EXPLORE® Test Content and Sample Test Questions

ENGLISH TEST (30 minutes)

25 questions—Usage/Mechanics
15 questions—Rhetorical Skills
40 questions

This test measures your understanding of standard written English—punctuation, grammar and usage, and sentence structure (Usage/Mechanics)—and your understanding of the use of strategy, organization, and style in writing (Rhetorical Skills).

MATHEMATICS TEST (30 minutes)

19 questions—Pre-Algebra/Algebra
7 questions—Geometry
4 questions—Statistics/Probability
30 questions

This test measures your mathematical reasoning. The test focuses on your ability to reason in math rather than on how well you have memorized formulas or can do involved computations. Items on the test cover four areas—knowledge and skills, direct application, understanding concepts, and integrating conceptual understanding—in the areas of pre-algebra, elementary algebra, geometry, and statistics and probability.

READING TEST (30 minutes)

30 questions

This test measures your reading comprehension by focusing on skills you must use when studying written materials from different subject areas. These skills include referring to details in the passage, drawing conclusions, and making comparisons and generalizations. The test does not cover information outside the passages, vocabulary taken out of context, or formal logic.

The test includes passages that are typical of the materials you might read in school, including prose fiction (passages based on short stories or excerpts from short stories or novels), humanities (passages on topics like art, music, architecture, theater, or dance), and social sciences (passages on topics like history, social issues, popular culture, and current events).

SCIENCE TEST (30 minutes)

28 questions

This test measures the scientific reasoning skills you have developed. It presents six sets of scientific information in one of three different formats: data representation (graphs, tables, and other forms), research summaries (descriptions of several related experiments), or conflicting viewpoints (two or more hypotheses that are inconsistent with one another). The test measures how well you understand the scientific information and can draw conclusions from it.

Materials for this test are drawn from the life sciences, Earth/space sciences, and physical sciences. The test emphasizes your scientific reasoning ability rather than how well you can recall scientific facts, or your skill in mathematics or in reading.

Sample Test Questions

The following pages provide several sample test questions from each of the four EXPLORE® tests. They are intended to illustrate the general types of questions included in the EXPLORE tests. An answer key is provided at the end of each section.

ENGLISH TEST

DIRECTIONS: In the passage that follows, certain words and phrases are underlined and numbered. In the right-hand column, you will find alternatives for each underlined part. You are to choose the one that best expresses the idea, makes the statement appropriate for standard written English, or is worded most consistently with the style and tone of the passage as a whole. If you think the original version is best, choose "NO CHANGE."

You will also find questions about a section of the passage, or about the passage as a whole. These questions do not refer to an underlined portion of the passage, but rather are identified by a number or numbers in a box. Sometimes, the paragraphs or the sentences of a paragraph will be numbered and referred to in these questions.

For each question, choose the alternative you consider best and fill in the corresponding circle on your answer sheet. Read each passage through once before you begin to answer the questions that accompany it. You cannot determine most answers without reading several sentences beyond the question. Be sure that you have read far enough ahead each time you choose an alternative.

Life in My Family

[1]

[1] When the floor is buffed to a shine, I can get up enough speed to hang ten the entire length of the kitchen. [2] In my family we're a little wild and crazy—that is, we kids are wild and our mom is crazy. [3] But she's crazy in a good way. [4] For instance, while other moms might plead threaten, or yell to get chores done, our mom turns everything into a game. [5] She organizes wall washing competitions, followed by floor mopping contests, followed by towel surfing, which happens to be my specialty. [2]

1. **A.** NO CHANGE
B. plead, threaten, or yell
C. plead threaten or yell,
D. plead, threaten or, yell

2. For the sake of unity and coherence, Sentence 1 should be placed after Sentence:

F. 2.
G. 3.
H. 4.
J. 5.

[2]

3 We've come up with a lot of odd schemes to make grocery shopping fun. Once we pretended we were visitors as a future time. Mom acted casual as we pushed the cart through the store speaking gibberish to one another. When a curious shopper had rose an eyebrow, Mom merely smiled and spoke a greeting in our "future" tongue.

[3]

When chores are done, and when the weather is nice, I usually head for the beach or a park. Unfortunately, to get to these places, the old station wagon is piled into by us. The family car looks terrible, and it doesn't have air-conditioning.

[4]

One hot afternoon, we hatched an idea to roll up the windows and make it *look* as if we had air-conditioning. Tilting our noses in the air, we pretended we were positively freezing from all the cold air. In spite of our charade, no one seemed the slightest bit impressed

3. Which of the following sentences, if added at this point, would most effectively lead the reader from Paragraph 1 to the description of grocery shopping in Paragraph 2?

- **A.** Another chore we help Mom with is grocery shopping.
- **B.** Mom makes us have fun when we do chores.
- **C.** We speak gibberish when we do chores.
- **D.** Grocery shopping is so awful that we have to speak gibberish just to make it fun.

4.
- **F.** NO CHANGE
- **G.** near
- **H.** by
- **J.** from

5.
- **A.** NO CHANGE
- **B.** had risen
- **C.** rose
- **D.** raised

6.
- **F.** NO CHANGE
- **G.** we
- **H.** they
- **J.** she

7.
- **A.** NO CHANGE
- **B.** the old station wagon must be piled into by us.
- **C.** we have to pile into our old station wagon.
- **D.** it is necessary that our old station wagon be piled into.

8.
- **F.** NO CHANGE
- **G.** Pretending, we tilted our noses in the air that
- **H.** To pretend, we tilted, in the air, our noses so
- **J.** We pretended, it being that by tilting our noses in the air

with us. Finally, when Mom couldn't see through her perspiration to drive. She insisted we roll down the
9

windows. 10 Never have I more appreciated *natural* air-conditioning. Since then we've been a little less wild and crazy. When we're tempted to try another prank, Mom likes to remind us of the time our half-baked idea nearly left us that way.

9. **A.** NO CHANGE
B. drive. She then
C. drive, she
D. drive. So she

10. Suppose the writer wanted to add a sentence at this point to illustrate the dramatic effect of rolling down the car windows. Which of the following sentences would most effectively achieve this effect?

F. What a relief!
G. This time we were a little too wild.
H. We felt a change.
J. The car is cooler.

Answer Key

1.	B
2.	J
3.	A
4.	J
5.	D
6.	G
7.	C
8.	F
9.	C
10.	F

MATHEMATICS TEST

DIRECTIONS: Solve each problem, choose the correct answer, and then use your pencil to fill in the corresponding circle on your answer sheet.

Do not use too much time on any one problem. Solve the ones you can do quickly; then return to the others in the time you have left.

You should have a calculator to use for this test. You may use your calculator for any problems you choose, but some of the problems may best be done without using a calculator.

Note: Unless the problem indicates otherwise, you should assume all of the following:

1. Diagrams are NOT necessarily drawn to scale.
2. Geometric figures lie in a plane.
3. The word *line* indicates a straight line.
4. The word *average* indicates arithmetic mean. For example, the average of 2, 6, and 7 is $\left(\frac{2+6+7}{3}\right)$.

Please do NOT write in your test booklet. You may do your figuring on the scratch paper provided. Your scratch paper will be collected along with your test booklet.

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1. $0.003 + 4.1 = ?$

A. 4.003
B. 4.1003
C. 4.103
D. 4.13
E. 4.4

2. What is the least expensive shower head on the chart below that will NOT deliver more than 3 gallons of water per minute (gpm)?

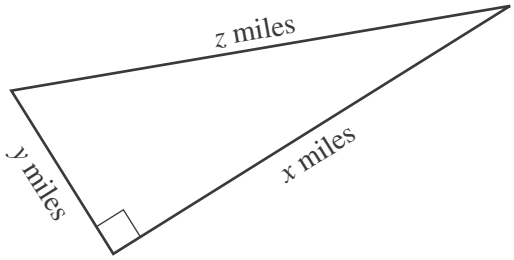
Information from *Consumer Reports*, "How to Save Water." ©1990 by Consumers Union of U.S., Inc.

	Brand and Model	Price	Maximum gpm
F.	Sears 20173	$23	3.4
G.	Teledyne 5 SM-3U	$43	2.6
H.	Alsons 462PB	$11	2.6
J.	Alsons 45C	$58	2.7
K.	Moen 3981	$95	2.4

3. If $4 + \frac{x}{6} = 6$, then $x = ?$

A. 12
B. 16
C. 32
D. 40
E. 60

4. Which of the following is a general expression for the perimeter of the right triangle below, in miles?



F. $x + y + z$
G. $2(x + y)$
H. $\frac{x}{2} \cdot \frac{y}{2}$
J. $\frac{xy}{2}$
K. xy

5. Julia earned \$5.20 per hour for $3\frac{1}{2}$ hours and Suki earned \$4.80 per hour for $5\frac{1}{4}$ hours. Who earned more money and how much more?

A. Julia earned \$7.00 more.
B. Julia earned \$17.00 more.
C. Suki earned \$7.00 more.
D. Suki earned \$17.00 more.
E. They each earned the same amount of money.

6. Tomas bought a new book on sale. It regularly cost \$17.95, but was on sale for 20% off. How much did the book cost Tomas?

F. \$ 3.59
G. \$14.36
H. \$15.95
J. \$17.59
K. \$17.75

7. Kane bought a bag of taffy at the candy store. He got 10 vanilla for his mom, 15 chocolate for his dad, 6 licorice for his sister, and 22 peppermint for himself. On the way home, Kane's sister grabbed a piece out of the sack without looking. What are the chances that she pulled out a licorice piece?

A. $\frac{1}{6}$
B. $\frac{6}{6}$
C. $\frac{6}{47}$
D. $\frac{6}{53}$
E. $\frac{47}{53}$

8. What is the remainder when 189,540 is divided by 27 ?

F. 0
G. 7
H. 13
J. 250
K. 7,020

9. The sum of the measures of the 3 angles in a triangle is 180°. If the measure of one angle in a triangle is 40°, which of the following could NOT be the measure of another angle in the triangle?

A. 1°
B. 40°
C. 90°
D. $99\frac{1}{2}°$
E. 141°

10. Your teacher used the equation $x + 19 = 120$ when showing the class how to start to solve the following problem.

> Josie gets paid 5¢ for each newspaper she delivers. She starts with 120 newspapers. If she has 19 newspapers left when she finishes, how much will she be paid for delivering newspapers?

In the teacher's equation, the variable x represents the number of:

F. dollars Josie will be paid.
G. cents Josie will be paid.
H. cents Josie would be paid for delivering the rest of the newspapers.
J. newspapers Josie has left.
K. newspapers Josie delivered.

Answer Key

1.	C
2.	H
3.	A
4.	F
5.	C
6.	G
7.	D
8.	F
9.	E
10.	K

READING TEST

DIRECTIONS: The passage below is followed by ten questions. After reading the passage, choose the best answer to each question and fill in the corresponding circle on your answer sheet. You may refer to the passage as often as necessary.

PROSE FICTION: This passage is adapted from John Steinbeck's novel *The Red Pony* (©1961, 1965 by John Steinbeck).

When the triangle sounded in the morning, Jody dressed more quickly even than usual. In the kitchen, while he washed his face and combed back his hair, his mother addressed him irritably. "Don't you go out until you get a good breakfast in you."

He went into the dining room and sat at the long white table. He took a steaming hotcake from the platter, arranged two fried eggs on it, covered them with another hotcake and squashed the whole thing with his fork.

His father and Billy Buck came in. Jody knew from the sound on the floor that both of them were wearing flat-heeled shoes, but he peered under the table to make sure. His father turned off the oil lamp, for the day had arrived, and he looked stern and disciplinary, but Billy Buck didn't look at Jody at all. He avoided the shy questioning eyes of the boy and soaked a whole piece of toast in his coffee.

Carl Tiflin said crossly, "You come with us after breakfast!"

Jody had trouble with his food then, for he felt a kind of doom in the air. . . . The two men stood up from the table and went out into the morning light together, and Jody respectfully followed a little behind them. He tried to keep his mind from running ahead, tried to keep it absolutely motionless.

His mother called, "Carl! Don't you let it keep him from school."

They marched past the cypress, where a singletree hung from a limb to butcher the pigs on, and past the black iron kettle, so it was not a pig killing. The sun shone over the hill and threw long, dark shadows of the tree and buildings. They crossed a stubble-field to shortcut to the barn. Jody's father unhooked the door and they went in. They had been walking toward the sun on the way down. The barn was black as night in contrast and warm from the hay and from the beasts. Jody's father moved over toward the one box stall. "Come here!" he ordered. Jody could begin to see things now. He looked into the box stall and then stepped back quickly.

A red pony colt was looking at him out of the stall. Its tense ears were forward and a light of disobedience was in its eyes. Its coat was rough and thick as an Airedale's fur and its mane was long and tangled. Jody's throat collapsed in on itself and cut his breath short.

"He needs a good currying," his father said, "and if I ever hear of you not feeding him or leaving his stall dirty, I'll sell him off in a minute."

Jody couldn't bear to look at the pony's eyes any more. He gazed down at his hands for a moment, and he asked very shyly, "Mine?" No one answered him. He put his hand out toward the pony. Its gray nose came close, sniffing loudly, and then the lips drew back and the strong teeth closed on Jody's fingers. The pony shook its head up and down and seemed to laugh with amusement. Jody regarded his bruised fingers. "Well," he said with pride—"Well, I guess he can bite all right." The two men laughed, somewhat in relief. Carl Tiflin went out of the barn and walked up a side-hill to be by himself, for he was embarrassed, but Billy Buck stayed. It was easier to talk to Billy Buck. Jody asked again—"Mine?"

1. After he showed Jody the pony in the barn, Carl Tiflin went off by himself because he felt:

A. lonely.
B. sad.
C. embarrassed.
D. amused.

2. The inside of the barn is described in the passage as:

F. dark and cold.
G. bright and warm.
H. airless but bright.
J. dark and warm.

3. It can reasonably be inferred from the second "Mine?" (line 66) uttered by Jody that he:

A. won't curry the horse after school.
B. can hardly believe the pony is his.
C. is wondering how he's going to afford the pony.
D. is embarrassed by what his father has done.

4. Jody had trouble seeing in the barn when he first arrived there because:

F. he was looking around for his pony.
G. all he could see was the red pony.
H. he had just been walking toward the sun.
J. he had just taken a shady shortcut to the barn.

5. Jody realized he was not headed for a pig killing because he:

A. ate breakfast with his father and Billy Buck.
B. saw his father was wearing flat-heeled shoes.
C. would not be able to miss school.
D. walked past the singletree and black iron kettle.

6. The narrator's statement that Jody "tried to keep his mind from running ahead" (lines 25–26) suggests that Jody:

F. is trying not to get too worried or excited about what might happen.
G. has great respect for his father and especially for Billy Buck.
H. wants to avoid thinking about how he'll be punished for missing school.
J. knew exactly why he had to follow his father and Billy Buck.

7. The narrator says that Jody finds his father:

A. harder to talk with than Billy Buck.
B. harder to talk with than his mother.
C. easier to talk with than Billy Buck.
D. just as easy to talk to as his mother or Billy Buck.

8. When the narrator says that the two men laughed when Jody said "Well, I guess he can bite all right" (line 61), it can reasonably be inferred that the men felt:

F. the tension that had built up was relieved.
G. confused about what to do to the horse.
H. embarrassed that the horse had been so mean.
J. surprised that Jody had all his fingers left.

9. The pony that Jody finds in the stall is characterized by a:

I. rough coat.
II. well-curried mane.
III. gray nose.

A. I only
B. III only
C. I and II only
D. I and III only

10. The fact that Jody's father is described as looking "stern and disciplinary" (lines 15–16) suggests that he is:

F. extremely cruel and mean to Jody.
G. unwilling to look Jody in the eye.
H. somewhat distant from Jody.
J. annoyed at that moment with Jody's mother.

Answer Key

1.	C	**5.**	D	**9.**	D
2.	J	**6.**	F	**10.**	H
3.	B	**7.**	A		
4.	H	**8.**	F		

SCIENCE TEST

DIRECTIONS: The passages below are each followed by several questions. After reading a passage, choose the best answer to each question and fill in the corresponding circle on your answer sheet. You may refer to the passages as often as necessary.

Passage I

The table below lists several minerals and the chemical elements of which they are made. The common crystal colors for each mineral and the common uses for each mineral are listed in the table. Also listed are two physical properties of the minerals: the density in grams/cubic centimeter (g/cm^3) and the hardness (10 is the hardest). Hardness is determined by using the minerals to scratch materials of known hardness.

Mineral	Elements	Color	Uses	Density (g/cm^3)	Hardness
Diamond	carbon	clear, blue, yellow	gemstones, abrasives	3.5	10
Corundum	aluminum, oxygen	red, blue	gemstones, abrasives	3.9–4.1	9
Beryl	beryllium, aluminum, silicon, oxygen	green, blue-green	gemstones, source of beryllium for airplane alloys	2.7–2.9	7.5
Tourmaline	aluminum, boron, silicon, oxygen, hydrogen	red, blue	gemstones, high-pressure gauges	3.0–3.3	7
Spinel	magnesium, aluminum, oxygen	red, yellow, greenish-brown	gemstones	3.5–4.1	8
Garnet	magnesium, iron, aluminum, silicon, oxygen	red	gemstones, abrasives	3.6–4.3	7.5
Topaz	aluminum, silicon, oxygen, fluorine, hydrogen	clear, yellow, blue-green	gemstones	3.5	8
Quartz	silicon, oxygen	clear, purple, yellow	gemstones, pressure gauges, glass, heat-ray lamps, abrasives	2.7	7

1. According to the data, one could generalize that minerals used in abrasives:

- **A.** contain carbon.
- **B.** have a hardness of 7 or above.
- **C.** are always red in color.
- **D.** have a density above 4.0 g/cm^3.

2. According to the data in the table, which of the following minerals is the softest?

- **F.** Corundum
- **G.** Beryl
- **H.** Tourmaline
- **J.** Spinel

3. According to the data in the table, if you had a blue gemstone, which of the following could it be?

I. Corundum
II. Tourmaline
III. Quartz

A. II only
B. III only
C. I and II only
D. II and III only

4. Many types of sand are made entirely of silicon and oxygen. Which mineral in the table is most likely found in those types of sand?

F. Corundum
G. Spinel
H. Topaz
J. Quartz

Passage II

Most newly hatched ducks are covered with a dull *plumage* (feathers). When the ducks reach maturity, the females in some species retain the dull plumage but the males develop brightly colored plumage. Adult males remain brightly colored during the fall and winter of each year. During spring their plumage becomes dull again.

Several theories exist concerning the purpose of the unique appearance of the male ducks. Two scientists discuss their theories.

Scientist 1

The distinct color and pattern of the males enable females to identify males of their own species. Males of each species have a characteristic plumage that differs from that of males of other species. Females mate only with males of their own species. They reject males of all other species.

Females tend to prefer to mate with those males within their species that have the brightest plumage. These selected males tend to have an intimidating effect on other males, who are inclined to stay away and not mate with the females.

In addition, the brightly colored males tend to be healthier than the less brightly colored males. This gives them an advantage in attracting females and producing offspring. Their offspring also tend to be healthy.

Scientist 2

The distinct color of the male plumage helps them defend their territories against others of their own species and own sex. They warn other males to stay out of their territories by singing and displaying their plumage.

If this theory is correct, the males fight primarily for territory and not over mates. After mating, the males stand guard over the females. If an intruder enters the territory, the males display their bright feathers to distract the intruder and lure it away. Occasionally the males may resort to physical combat to defend their territories.

The brightly colored males typically own territories with abundant food supplies. They are able to provide sufficient food for their offspring, whose chances of survival are excellent.

5. According to Scientist 1, brightly colored males differ from dull-colored males in that brightly colored males are:

- **A.** unhealthy.
- **B.** better able to attract mates.
- **C.** better able to lure away males of the same species.
- **D.** unable to defend large territories.

6. According to Scientist 2, when an intruder approaches a male duck's territory, the male duck may:

- **F.** hide from the intruder.
- **G.** sneak away with the offspring.
- **H.** fly to the nest to attack his mate.
- **J.** sing loudly and flap his wings at the intruder.

7. All of the following behaviors of male ducks are consistent with Scientist 2's viewpoint EXCEPT that the males:

- **A.** stand guard over the nests.
- **B.** fight the intruders that enter their territories.
- **C.** sit on the eggs while the females guard the territory.
- **D.** distract intruders away from the location of the young.

8. The most important idea that underlies both scientists' theories about ducks is that the:

F. external appearance of the male and female ducks is similar.
G. external appearance of the male and female ducks is different.
H. males are colored to blend in with their surroundings.
J. females are larger and more striking in color and patterning than males.

9. The discovery that females prefer to mate with dull-colored males would have which of the following effects on the theories of Scientists 1 and 2 ?

A. It would lend support to Scientist 1's theory only.
B. It would disprove Scientist 1's theory.
C. It would lend support to Scientist 2's theory only.
D. The effect it would have on either scientist's theory could not be determined.

10. Scientist 1 would predict that female ducks select their mates during which of the following seasons?

F. Spring or summer
G. Fall or winter
H. Fall or summer
J. Spring, summer, or fall

Passage III

Several factors affect the *rate* (how fast the chemicals react) at which a chemical reaction proceeds. Reaction rate is affected by the *concentrations* (relative amounts per unit volume) of the chemicals being reacted and the temperature at which the reaction takes place. The addition of a *catalyst* (substance that affects the rate of a reaction without itself being used up) can also increase the reaction rate.

When Solutions A and B (two colorless liquids) are mixed, a reaction takes place. When the reaction is completed, the mixture turns dark blue.

Experiment 1

Students mixed 20 ml each of Solutions A and B at 22.2° C, and stirred the mixture as the reaction proceeded. The students recorded the time that it took for the mixture to turn dark blue. This was repeated four more times. The average time for the five trials was 29 seconds (sec).

The students then mixed 20 ml of Solution A, 10 ml of Solution B, and 10 ml of distilled water, all at 22.2° C. The average reaction time for five trials was 71 sec.

The students then mixed 10 ml of Solution A, 10 ml of distilled water, and 20 ml of Solution B, all at 22.2° C. The average reaction time for five trials was 72 sec.

Experiment 2

The students mixed 20 ml each of Solutions A and B at three different temperatures. Each time, they stirred until the reaction was complete. The average reaction times for five trials are shown in the table.

Temperature (°C)	Time until reaction was completed (sec)
12.0	58
22.2	29
32.2	15

Experiment 3

The students added 5 drops of copper sulfate, a catalyst, to 20 ml of Solution A. When this was mixed at 22.2° C with 20 ml of Solution B, the average reaction time for 5 trials was 19 sec.

11. Which of the following indicated that the reaction was completed in the experiments?

- **A.** Solution A was added to Solution B.
- **B.** The two solutions were stirred.
- **C.** The mixed solutions turned clear and colorless.
- **D.** The mixed solutions turned dark blue.

12. Based on the results of Experiment 2, what is the relationship, if any, between the temperature of the mixture and the reaction time?

- **F.** As the temperature increases, the reaction time decreases.
- **G.** As the temperature increases, the reaction time stays the same.
- **H.** As the temperature decreases, the reaction time increases then decreases.
- **J.** There is no relationship between the temperature and the reaction time.

13. How is the experimental design of Experiment 1 different from that of Experiment 2 ?

- **A.** Experiment 1 varies the concentration of the solutions and Experiment 2 varies the temperature of the mixture.
- **B.** Experiment 1 varies the temperature of the mixture and Experiment 2 varies the concentration of the solutions.
- **C.** Experiment 1 varies the concentration of the solutions and Experiment 2 adds a catalyst.
- **D.** Experiment 1 adds a catalyst and Experiment 2 varies the temperature of the mixture.

14. Based on the results of Experiment 2, one would predict that if the reaction was repeated at 2° C, the reaction time would be approximately:

F. 8 sec.
G. 30 sec.
H. 60 sec.
J. 116 sec.

15. Based on the results of Experiments 2 and 3, which of the following conditions would most likely lead to the longest reaction time?

A. A reaction temperature of 50° C and the use of a catalyst
B. A reaction temperature of 50° C and no catalyst
C. A reaction temperature of 30° C and the use of a catalyst
D. A reaction temperature of 10° C and no catalyst

Answer Key

1.	B	**6.**	J	**11.**	D
2.	H	**7.**	C	**12.**	F
3.	C	**8.**	G	**13.**	A
4.	J	**9.**	B	**14.**	J
5.	B	**10.**	G	**15.**	D