Prestwick House

Free Lesson Plan

Informational Text:

New (March 2016) SAT Reading Test Practice

CCSS.ELA-Literacy.RL.9-10.1, 9-10.2, 9-10.4, 9-10.6 | TEKS 110.31-34

Objectives:

Familiarize students with the latest revision of the SAT Reading test

Provide an example of the latest SAT Reading test format and requirements

Provide a practice opportunity for the latest SAT Reading test

Time:

1 class period

Materials:

Each student needs his or her own copy of the *2016 SAT Reading Test Practice* handout (included with this lesson).

Procedure:

1 – Introduce the new SAT Reading Test

Tell your students that the English portion of the new SAT will comprise two parts: 1. the Reading Test, and 2. the Writing and Language Test. This lesson provides practice for the Reading Test.

Students will have 65 minutes to complete the full SAT Reading Test, which contains a total of five exercises and 52 questions. Each Reading exercise will comprise one passage or one pair of passages, followed by 10-11 questions. Some passages will include infographics, usually in the form of charts or graphs. The passage subjects will always include classic literature, U.S. founding documents, science, and social sciences.

The Reading Test questions will fall into three major categories:

1. *Analysis:* Provide answers that show that the reader understands and comprehends the text and infographics.

2. *Command of Evidence:* Locate the specific information in a passage that provides the correct answer to a question.

3. *Words in Context:* Determine the meaning of a word based on its context in a passage.

2 – Administer the practice exercise.

Distribute the handout to each student.

Instruct students to carefully read the passage and complete the questions that follow it.

Remind them that during the real SAT Reading Test, they will have an average of 13 minutes to complete each exercise. Allow them additional time for this introductory lesson (at least 20 minutes) so that they can become familiar with the test language and the question types.

3 – As a class, review the answers to the Reading Test.

Supply the correct answer for each of the questions and have students either grade themselves or exchange tests with each other for grading.

Ask students to identify the major category type of each question. Ask them to explain the process they used for determining the answer to each of the questions.

Standards:

Common Core Standards – Reading: Literature

CCSS.ELA-Literacy.RL.9-10.1, 9-10.2, 9-10.4, 9-10.6

Texas Essential Knowledge and Skills

TEKS 110.31-34

References:

Reed, Daniel (ed.). *2016 SAT Enhanced Practice Pack*. Smyrna, DE. Publisher. Prestwick House.

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2016 SAT Reading Test Practice Handout

A set of questions follows this passage and graphics. Read the passage and then choose the best answer to each of the questions.

Questions 1 – 10 are based on the following passage.

This passage is adapted from an article by R. Natbony about antibiotic-resistant microbes.

Antibiotic resistance occurs when an antibiotic no longer effectively fights, kills, or controls bacteria, which allows bacteria to flourish unimpeded. Like most forms of life, bacteria want to survive and adapt as necessary when challenged. Though some bacteria are naturally resistant to antibiotics, random gene mutations and the acquisition of immunity from other bacteria can virtually change the species of bacteria and render even the most proven, dependable antibiotics useless.

Most resistance-related gene mutations cause enzymatic inactivation, which allows the bacteria to produce enzymes that incapacitate antibiotics. The means of inactivation that the enzyme performs is specific to the antibiotic; for example, in response to exposure to the antibiotic streptomycin, mutated bacteria produce enzymes that prevent the antibiotic from binding to its target ribosome, which subsequently blocks the antibiotic from interfering with protein synthesis needed for survival.

Acquisition of resistance from other bacteria occurs through a process called conjugation, during which bacteria can transfer plasmids (small, independent DNA molecules), or transposons (small pieces of DNA that can change position), to other bacteria. Both plasmids and transposons can cause changes to the host's DNA, and some of the changes can manifest as traits of antimicrobial resistance.

According to the U.S. Centers for Disease Control and Prevention, antibiotic-resistant bacteria infect more than two million people each year, causing at least 23,000 deaths. These calculations, however, focus solely on the infections of hospitalized patients and do not include infections that occur after surgery or chemotherapy, both of which also yield a significant number of infections—39% to 51% of post-surgery infections are caused by resistant bacteria, while approximately 27% of post-chemotherapy infections have the same cause. Studies from the Center for Disease Dynamics, Economics, and Policy predict that a mere 10% decrease in antibiotic efficacy will cause an additional 2,100 patients to die annually, and increase the total of annual infections by 40,000 (see figures 1 and 2).

Recent scientific strides show promise in fighting resilient strains of bacteria. Duke University has developed a set of computer algorithms called OSPREY (Open Source Protein Redesign for You) to predict changes in bacterial DNA that would create immunities to specific antibiotics before the antibiotics are even tested, superseding the conventional method of making calculations based exclusively on precedent. OSPREY tests of antifolates, a class of antibiotic, successfully predicted how the widespread bacteria MRSA

(Methicillin-resistant Staphylococcus aureus) would mutate in response to treatment. Live MRSA experiments confirmed the predictions, showing that it is possible to predict mutations in bacteria, as well as fostering the hope of conducting the same tests on viruses or other harmful organisms.

While mathematical modeling of proteins will be a part of the future of superbug countermeasures, so will the discovery of new antibiotics, which is, essentially, the act of staying one step ahead of the latest resistant mutation. Discovering new antibiotics requires the efficient study of living microbes—a task that has been difficult, traditionally. A soil sample in nature might contain 1,000 different species of bacteria, but, until recently, when a sample was brought to a laboratory, only a tiny fraction of the microbes survived to form observable colonies. Around the year 2,000, researchers realized that the only way to ensure microbes would survive in a lab was to bring the microbes' environment to the lab with the germs. Using the diffusion chamber method, researchers control the location of microbe colonies while allowing them to receive the nutrients and stimulation of their native environments. Since its inception, the diffusion chamber method has allowed for the study of more than 10,000 colonies and the discovery of 25 potential antibiotics, including teixobactin, which seems to be inert to mammalian tissue but toxic to a broad range of bacteria, including MRSA, owing to the way in which it attacks bacterial cell walls and renders mutative counteractions impossible or irrelevant. Even especially resilient bacteria such as those that cause tuberculosis seem to succumb to teixobactin before mutating, which leaves scientists very optimistic.

Until a universal antimicrobial drug becomes a reality, clinicians stress the responsibility of both providers and consumers to limit antibiotic use to cases of real need in order to slow the growth of superbugs. With viral fevers often lasting several days, and coughs lingering into weeks, patients ask for and doctors prescribe antibiotics that have no effect on viruses. Consumers might also reconsider what they eat, and avoid livestock and poultry treated with antibiotics not just for the purpose of preventing infection, but for the promotion of growth. Probiotic diets and specialized enzymes that foster the growth of naturally occurring, "helpful" bacteria should be considered as additives. Global change in antibiotic use will be slow but necessary as the toll of the superbugs increases.

Figure 1

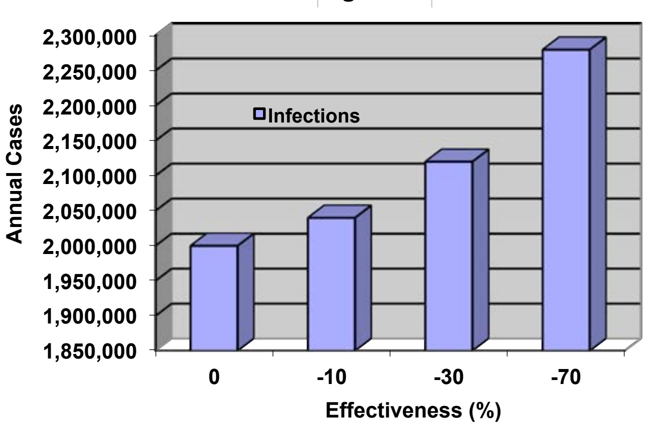

Figure 2

1

Choose the answer that best describes the purpose of the passage.

A) to persuade the medical industry to adopt the diffusion chamber process
B) to argue against antibiotic use in livestock
C) to inform about the threat of microbial resistance
D) to analyze the antibiotics industry politically

2

According to the passage, OSPREY is a

A) new class of antibiotic that does not cause defensive mutations in bacteria.
B) a system of predicting how bacteria will mutate when treated with specific drugs.
C) the department of the university responsible for conducting research on microorganisms.
D) name of a bird of prey because of the aggressive strain of useful bacteria engineered through the program's research.

3

Choose the lines from the passage that provide the best evidence for your answer to the previous question.

A) lines 45-50 ("Duke…even tested")
B) lines 51-50 ("OSPREY…mutate")
C) lines 55-59 ("Live MRSA…organisms")
D) lines 60-62 (While mathematical…antibiotics")

4

As used in line 26, *manifest* most nearly means

A) list
B) become
C) divide
D) appear

5

The tone of the passage suggests that the author would agree with which one of the following statements?

A) There no doubt that antibiotic-resistant microbes will result in worldwide tragedy, eventually.
B) The casualties incurred by reducing the use of antibiotic prescriptions are a necessary evil.
C) Mathematical modeling of proteins will never be an adequate substitute for field research.
D) Through science, humanity, like the resilient bacteria, will find a way to protect itself from resistant microbes.

6

Choose the words or phrases from the passage that provide the best evidence to support your answer to the previous question.

A) "plasmids and transposons can cause changes" (line 25)
B) "flourish unimpeded" and "annual infections" (lines 3, 42)
C) "show promise" and "very optimistic" (lines 44, 87)
D) "foster the growth" and "toll of the superbugs" (lines 99, 102)

7

As it is used in line 81, the word *inert* most nearly means

A) indifferent.
B) risky.
C) harmless.
D) inoffensive.

8

The passage describes all of the following tools or methods for fighting antibiotic-resistant bacteria EXCEPT

A. a drug called teixobactin.
B. supplementing probiotics as food additives.
C. administering antibiotics only when needed.
D. treatment of patients by diffusion chamber.

9

Based on the data the chart shows, choose the most appropriate title for Figure 2.

A) Fluctuating Trends of Antibiotic Resistance as a Function of Time
B) Increase in Antibiotic Resistance as a Function of Number of Infections and Deaths
C) Historic Percentage of Population with Antibiotic Resistance as a Result of Increased Infections
D) Deaths Projected Due to Increase in Antibiotic Resistance

10

According to the data in Figure 1, the number of people infected with drug-resistant microbes will

A) triple if antibiotic effectiveness increases from 10% to 70%.
B) remain near 2 million if antibiotic effectiveness can be maintained at its present value.
C) double between a decrease of 10% and 70% effectiveness.
D) rise by nearly 300,000 new cases within four years.

Answer Key – 2016 SAT Reading Test Practice Handout

1) C The passage defines resistant bacteria, explains how it occurs, describes the rate at which it occurs, and describes the ways in which science is attempting to curtail it, making (C) the most accurate answer. Choice (B) is only a minor, contributing detail.

2) B Lines 46-48 define OSPREY as a "set of computer algorithms" designed to "predict changes in bacterial DNA that would create immunities."

3) A Lines 45-50 introduce and describe the concept and purpose of OSPREY.

4) D Choices (B) and (C) do not make grammatical sense in the context. Choice (A) incorrectly assumes the noun form of *manifest*.

5) D The author's emphasis on scientific advancement, ("strides" [line 44]), and the "future of superbug countermeasures," (line 61), create an optimistic tone that makes choice (A) incorrect. The author discusses limiting the use of antibiotics to "cases of real need," (line 91), which makes choice (B) incorrect. Choice (C) incorrectly creates a comparison that does not occur in the passage.

6) C In addition to their conspicuous inclusion within an otherwise formal passage, the subjective phrases in choice (C) most effectively contribute to a subtly optimistic tone, in spite of the ominous subject of the passage.

7) C The syntax of the phrase "inert to mammals but toxic to…bacteria," (lines 81-82), contrasts *inert* and *toxic*, and the scientists are "optimistic" about the discovery of teixobactin, (line 87), which makes choice (B) incorrect. Choices (A) and (D) are awkward because they personify "bacteria" (*indifferent)* and "tissue." (*inoffensive*).

8) D Diffusion chambers, as described in lines 73-76, are used to grow bacteria colonies for research—not as a weapon to use directly against resistant microbes.

9) D According to lines 38-43, both charts are projections ("Studies…predict"). Figure 2 plots the number of annual deaths (vertical axis) against the decreasing effectiveness of antibiotics (horizontal axis), which renders choice (D) correct.

10) B Figure 1 plots a *decrease* in effectiveness, not an increase, which makes choice (A) incorrect. Doubling the cases would require an increase of 2 million new cases, which makes choice (C) incorrect. Time is not projected on the chart, beyond the single year case data, which makes choice (D) incorrect.