

2006 *HIGH SCHOOLS THAT WORK* ASSESSMENT

Test Description with Sample Questions
for Teachers and Students

Prepared by
Educational Testing Service
Princeton, New Jersey

Message for Students.....

As you probably know, our school is a member of a network of schools in this region 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 encouraging students to take more challenging courses to prepare them further education and successful employment after graduation.

One of the ways to prove to you, your parents or guardians, and to ourselves that these changes 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 help 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 hear your suggestions about how you believe we might improve our approach and services to students who come after you.

As a senior who has attended this school for some time, 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, the availability of services, including extra help and career planning

Mathematics: The mathematics assessment consists of three separately timed sections. The test is 66 minutes long, containing two 25-minute sections and one 16-minute section. A calculator is used for one of the sections. It is composed of multiple-choice and open-ended questions

Science: The science assessment consists of three separately timed sections. The test is 68 minutes long, containing two 25-minute sections and one 18-minute section. It is composed of multiple-choice and open-ended questions.

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

Your teacher will share with you sample questions and answers that help to describe the kinds of questions that you will encounter. No special preparation or review of school texts is necessary. Although there are no individual scores and the results of this assessment will have no effect on your grades, your best effort is needed so that we can learn from your views and from what you have achieved in high school.

2005 ASSESSMENT CONTENT
(Percentage of Items by Category)

MATHEMATICS

Mathematical Abilities

Conceptual Understanding	46%
Procedural Knowledge	33%
Problem Solving	21%

Content Areas

Numbers and Operations	21%
Measurement	12%
Geometry and Spatial Sense	22%
Data Analysis, Statistics and Probability	17%
Algebra and Functions	18%

SCIENCE

Cognitive Domains

Conceptual Understanding (Knowing Science)	61%
Scientific Investigation (Conducting Experiments)	27%
Practical Reasoning (Solving Problems)	12%

Content Areas

Life Sciences	33%
Physical Sciences	28%
Earth and Space Sciences	31%
Nature of Science	8%

READING

Stances

Initial Understanding	9%
Developing an Interpretation	61%
Personal Response	9%
Critical Stance	21%

Reading Purposes

Reading to: Gain Information	49%
Perform a Task	51%

THE READING ASSESSMENT

The Reading assessment will assess two areas: reading to gain information and reading to perform a task.

Reading to Gain Information. The student reads informative passages to obtain some general or specific information. A practical approach to reading is utilized incorporating certain reading/thinking strategies different from those used for other purposes. In addition, reading to gain information often involves reading and interpreting charts, graphs, maps and tables that provide supplemental or tangential data. Passages reading the reading assessment may include biographies, science articles, encyclopedia entries, primary and secondary historical accounts and newspaper editorials.

Reading to Perform a Task. The student reads various types of materials to find directions for completing a specific task. Documents requiring students in the reading assessment to perform a task, for example, might include directions for creating a time capsule, instructions on how to write a letter to a senator, using tables of information, airline schedules, or interpreting a used-car or bank loan advertisement.

Stances refer to four types of behavioral activities – or orientations that ask students to build, extend and examine textual meaning of a passage. These stances are not considered hierarchical or completely independent of each other, but are iterative in nature.

- ◆ **Initial Understanding** -- comprehending the overall or general meaning of the selection.
- ◆ **Developing an Interpretation** -- extending the ideas in the text by making inferences and connections.
- ◆ **Personal Response** -- making explicit connections between ideas in the text and a student's own background knowledge and experiences.
- ◆ **Critical Stance** -- considering how the author crafted a text.

READING SAMPLE ITEMS

So you have a job interview, NOW WHAT?

You have sent out hundreds of résumés and finally a “Human Resources person” calls to schedule a time for you to come in for a face-to-face interview. This is a great company, and you think you are perfect for the job. Now, you must demonstrate to the hiring authority that you are perfect for the position.

Here are some pointers to keep in mind when going in for the interview.

1. **Prepare** — Do not go in attempting to “wing” it. Keep in mind there are lots of competitors for the job, and you will only have this opportunity to impress the hiring authority.

Research and know the company, its history, products, services and reputation.

Prepare answers to questions that will likely come up such as:

- “What is your greatest weakness?”
- “Describe your best and worst boss.”
- “Tell me something about yourself.”
- “Why did you leave your last job?”
- “How can you contribute to this company in this job?”

There will likely be a longer list of questions, each a potential landmine that can eliminate you from the competition. Keep your answers short and to the point. Do not ramble. Always be honest and avoid negative statements.

2. **Wear your best suit** — The first impressions of a candidate are lasting. It is better to be overdressed than underdressed. Your appearance will demonstrate that you are taking the initiative. Go out of your way to make a good impression. Even if you never wear a suit to work, even if it is a production job, the interviewer will be pleased by your effort to impress.
3. **Be on time** — It is better for you to be early and wait for your appointment time than to keep the interviewer waiting and wondering. If you miss your appointment time, you may not get another. If a problem or emergency arises, call immediately to explain and offer to come in at another time, whenever is convenient for the interviewer.
4. **Body language** — Sit up, look attentive, make eye contact, do not cross your arms. Interviewers rely on body language to determine your level of interest.
5. **Present a positive attitude** — Companies seek pleasant and positive people.
6. **Bring extra copies of your résumé** — You may interview with a team of people; do not make them share one résumé.
7. **Do not discuss salary or benefits too early** — In the initial interview, do not begin with questions about money or benefits. If your main motivation is money, it will probably turn off most hiring authorities. Convince them you can do the job and want the job before discussing salary and benefits. Salary, benefits and vacation will come up and can be discussed should the company wish to make you an offer.
8. **Sell yourself** — If you don’t no one else will. Use facts and figures to quantify your experience and ability. Tell the interviewers how the company will benefit if they hire you.

9. **Show interest in the job** — If you act cool, the interviewers may not realize that you want the job. Companies want someone who is interested and enthusiastic about the job and the company. Don't make the hiring authorities guess that you want the job.

10. **Do not close any doors** — No matter what you see or hear during the interview don't overreact. Obstacles may come up regarding salary, relocation or other issues that can be resolved later if you leave the issue open.

11. **Getting an offer** — If an offer is made to you during an interview, never reject it outright. Ask for time to consider the specific details of the offer. Always respond positively. If you let the interviewers know you want the job, it will be a lot easier to negotiate items like salary later.

12. **When the interview is over** — Ask if there are any reservations about your ability to do the job. Deal with these now. Ask what the next step in the interview process is. If you like the job and want an offer, now is the time to tell the hiring authorities. Do not assume they will know if you want the job or not.

13. **Follow-up** — Be sure to send a note to the interviewers letting them know you appreciate the opportunity to interview with them and reiterating your interest in the position. Keep the note brief and to the point.

1. According to the article, which of the following would most likely hinder your chances of being hired?

- A. Being too enthusiastic
- B. Being overdressed
- C. Arriving too early
- D. Being unprepared

2. Using information from the article, describe two ways that a job candidate can prepare before going to a job interview.

3. According to the article, the best way to respond to an interviewer's questions is with

- A. lengthy answers that show your expertise
- B. casual conversation that shows you are relaxed
- C. short answers that are to the point
- D. a list of questions of your own

4. According to the article, if an interviewer asks you about your weaknesses, you should do which of the following?
- A. Avoid the question and emphasize your positive traits.
 - B. Be honest, but remain positive about your abilities.
 - C. Clearly state that you think the question is unfair.
 - D. Politely change the topic by asking about the company.
5. It is most important for a job candidate to know which of the following when going on a job interview?
- A. The weaknesses of the interviewer
 - B. The benefits that the company offers
 - C. The skills of other competitors for the job
 - D. The company's products and services
6. According to the article, what is one way to make a good impression during an interview?
- A. Give relevant facts that show how you can help the company.
 - B. Tell the interviewer everything about your work experiences.
 - C. Treat the conversation as if you were talking with a friend.
 - D. Let the interviewer do most of the talking.
7. The article lists five specific questions that are likely to be asked in a job interview. Which one of the questions do you think it is most important to be prepared to answer? Based on the information in the article, explain why.

8. According to the article, how should you deal with the issue of salary and benefits during an initial job interview?
- A. Leave discussion of these issues until you get a job offer.
 - B. Show a sense of self-worth by demanding a fairly high salary.
 - C. Show honesty and ambition by stating your expectations from the start.
 - D. Reject any initial offers that do not meet your expectations.

Answer key to multiple-choice questions:

1=D 3=C 4=B 5=D 6=A 8=A

THE MATHEMATICS ASSESSMENT

The mathematical abilities assessed are conceptual understanding, procedural knowledge and problem solving. The content areas assessed are numbers and operations; measurement; geometry and spatial senses; data analysis, statistics, and probability; and algebra and functions.

Use of Calculators

A scientific calculator is required in one of the three sections of the mathematics assessment. The use of a four-function calculator, however, will place the student at a slight disadvantage. Students will not be allowed to use calculators for two of the three sections so that they can demonstrate your knowledge and skill without the use of this tool

Mathematical Abilities

Conceptual Understanding is demonstrated by students when they provide evidence that they can recognize, label, and generate examples and counter-examples of concepts, can use and interrelate models, diagrams, and varied representations of concepts; can identify and apply principles, know and can apply facts and definitions; can compare, contrast and integrate related concepts and principles; can recognize, interpret and apply the signs, symbols and terms; and can interpret the assumptions and relations involving concepts in mathematical settings.

Procedural Knowledge is demonstrated by students when they provide evidence of their ability to select and apply appropriate procedures correctly; verify and justify the correctness of a procedure using concrete models or symbolic methods; and extend or modify procedures to deal with factors inherent in problem setting.

Problem Solving requires students to use their reasoning and analytical abilities when they encounter new situations. Problem solving includes the ability to recognize and formulate problems; determine the sufficiency and consistency of data; use strategies, data models and relevant mathematics; generate, extend and modify procedures; use reasoning (i.e. spatial, inductive, deductive, statistical, proportional); and judge the reasonableness and correctness of solutions.

Content Areas

Numbers and Operations focuses on student understanding of numbers (whole numbers, fractions, decimals, integers) and their application to real-world situations. Understanding numerical relationships as expressed in ratios, proportions and percents are emphasized.

Measurement 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.

Geometry and Spatial Sense focuses on student's knowledge of geometric figures and relationships and on their skills in working with this knowledge. Students must model and visualize geometric figures in up to three dimensions.

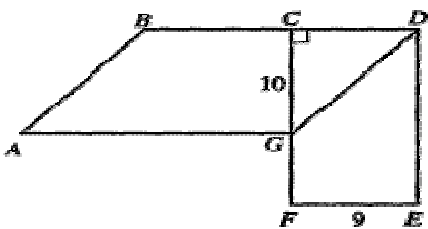
Data Analysis, Statistics and Probability focuses on data representation and analysis across all disciplines and reflects the importance and prevalence of these activities in our society. Questions emphasize appropriate methods for gathering data, the visual exploration of data, and the development and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

Algebra and Functions is broad in scope, including algebra, elementary functions (pre-calculus), trigonometry and some topics from discrete mathematics. The assessment will include algebraic expressions that may be monomial, polynomial or rational. The coefficients of the expressions may be rational, irrational or complex; they may involve one or more variables and include symbols for exponents, radicals, logarithms and absolute value.

MATHEMATICS SAMPLE ITEMS

1. A newspaper reported that about 18,200 trees had been planted in a state forest. In the report, the actual number of trees planted was rounded to the nearest hundred. Which of the following could have been the actual number of trees planted?
 - A. 18,043
 - B. 18,189
 - C. 18,289
 - D. 18,328
2. If each of the counting numbers from 1 through 10 is multiplied by 13, how many of the resulting numbers will be even?
 - A. One
 - B. Four
 - C. Five
 - D. Six
 - E. Ten
3. What is the greatest number of squares with 9-inch sides that can be cut from a rectangular piece of cloth 18 inches by 36 inches?

Answer: _____



4. In the figure above, $ABDG$ is a parallelogram and $CDEF$ is a rectangle. If $EF = 9$ and $CG = 10$, what is AB to the nearest hundredth?

Answer: _____

5. In a group of 1,200 adults, there are 300 vegetarians. What is the ratio of non-vegetarians to vegetarians in the group?

- A. 1 to 3
- B. 1 to 4
- C. 3 to 1
- D. 4 to 1
- E. 4 to 3

6. $3^3 + 4(8 - 5) \div 6 =$

- A. 6.5
- B. 11
- C. 27.5
- D. 29
- E. 34.16

7. If x and y are integers, then the expression $4x + 5y$ has a value that is odd or even depending on the values of x and y . For example, if x and y are each even, $4x$ is even and $5y$ is even. Therefore, $4x + 5y$ is also even. Fill in each of the blank spaces in the following table with either "odd" or "even" for the value of $4x + 5y$.

	Value of x	Value of y	Value of $4x + 5y$
	even	even	even
7a.	even	odd	
7b	odd	even	
7c	odd	odd	

8. Christine borrowed \$850 for one year from the Friendly Finance Company. If she paid 12% simple interest on the loan, what was the total amount she repaid?

Answer: _____

9. $2^3 + 3^3 =$

Answer: _____

Answer key: 1=B 2 = C 3 = 8 4 = 13.45 5 = C 6 = D,
 7a = odd 7b = even 7c = odd 8 = \$952 9 = 35

THE SCIENCE ASSESSMENT

The framework for the science assessment reflects the configuration of purposes and elements of high school science. This framework is expressed as a two-dimensional matrix – content areas and thinking skills.

Thinking Skills

Conceptual Understanding. Questions in this category are designed to measure your factual knowledge. Successful performance depends on the student's ability to recall specific facts, concepts, principles and methods of science; show familiarity with scientific terminology; recognize basic ideas in different contexts; and use abstractions in related applied situations.

Scientific Investigation (Using tools and strategies). Questions in this category test the student's ability to solve problems by combining factual knowledge with appropriate rules, formulas and algorithms for specified purposes. Students will need to interpret information or data using ideas from the natural sciences. They will also need to recognize the relationship of concepts, facts and principles to observed activity and data collected. The questions in this category are often the kind found at the end of chapters in science textbooks, while others may ask you to use scientific knowledge to solve problems simulating situations that might arise in real life.

Practical Reasoning (Application). Inquiry questions in this assessment are designed to measure aspects of a student's ability to apply knowledge to real situations. The tasks might include analyzing available information, evaluating and selecting appropriate experimental procedures given specified conditions, organizing a series of logical steps, and drawing conclusions on the basis of available data.

Content Areas

Life Sciences. Major categories of topics in life sciences in this assessment include cellular and molecular biology, energy transformations, genetic continuity and development, diversity and systematics, structure and functions of organisms.

Physical Sciences. This area deals with the fundamental components of the natural universe -- space, time, matter and energy. Students must demonstrate their understanding of the laws of mechanics and the interaction of light and matter, including mass-energy, electrical charge, and linear and angular momentum. The laws of thermodynamics are also included.

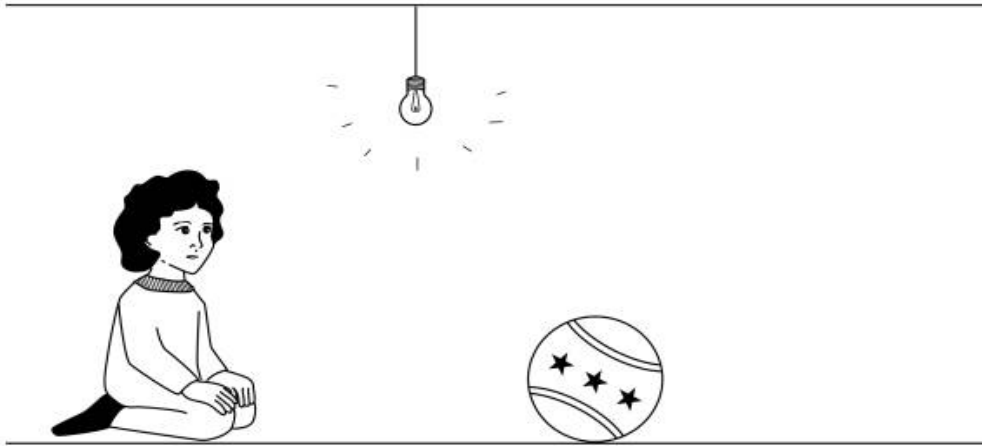
Earth and Space Sciences. Questions include topics that pertain to the earth's history, materials, atmosphere and weather, oceans, the solar system, galaxies and the universe. Questions touching on matters related to the environment are included.

Nature of Science. This category exists because the assessment contains items that do not directly relate to any of the three content categories, but address the general method of conducting scientific investigations and research.

SCIENCE SAMPLE ITEMS

1. Mike placed an active snake and an active mouse in a cold room where the temperature is kept at 4°C. After a few hours he checked both animals and noticed that the snake was very inactive but the mouse was just as active as it had been earlier. Explain this observation.

2. A car defroster is very effective for the removal of mist on the inside of the windshield on a cool morning. Which of the following is the best explanation of this fact?
- A. The airstream causes the moisture to evaporate rapidly.
 - B. The force of the airstream blows the moisture off the windshield.
 - C. The heat of the force of the airstream lowers the vapor pressure of the moisture, speeding its evaporation.
 - D. The airstream keeps the breath of the driver from striking the cool windshield.
3. Which of the following statements about the properties of a compound is correct?
- A. Compounds have the same properties as the elements from which they are formed.
 - B. Compounds change properties as they age.
 - C. A compound always has the same composition, no matter where on Earth it is found.
 - D. A compound can only exist in one physical state (either solid, liquid or gas).
4. The Earth's Moon is:
- A. always much closer to the Sun than it is to the Earth
 - B. always much closer to the Earth than it is to the Sun
 - C. about the same distance from the Sun as it is from the Earth
 - D. sometimes closer to the Sun than it is to the Earth and sometimes closer to the Earth than it is to the Sun



5. In the figure above, which of the following is the pathway of light that allows the child to see the ball?
- A. light bulb * child's eyes * ball
 - B. Child's eyes * light bulb * ball
 - C. Ball * light bulb * child's eyes
 - D. Light bulb * ball * child's eyes

Questions 6-7 Some people have proposed that ethyl alcohol (ethanol), which can be produced from corn, should be used in automobiles as a substitute for gasoline.

6. Assuming that gasoline and ethyl alcohol cost the same per gallon, outline a plan for comparing the cost of using gasoline to the cost of using ethyl alcohol.

7. Discuss two environmental impacts that could result from substituting ethyl alcohol for gasoline.

Answer key to multiple-choice questions: 2 = A 3 = C 4 = B 5 = D