following pages. Although the results of this assessment will have no effect on your grades, you will receive a report following the administration of the assessment that indicates your level of readiness (basic, proficient, or advanced) for future study or entry into the workplace. Descriptions of the basic, proficient and advanced levels of readiness for each subject can be found in the Appendix to this Booklet.

You should put forth your best effort when completing the assessment, so that we can learn from your views and learn more about what you have achieved in high school.
### 2008 ASSESSMENT CONTENT
(Target Percentage by Category As Specified in Assessment Frameworks)

#### MATHEMATICS

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<th>Content Areas</th>
<th>Mathematical Complexity</th>
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<td>Low Complexity</td>
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<tr>
<td>Measurement/Geometry</td>
<td>Moderate Complexity</td>
</tr>
<tr>
<td>Data Analysis, Statistics and Probability</td>
<td>High Complexity</td>
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<tr>
<td>Algebra</td>
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#### READING

<table>
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<tr>
<td>Literary Nonfiction</td>
<td>Integrate/Interpret</td>
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<tr>
<td></td>
<td>Critique/Evaluate</td>
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</table>

#### SCIENCE

<table>
<thead>
<tr>
<th>Content Areas</th>
<th>Science Practices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Sciences</td>
<td>Identifying Science Principles</td>
</tr>
<tr>
<td>Physical Sciences</td>
<td>Using Science Principles</td>
</tr>
<tr>
<td>Earth and Space Sciences</td>
<td>Using Scientific Inquiry</td>
</tr>
<tr>
<td></td>
<td>Using Technological Design</td>
</tr>
</tbody>
</table>
THE READING TEST

The reading test will assess students’ understanding of two text types: informational and literary nonfiction.

Text Types

Informational texts. The diverse number and types of informational texts explain, in part, why a large percentage of this text type will be found in the assessment. Students read informational text for many purposes. For example, they read textbooks, newspaper articles and essays to obtain general or specific information. Editorials, speeches and advertisements are examples of informational texts that are meant to persuade or inform students of a specific point of view. Trade manuals, product support materials and instructions for filling out forms are examples of informational text that explain procedures and provide directions for how to follow them. Each of the informational text types mentioned here can be presented in different formats or combinations of formats. For example, a newspaper article might be presented as continuous prose and also include charts, tables, maps or other graphical representations that require readers to synthesize meaning across the texts.

Literary Nonfiction texts. These types of texts not only present information and ideas but may also employ distinctly literary elements and devices to communicate their message and to make their content more accessible to readers. Biographies and autobiographies, for example, usually follow a structure that in many ways mirrors the story structure of fictional works and they may employ literary devices, but they also present information. Literary essays and speeches may be structured differently but also draw on literary devices.

Cognitive Targets

Questions in the reading test also measure the kinds of thinking that underlie reading comprehension. These include:

Locate/Recall. Responses to these questions provide information about the most basic comprehension skills, those that ultimately form the foundation for a more elaborated understanding of what is read.

Integrate/Interpret. Responses to these questions move beyond the discrete information, ideas, details and themes presented in text and extend initial impressions by processing information logically and completely.

Critique/Evaluate. Responses to these questions consider the text critically by assessing it from numerous perspectives and synthesizing what is read with other texts and other experiences.
Read the following Introduction to the American Community Survey (ACS) and the accompanying Fact Sheet, which presents ACS data.

Using Data from the 2005 American Community Survey

INTRODUCTION

The United States is changing, and so is the census. In 1790, the year of the first census, 3.9 million individuals were counted. Over 200 years later, the number is approaching 300 million. As the nation expands, so do its needs — specifically, the need for more current and up-to-date information. The Census Bureau is using a powerful new tool to adjust to this increased need: the American Community Survey.

The American Community Survey (ACS) is a part of the Decennial Census Program. The decennial census takes place every ten years, the next being conducted in 2010. The 2010 Census will continue to count the population to support the constitutional mandate to provide population counts needed to apportion the seats in the United States House of Representatives. States develop redistricting plans based on this important information. The ACS will provide annually updated data on the characteristics of population and housing.

When discussing the type of information produced by the ACS, two things should be considered: the specific topics covered in the ACS and the type of statistics that are produced for these topics.

Topics Covered
The topics covered by the ACS focus on demographic, social, economic, and housing characteristics.

Statistics Produced
The statistics produced from the ACS are meaningful because they describe the characteristics of population and housing in the United States and Puerto Rico. The Census Bureau uses the data collected by the ACS to create estimates and variances — which are termed “statistics” — for these characteristics. The ACS releases statistics in several forms: totals, proportions, percentages, means, medians, averages, and ratios.

Totals
Estimated totals include estimates of the total population and its subsets. Examples include the total male population, the total population aged three years and older enrolled in school, the total foreign-born population, the total population below the poverty level, and much more. Figure 1 shows an example of the total population three years and older enrolled in school — 597,507 for Dallas County, Texas, based on the 2005 ACS estimate.
Similarly, estimates are produced of total households and subsets such as total family households and total family households with children under 18 years of age. Estimates are made of total housing units along with estimates of occupied housing units, owner-occupied, and renter-occupied housing units.

Although totals may have meaning alone, the major reason they exist in the ACS is to define a universe that will be described in detail. For example, the U.S. population is not the important information coming from ACS data; it is information on the percent of the United States population that is age sixty-five or older, foreign-born, or sixteen years and older and in the labor force and employed. This also applies to housing data, for which the ACS releases an estimate of total housing units, but the important ACS information is the characteristics of these housing units: the percent of vacant housing units, mobile homes, or homes built in 1939 or earlier.

This is not to say that totals are not meaningful on their own. Local governments use population totals for forecasting needs for services such as police and fire protection. Local communities do need to know the total population so they can plan and prepare for responding to natural disasters or other emergencies.
### United States

#### 2005 American Community Survey

**Data Profile Highlights:**

**Note:** The 2005 American Community Survey universe is limited to the household population and excludes the population living in institutions, college dormitories, and other group quarters.

<table>
<thead>
<tr>
<th>General Characteristics</th>
<th>Estimate</th>
<th>Percent</th>
<th>Margin of Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total population</td>
<td>288,378,137</td>
<td>98.1</td>
<td>+/-33,453</td>
</tr>
<tr>
<td>Male</td>
<td>141,274,964</td>
<td>49.0</td>
<td>+/-20,305</td>
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<tr>
<td>Female</td>
<td>147,103,173</td>
<td>51.0</td>
<td>+/-20,305</td>
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<tr>
<td>Median age (years)</td>
<td>36.4 (X)</td>
<td>(X)</td>
<td>+/-0.2</td>
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<tr>
<td>Under 5 years</td>
<td>20,267,176</td>
<td>7.0</td>
<td>+/-12,409</td>
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<tr>
<td>18 years and over</td>
<td>215,248,449</td>
<td>74.6</td>
<td>+/-16,617</td>
</tr>
<tr>
<td>65 years and over</td>
<td>34,760,527</td>
<td>12.1</td>
<td>+/-15,554</td>
</tr>
<tr>
<td>One race</td>
<td>282,820,953</td>
<td>98.1</td>
<td>+/-33,453</td>
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<tr>
<td>White</td>
<td>215,333,394</td>
<td>74.7</td>
<td>+/-115,546</td>
</tr>
<tr>
<td>Black or African American</td>
<td>34,962,569</td>
<td>12.1</td>
<td>+/-41,001</td>
</tr>
<tr>
<td>American Indian and Alaska Native</td>
<td>2,357,544</td>
<td>0.6</td>
<td>+/-22,280</td>
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<tr>
<td>Asian</td>
<td>12,471,185</td>
<td>4.3</td>
<td>+/-30,771</td>
</tr>
<tr>
<td>Native Hawaiian and Other Pacific Islander</td>
<td>397,030</td>
<td>0.1</td>
<td>+/-10,869</td>
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<tr>
<td>Some other race</td>
<td>1,298,801</td>
<td>6.0</td>
<td>+/-121,998</td>
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<tr>
<td>Two or more races</td>
<td>5,557,184</td>
<td>1.9</td>
<td>+/-83,453</td>
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<tr>
<td>Hispanic or Latino (of any race)</td>
<td>41,870,703</td>
<td>14.5</td>
<td>+/-10,385</td>
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<tr>
<td>Household population</td>
<td>288,378,137</td>
<td>98.1</td>
<td>+/-33,453</td>
</tr>
<tr>
<td>Group quarters population</td>
<td>(X)</td>
<td>(X)</td>
<td>(X)</td>
</tr>
<tr>
<td>Average household size</td>
<td>2.60 (X)</td>
<td>(X)</td>
<td>+/-0.01</td>
</tr>
<tr>
<td>Average family size</td>
<td>3.18 (X)</td>
<td>(X)</td>
<td>+/-0.01</td>
</tr>
<tr>
<td>Total housing units</td>
<td>124,521,896</td>
<td>89.2</td>
<td>+/-143,575</td>
</tr>
<tr>
<td>Occupied housing units</td>
<td>111,090,617</td>
<td>82.9</td>
<td>+/-293,104</td>
</tr>
<tr>
<td>Owner-occupied housing units</td>
<td>74,318,982</td>
<td>66.9</td>
<td>+/-293,104</td>
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<tr>
<td>Renter-occupied housing units</td>
<td>36,771,635</td>
<td>33.1</td>
<td>+/-172,018</td>
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<tr>
<td>Vacant housing units</td>
<td>13,431,269</td>
<td>10.8</td>
<td>+/-143,575</td>
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</table>

#### Social Characteristics

<table>
<thead>
<tr>
<th>Estimate</th>
<th>Percent</th>
<th>Margin of Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population 25 years and over</td>
<td>188,960,759</td>
<td>94.2</td>
</tr>
<tr>
<td>High school graduate or higher</td>
<td>(X)</td>
<td>(X)</td>
</tr>
<tr>
<td>Bachelor’s degree or higher</td>
<td>(X)</td>
<td>27.2</td>
</tr>
<tr>
<td>Civilian veterans (civilian population 18 years and over)</td>
<td>23,427,584</td>
<td>10.9</td>
</tr>
<tr>
<td>Disability status (population 5 years and over)</td>
<td>39,740,709</td>
<td>14.9</td>
</tr>
<tr>
<td>Foreign born</td>
<td>30,069,842</td>
<td>14.9</td>
</tr>
<tr>
<td>Male, Now married, except separated (population 15 years and over)</td>
<td>61,663,386</td>
<td>55.9</td>
</tr>
<tr>
<td>Female, Now married, except separated (population 15 years and over)</td>
<td>59,916,721</td>
<td>51.0</td>
</tr>
<tr>
<td>Speak a language other than English at home (population 5 years and over)</td>
<td>51,934,850</td>
<td>19.4</td>
</tr>
</tbody>
</table>

**Explanation of Symbols:**

- *****:** The estimate is controlled. A statistical test for sampling variability is not appropriate.
- *(X)*: The value is not applicable or not available.

**Source:** U.S. Census Bureau, 2005 American Community Survey
1. According to the Introduction, why is a census necessary?
   A  To determine how many seats each state will get in the House of Representatives
   B  To make sure there are sufficient natural resources available for the entire population
   C  To determine when the House of Representatives needs to make changes in national policy
   D  To help individuals make decisions about the best places to live and work

2. Which reason best explains why Figure 1 is included in the Introduction?
   A  To provide population information for educators in Texas
   B  To inform Texas educators of school enrollment data in Dallas County
   C  To emphasize the importance of subcategories of information over totals in the American Community Survey
   D  To give an example of the type of information provided by the American Community Survey

3. When the article says local governments use population totals for “forecasting” needs for services (line 48), this means that the governments
   A  focus exclusively on population totals
   B  use survey results to support political ends
   C  predict what they will require to manage future events
   D  encourage visitors to move permanently to their cities

4. According to the Introduction, what is the most important information provided by the American Community Survey population data?
   A  The total number of people in the nation
   B  The percentage of people who are registered to vote
   C  The number of people in each congressional district
   D  The percentage of people that fits into certain categories

5. Which of the following can be learned from the Data Profile Highlights table?
   A  The number of people who graduated from high school in 2005
   B  The percentage of teenagers who are married
   C  The difference between the number of people who live in Alaska and the number who live in Hawaii
   D  The difference between the total number of housing units in the nation and the number that are occupied
Which statement best describes the overall organization of the Data Profile Highlights table?

A  It divides the population into different groups based on broad categories.
B  It uses samples of households to represent national population trends.
C  It presents data in the order of importance to the government.
D  It ranks the data according to margin of error.

Answers to questions in Sample Passage #1

The following passage was written in 1948 by E. B. White, an essayist who worked for The New Yorker weekly magazine from 1929 until the end of his career five decades later.

There are roughly three New Yorks. There is, first, the New York of the man or woman who was born here, who takes the city for granted and accepts its size and its turbulence as natural and inevitable. Second, there is the New York of the commuter—the city that is devoured by locusts each day and spat out each night. Third, there is the New York of the person who was born somewhere else and came to New York in quest of something. Of these three trembling cities the greatest is the last—the city of final destination, the city that is a goal. It is this third city that accounts for New York’s high-strung disposition, its poetical deportment, its dedication to the arts, and its incomparable achievements. Commuters give the city its tidal restlessness; natives give it solidity and continuity; but the settlers give it passion. And whether it is a farmer arriving from Italy to set up a small grocery store in a slum, or a young girl arriving from a small town in Mississippi to escape the indignity of being observed by her neighbors, or a boy arriving from the Corn Belt with a manuscript in his suitcase and a pain in his heart, it makes no difference: each embraces New York with the intense excitement of first love, each absorbs New York with the fresh eyes of adventure, each generates heat and light to dwarf the Consolidated Edison Company.¹

The commuter is the queerest bird of all. The suburb he inhabits has no essential vitality of its own and is a mere roost where he comes at day’s end to go to sleep. Except in rare cases, the man who lives in Mamaroneck or Little Neck or Teaneck, and works in New York, discovers nothing much about the city except the time of arrival and departure of trains and buses, and the path to a quick lunch. He is desk-bound, and has never, idly roaming in the gloaming, stumbled suddenly on Belvedere Tower in Central Park, seen the ramparts rise sheer from the water of the pond, and the boys along the shore fishing for minnows, girls stretched out negligently on the shelves of the rocks; he has never come suddenly on anything at all in New York as a loiterer, because he has had no time between trains. He has fished in Manhattan’s wallet and dug out coins, but has never listened to Manhattan’s breathing, never awakened to its morning, never dropped off to sleep in its night. About 400,000 men and women come charging into the Island each weekday morning, out of the mouths of tubes and tunnels. Not many among them have ever spent a drowsy afternoon in the great rustling oaken silence of the reading room of the Public Library, with the book elevator (like an old water wheel) spewing out books onto the trays. They tend their furnaces in Westchester and Jersey, but have never seen the furnaces of the Bowery, the fires that burn in oil drums on zero degree winter nights. They may work in the financial district downtown and never see the extravagant plantings of Rockefeller Center—the daffodils

¹ Consolidated Edison is a utility company that provides gas and electricity for the residents and businesses of New York City.
and grape hyacinths and birches and the flags trimmed to the wind on a fine morning in spring. Or they may work in a midtown office and may let a whole year swing round without sighting Governors Island from the sea wall. The commuter dies with tremendous mileage to his credit, but he is no rover. His entrances and exits are more devious than those in a prairie-dog village; and he calmly plays bridge while buried in the mud at the bottom of the East River. The Long Island Rail Road alone carried forty million commuters last year; but many of them were the same fellow retracing his steps.

The terrain of New York is such that a resident sometimes travels farther, in the end, than a commuter. Irving Berlin’s\(^1\) journey from Cherry Street in the Lower East Side to an apartment uptown was through an alley and was only three or four miles in length; but it was like going three times around the world.

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\(^1\) Irving Berlin (1888–1989) was an American composer and lyricist who began his career as a street singer and became one of the most successful songwriters for theater and film in history.
SAMPLE QUESTIONS FOR PASSAGE #2

1. What is E.B. White’s main purpose in writing this passage?
   A. To describe different groups of people in New York.
   B. To encourage people to move to New York.
   C. To promote famous New York landmarks.
   D. To depict working conditions in New York.

2. E.B. White praises the New York of the “settlers” because these people
   A. contribute to the financial growth of the city
   B. have free time to go to libraries and museums
   C. bring emotion and intensity to the city
   D. cause less trouble than commuters

3. When E.B. White says that the suburbs have no “vitality” (line 16), he means that
   A. few people live there
   B. they are not very lively
   C. the nightlife ends there earlier
   D. they have a much lower noise level

4. E.B. White refers to the Public Library, the Bowery, and Rockefeller Center primarily in order to
   A. distinguish between good and bad aspects of the city
   B. emphasize the energy found in the city
   C. point out places in the city that he thinks are beautiful
   D. provide examples of things commuters fail to notice in the city

5. E.B. White uses several types of figurative language, such as metaphor, throughout his essay. Choose an example of figurative language White uses and describe its meaning in the context of the essay. Then explain how it relates to White’s opinion about the three New Yorks.
   Please write your answer in the appropriate space on your answer sheet.

Answers to multiple choice questions in Sample Passage #2
Sample Response and Scoring Guide

Choose a specific example of figurative language that E.B. White uses in his essay. Explain its meaning in the context of the essay, and explain how it relates to White’s opinion about the three New Yorks.

Scoring Guide
4 = Complete Understanding

Responses at this level choose an example of figurative language, explain its meaning in context, and explain why it is important in helping White make his argument.

- White says at the end of the first paragraph that settlers “generate heat and light to dwarf the Consolidated Edison Company.” This statement is basically an exaggeration that means that settlers bring a lot of passion to New York. This is important in helping White make his argument because it helps to show how important he thinks settlers are to the city.
- White says “The commuter is the strangest bird of all. The suburb he inhabits has no essential vitality of its own and is a mere roost where he comes at day’s end to go to sleep.” This is a metaphor meaning that the commuter’s home doesn’t mean anything to him. The author makes the point that commuters don’t care about the city, and this metaphor shows that they don’t even care about their homes either.
- White says that the commuter “has fished in the city’s wallet and dug out coins, but has never listened to its breathing.” He’s saying commuters only care about the city for the income it brings them, that they don’t know about the more important things there. This is a good metaphor to help him make his point because it gives you the picture of the commuter as some kind of thief or cheap person who takes only what he needs from the city.

3 = Substantial Understanding

3(a) Responses at this level choose an example and explain its meaning in context; however, such responses provide only a general explanation of how it relates to White’s opinion about the three New Yorks.

- White says that settlers “generate heat and light to dwarf the Consolidate Edison Company.” This is hyperbole. White is just trying to say that the settlers bring a spark to New York. It helps him make his point because it really lets the reader visualize what he’s talking about.
- The author starts the essay by saying there are three New Yorks. This is just a figurative way of saying that there are three major groups of people in New York, and they all view the city in a different way. This figurative language helps White make his argument because it gives you a concrete way to understand his argument.

OR
3(b) Responses choose an example and provide an explanation of how it relates to White’s opinion about the three New Yorks, but do not explain the meaning of the example in context.

- **White says at the end of the first paragraph that settlers “generate heat and light to dwarf the Consolidated Edison Company.” This is important in helping White make his argument because it helps to show how important settlers are to the city.**
- **In the second sentence, the author says that the “second New York” is the New York of the commuter, which is “devoured by locusts each day and spat out each night.” This shows just how little the city means to the commuter.**

2 = Developing Understanding

2(a) Responses at this level choose an example of figurative language and explain what it means in context.

- **White says that New York is “devoured by locusts each day and spat out each night.” This means the commuters are just like a bunch of bugs who eat the city and spit it out again once they leave.**
- **The author tells us there are “roughly three New Yorks.” This means there are three groups of people who all see New York in a totally different way.**

2(b) Responses provide a general explanation of how figurative language in the essay relates to White’s opinion about the three New Yorks.

- **White uses a lot of similes and metaphors, and this helps him paint a detailed picture of New York.**
- **The author uses lots of exaggeration and metaphors to show just how much he dislikes commuters.**

1 = Minimal Understanding

Responses provide irrelevant details, personal opinions, or may simply repeat the question.

- **He compares New Yorkers to locusts.**
- **White really likes New York.**

0 = No Credit
THE MATHEMATICS TEST

The content areas assessed in the mathematics test are Number Properties and Operations; Measurement/Geometry; Data Analysis, Statistics and Probability; and Algebra.

Content Areas

Number Properties and Operations focuses on student understanding of numbers (whole numbers, fractions, decimals, integers) and their applications. Understanding numerical relationships as expressed in ratios, proportions and percents is also included here.

Measurement/Geometry focuses on student ability to describe real-world objects using numbers. Students are asked to identify attributes, select appropriate units, apply measurement concepts and communicate measurement-related ideas to others. Questions require an ability to read instruments using metric, customary or nonstandard units, with emphasis on precision and accuracy. This area also focuses on student’s knowledge of geometric figures and relationships and on their skills in working with this knowledge. It also focuses on the use of precise geometric terms and understanding how to prove statements deductively.

Data Analysis, Statistics and Probability focuses on data representation and analysis across all disciplines and reflects the importance and prevalence of these activities in our society. Questions emphasize appropriate methods for gathering data, the visual exploration of data and the development and evaluation of arguments based on data analysis.

Algebra focuses on topics that are based on content covered by two full years of high school algebra. In addition to questions about linear functions, questions about nonlinear functions such as quadratic, proportional ($k/x$), exponential and trigonometric may be presented in problem situations. Students should be able to analyze the defining properties of each function type. This area also focuses on translating verbal descriptions of problem situations into symbolic form. Expressions involving several variables, systems of linear equations and solving inequalities are also a part of this content area.

Mathematical Complexity

In addition to assessing students’ understanding of mathematical content, the questions in the mathematics test also assess at what level (high, moderate, or low) students can solve mathematics problems.

High Complexity questions make heavy demands on students, who are expected to use reasoning, planning, analysis and judgment. Students may be expected to justify mathematical statements or develop a mathematical argument. These items might require students to generalize from specific examples.

Moderate Complexity questions are those in which students might be asked to interpret a representation or to bring multiple ideas together. In addition, they might be asked to show or explain their work, but would not be expected to justify it.
**Low Complexity** questions expect students to recall or recognize concepts or procedures. These questions typically specify what the student is to do, which is often to carry out a procedure that can be performed mechanically.

**Use of Calculators**

Students should bring a calculator (either graphing or scientific), since calculators are permitted for two of the three sections of the mathematics test. While the use of a graphing calculator instead of a scientific calculator will not present an advantage on this test, the use of a four-function calculator may place the student at a slight disadvantage. Students will not be permitted to use calculators on the remaining section of the test.
1. The dimensions of a rectangular box are 4 inches by 3 inches by 2 inches. A box manufacturer must design a larger box that is similar in shape and will hold exactly 8 of the smaller boxes, with no space left over. What will be the dimensions of the larger box?

A  6 inches by 5 inches by 4 inches  
B  8 inches by 6 inches by 4 inches  
C  12 inches by 11 inches by 10 inches  
D  16 inches by 12 inches by 8 inches

2. Ten friends had dinner together at a local restaurant. They decided to split the total cost equally. The bill for the food, including tax, was $210. Which of the following amounts is closest to each person’s share if they left a 20 percent tip?

A  $22.00  
B  $23.00  
C  $24.00  
D  $25.00

3. What is the radian measure of a 45 degree angle?

A  $\frac{\pi}{8}$  
B  $\frac{\pi}{6}$  
C  $\frac{\pi}{4}$  
D  $\frac{\pi}{2}$
4. Line $\ell$ contains the points (-2, -2) and (2, 4). Which of the following equations contain the points?

A $y = -\frac{2}{3}x - 1$
B $y = \frac{2}{3}x + 1$
C $y = \frac{3}{2}x - 1$
D $y = \frac{3}{2}x + 1$

5. Which of the following pieces of information would NOT be useful in deciding what type of car is the most economical to drive?

A Median income of drivers
B Range of insurance costs
C Average miles per gallon
D Cost of routine maintenance

6. If $k$ can be replaced by any number, how many different values can the expression $k + 6$ have?

A None
B One
C Six
D Infinitely many

7. A contractor is building 5 different model homes on 5 adjacent lots on one side of a street. If one house is to be built on each lot, how many different arrangements of the 5 houses are possible?

A 120
B 60
C 25
D 5
8. The graph above shows the number of gallons of water remaining in tank \( A \) as it is being emptied. Tank \( B \) holds twice as much water as tank \( A \). Approximately how long will it take to empty tank \( B \) if it empties at half the rate tank \( A \) empties?

A  3 minutes  
B  6 minutes  
C  12 minutes  
D  24 minutes

9. The domain of \( f(x) = x^2 - x \) is the set of integers \([-3, 3]\). Which of the following set of integers is the range of \( f(x) \) ?

A  \{0, 2, 4, 6, 8, 12\}  
B  \{0, 2, 6, 12\}  
C  \{0, 12\}  
D  \{1, 12\}
10. The graphs of $y = f(x)$ and $y = g(x)$ for $0 \leq x \leq 10$ are shown in the figure above. For how many values of $x$ is the product $f(x)g(x) = 0$ for $0 \leq x \leq 10$?

A  Two  
B  Five  
C  Six  
D  Seven

Answers for multiple-choice questions

11. The state road department has suggested two different routes for a new road between the towns of Norris and Fielden.

The scenic route is represented in the figure above by two congruent semicircles. The direct route is represented by a solid line segment. To the nearest tenth of a mile, how many miles longer is the scenic route than the direct route?

Show all of your work and explain your reasoning.

Sample Correct Response:

The direct route is 20 miles

\[ a^2 + b^2 = c^2 \]

\[ 12^2 + 16^2 = c^2 \]

\[ \sqrt{144 + 256} = c^2 \]

\[ \sqrt{400} = c^2 \]

\[ 20 = c \]

The scenic route is

\[ C = \pi d \]

\[ C = 10\pi = 31.4 \]

The difference is \( 31.4 - 20 = 11.4 \)
12. A class plans to use a local bus company for a trip to a theme park. The cost per student is $50 if exactly 40 students sign up for the trip. In order to increase its revenue, an employee of the bus company thinks that it would be a good idea to reduce the cost per student by $1 for every additional 10 students that sign up for the trip. For example, if 50 students sign up, the cost per student is reduced to $49.

a. Complete the table below.

<table>
<thead>
<tr>
<th>Number of Students</th>
<th>Cost per Student (in dollars)</th>
<th>Bus Company’s Revenue (in dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>50</td>
<td>2,000</td>
</tr>
<tr>
<td>50</td>
<td>49</td>
<td>2,450</td>
</tr>
<tr>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>170</td>
<td></td>
<td></td>
</tr>
<tr>
<td>270</td>
<td></td>
<td></td>
</tr>
<tr>
<td>370</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b. In order for the cost per student to be $50 – x dollars what is the minimum number of students, in terms of x, that must sign up for the trip?

c. The bus company employee who thought of this idea believes it will promote business because the company’s revenue will continue to increase as the number of students who sign up for the trip increases, no matter how many students sign up. Do you agree with the claim?

Justify your answer mathematically.
Sample Correct Response:

<table>
<thead>
<tr>
<th>Number of Students</th>
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</tr>
<tr>
<td>50</td>
<td>49</td>
<td>2,450</td>
</tr>
<tr>
<td>60</td>
<td>48</td>
<td>2,880</td>
</tr>
<tr>
<td>70</td>
<td>47</td>
<td>3,290</td>
</tr>
<tr>
<td>170</td>
<td>37</td>
<td>6,290</td>
</tr>
<tr>
<td>270</td>
<td>27</td>
<td>7,290</td>
</tr>
<tr>
<td>370</td>
<td>17</td>
<td>6,290</td>
</tr>
</tbody>
</table>

b. \((40 + 10x)\) students

c. The total revenue can be represented by \((40 + 10x)(50 - x)\), where the graph of \(R(x) = (40 + 10x)(50 - x)\) is an upside down parabola. The parabola reaches a maximum when \(x\) is 23. At that \(x\)-value, the cost per ticket will be 50 minus 23, or 27 dollars. Since the price is reduced by 23 dollars per ticket (1 dollar for each 10 students), there must be at least 230 students and at most 239 students, since for 240 students the price would have to be reduced by 24 dollars per ticket. Therefore, in order to be most profitable, the company should sign up the maximum number of students that it can at a cost of 23 dollars per ticket, which would be 239 students.
THE SCIENCE TEST

The content areas assessed in the science test are Life Sciences, Physical Sciences and Earth and Space Sciences.

Content Areas

Life Sciences. Major categories of topics in life sciences in this assessment include structures and functions of living organisms (organization and development, matter and energy transformations, interdependence) and changes in living systems (heredity and reproduction and evolution and diversity).

Physical Sciences. This area focuses on properties of matter and changes in matter; forms of energy and energy transfer and conservation and motion at the macroscopic level and forces affecting motion.

Earth and Space Sciences. Questions in this area include topics that pertain to the earth's history, materials, atmosphere and weather, oceans, the solar system, galaxies and the universe. Questions on matters related to the environment are included.

Science Practices

In addition to assessing students’ understanding of the three content areas listed above, the science test will also assess how well students can engage in the following four science practices.

Identify Science Principles. Students will be assessed on their ability to describe, measure, or classify observations; state or recognize principles included in the content statements; connect closely related content statements and relate different representations of science knowledge.

Using Science Principles. These include explaining observations of phenomena; predicting observations of phenomena; suggesting examples of observations that illustrate a science principle and proposing, analyzing and/or evaluating alternative explanations or predictions.

Using Scientific Inquiry. These include designing or critiquing aspects of scientific investigations; conducting scientific investigations using appropriate tools and techniques; identifying patterns in data and/or relate patterns in data to theoretical models and using empirical evidence to validate or criticize conclusions about explanations and predictions.

Using Technological Design. These include proposing or critiquing solutions to problems, given criteria and scientific constraints; identifying scientific trade-offs in design decisions and choosing among alternative solutions and applying science principles or data to anticipate effects of technological design decisions.
SCIENCE SAMPLE QUESTIONS

1. Which pair of systems regulates and coordinates body functions?

A Excretory and digestive  
B Nervous and endocrine  
C Skeletal and muscular  
D Immune and respiratory

2. A newspaper article reported that a fossil was found that was 200,000 years old according to generally accepted radioactive dating procedures. A letter to the editor of the newspaper disputed the accuracy of the age determination because the fossil was found closer to the Earth's surface than were previously discovered fossils of the same age. Which of the following would be an appropriate argument against the letter writer's claim?

A Older rock layers commonly lie deeper underground than younger ones.  
B Older rock layers may be pushed closer to the surface by geologic processes.  
C The age of a rock layer can often help in determining the age of the fossils it contains.  
D Fossils form only under certain conditions.

3. Iodine-131 is a radioactive form of the element iodine that is absorbed heavily by certain organs of the body such as the thyroid gland. Iodine-131 is used by medical technicians to map certain parts of the body based on images produced by measuring the radioactive patterns. How is the isotope, Iodine-131, different than other forms of iodine such as the more common form, Iodine -127?

A Iodine-131 has a greater number of protons.  
B Iodine-131 has a greater number of electrons.  
C Iodine-131 has a greater number of neutrons.  
D Iodine-131 has a smaller number of electrons.

4. A sample of a certain material is recovered from near a deep submarine volcanic vent. This sample could be from a living thing if which of the following substances are determined to be part of it?

A Amino acids  
B Carbonates  
C Phosphates  
D Sulfuric acids
Two cities, R and W, are both located in the Earth’s northern hemisphere and at the same latitude location. However, they are at different longitude locations. The graph below shows the average monthly temperature, in degrees Celsius, over a typical year for each city.

Which statement best explains why there is a difference in temperature patterns over the year for these two cities?

A  City R is located inland, while city W is located on an ocean coast.

B  City R is located in a northerly wind belt, while city W is located in a southerly wind belt.

C  City R is located on the leeward side of a mountain range, while city W is located on the windward side of a mountain range.

D  City R receives less solar radiation in summer than city W, while city W receives less solar radiation than city R in winter.
6. Carbon-14 has a half-life of approximately 5,700 years. Analysis of the carbon in a piece of charred wood found in an excavation revealed that the carbon has 25 percent of the amount of carbon-14 that is found in the carbon of living trees. Which of the following is most nearly the age of the excavated wood?

A 160 years
B 5,700 years
C 11,400 years
D 23,000 years

7. A student took a sample of water from a pond and examined it under a microscope. She identified several species of protozoans, including two species of *Paramecium* that are known to eat the same food. The student decided to examine the water sample every day for a week. She added food for the *Paramecium* each day and counted the number of each species. Her findings are summarized in the table below.

<table>
<thead>
<tr>
<th>Day</th>
<th>Species S</th>
<th>Species T</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>2</td>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>3</td>
<td>100</td>
<td>90</td>
</tr>
<tr>
<td>4</td>
<td>150</td>
<td>60</td>
</tr>
<tr>
<td>5</td>
<td>160</td>
<td>50</td>
</tr>
<tr>
<td>6</td>
<td>160</td>
<td>30</td>
</tr>
<tr>
<td>7</td>
<td>160</td>
<td>20</td>
</tr>
</tbody>
</table>

Which of the following can be correctly concluded from the data?

A Species S is the food for species T.
B Species T is more common than species S.
C Species S is a more successful competitor than species T.
D Species T is a more successful competitor than species S.
8. | Charcoal | Carbon Dioxide |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Formula</td>
<td>C</td>
</tr>
<tr>
<td>State at Room Temperature</td>
<td>Solid</td>
</tr>
<tr>
<td>Soluble in Water</td>
<td>No</td>
</tr>
<tr>
<td>Combustible in Air</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Based on the information in the table above, which is a reasonable hypothesis regarding elements and their compounds?

A. An element retains its physical and chemical properties when it is combined into a compound.
B. When an element reacts to form a compound, its chemical properties are changed but its physical properties are not.
C. When an element reacts to form a compound, its physical properties are changed but its chemical properties are not.
D. Both the chemical and physical properties of a compound are different from the properties of the elements of which it is composed.

9. A roller coaster car climbs to the top of a hill where it comes to rest. It takes 500 kilo-joules (kJ) of energy to raise the roller coaster car and its occupants to the top of the hill. The car then goes down to the bottom of the hill. Based on its speed at the bottom of the hill, the car has 350 kJ of kinetic energy. Which of the following would explain why there is a difference between the potential energy at the top of the hill and the kinetic energy at the bottom of the hill?

A. 150 kJ of the potential energy is turned into momentum.
B. 150 kJ of the potential energy is consumed in the form of friction.
C. Some of the potential energy could be recovered on the next trip down.
D. 150 kJ of the potential energy could not be converted to kinetic energy rapidly enough and is lost.
Which of the following statements best explains why there is less than 1 percent of available energy at the top of the energy pyramid shown in the figure above?

A 99% of the remaining energy has been consumed by other organisms.

B There are fewer organisms at the top of the energy pyramid, therefore less energy is needed.

C Organisms at the top of the energy pyramid require less energy than organisms at the bottom.

D Most of it is lost as heat in the transfer from one tropic level to another.

Answers for multiple-choice questions

When you exercise strenuously, your body produces excess heat. Use your knowledge of life science to describe what your body does to help prevent your temperature from rising excessively, and explain why the body’s response is effective.

Sample Correct Response:

A complete response should include a full discussion of how the body keeps its temperature from rising through sweating or by blood vessels dilating and states how these are effective.
12. One characteristic that can be used to identify pure metals is density. If the density of a pure metal is determined, the table below can be used to identify the metal.

<table>
<thead>
<tr>
<th>Metal</th>
<th>Gold</th>
<th>Lead</th>
<th>Silver</th>
<th>Copper</th>
<th>Tin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Density (gram/cm$^3$)</td>
<td>19.3</td>
<td>11.3</td>
<td>10.5</td>
<td>8.9</td>
<td>7.3</td>
</tr>
</tbody>
</table>

a. Linda has a ring and wants to determine whether it is made of pure gold. Design a procedure that Linda could use to determine the density of her ring. Explain the steps that should be followed in the procedure, including the equipment that should be used and how this equipment would be used to determine the ring’s density.

b. Suppose that Rob has a ring with a density of 15.3 grams/cm$^3$. Assuming that the ring is a mixture of some combination of the metals listed in the table above, what can be determined about its composition from its calculated density? Explain your answer.

Sample Correct Response:

a. The equipment should include a scale, graduated cylinder, and water.

   Step A. Weigh ring using a scale, recording its mass (M),  
   OR "find the weight of the ring".

   Step B. Put the ring in a graduated cylinder that has water in it and record the volume (V) of water displaced. The volume of water displaced equals the volume of water in the cylinder with the ring in it less the volume of the water before the ring was put in the cylinder.

   Step C. Calculate the density (D), according to the formula $D = \frac{M}{V}$.

b. The ring is not pure gold but must contain some gold. Response may reason that the density of the ring (15.3 g/cm$^3$) is less than the density of gold (19.3 g/cm$^3$), but more than the density of any of the other metals. Response must also state that the identity of the other metals in the ring cannot be determined from the given information.
APPENDIX

HSTW-RECOMMENDED CURRICULUM

English/language arts: Four credits in college-preparatory English/language arts courses that emphasize reading, writing and presentation skills.

Mathematics: Four credits in college-preparatory mathematics including Algebra I, geometry, Algebra II and a higher-level mathematics course such as trigonometry, statistics, pre-calculus, calculus or Advanced Placement Mathematics.

Science: Three credits in science, with two in college-preparatory biology, chemistry, anatomy/physiology or physics/applied physics.

Social Studies: Three credits in college-preparatory social studies.

Concentration: Four credits above the academic core in either a career/technical, an academic or a blended academic and career/technical concentration or a concentration in mathematics/science or the humanities.

Note: When reports refer to whether or not a student completed the full HSTW-recommended curriculum, only the English/language arts, mathematics and science curriculums are being considered.

HSTW CONCENTRATIONS

Humanities: Four college-preparatory courses each in English/language arts and social studies and four courses in an area of the humanities, such as foreign language, fine arts or additional English and social studies courses. At least one course in either English or social studies must be at the Advanced Placement level.

Mathematics/Science: Four college-preparatory courses each in mathematics and science. At least one course in either mathematics or science must be at the Advanced Placement level.

Career/Technical: Four or more credits in a career/technical field or major.

READINESS GOALS:
The readiness goals for the new HSTW Assessment will be set at the Standard Setting Workshop in April, 2008. This Booklet will be updated after the readiness goals are set.

AWARD OF EDUCATIONAL ACHIEVEMENT
To qualify for the HSTW Award of Educational Achievement, recipients must 1) complete the HSTW -Recommended Curriculum in at least two of the three subject areas; 2) complete a concentration in a career/technical field, mathematics/science or the humanities; and 3) meet all three of the readiness goals on the HSTW Assessment.
PERFORMANCE LEVEL DESCRIPTORS

Note: The three performance levels for all three subject tests are basic, proficient and advanced. Students who score below the basic level on any given subject test are still developing the knowledge and skills required to meet the standard defined by the basic level for that test.

The final performance level descriptors are still being developed. This Booklet will be updated after the descriptors are finalized.