FOCUS: Answering multiple-choice reference questions about longer passages.

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DIRECTIONS: Read the passage and the reference questions that follow. Mark the choice that best answers each question.

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The Discovery of Penicillin

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DIRECTIONS: Read the passage and the reference questions that follow. Mark the choice that best answers each question.

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Although people should never underestimate the value of hard work and logical thinking, luck, when it appears, often plays a role in most scientific breakthroughs. What has been called "the supreme example in all scientific history" occurred in the late summer of 1928, when the Scottish bacteriologist Alexander Fleming went on vacation, leaving in his lab a culture plate recently inoculated with the bacterium *Staphylococcus aureus.*

While Fleming was away, an extraordinary chain of events occurred. First, a nine-day cold spell lowered the laboratory temperature to a point where the staphylococcus on the culture plate could not grow. During this time, spores from a colony of the mold *Penicillium notatum,* which were being grown on the floor below, wafted up into Fleming's lab and landed in the culture plate. The temperature then rose, and both staphylococcus and penicillium began to grow. On returning from vacation, Fleming discarded the culture plate into a tray of antiseptic, intending to sterilize it. Evidently, though, this plate did not sink deeply enough into the antiseptic, because when Fleming glanced at the plate a few days later, what he saw changed the course of human history. He noticed that the growing penicillium mold appeared to dissolve the colonies of staphylococci. Fleming realized that the mold must be producing a chemical that killed bacteria, and he spent several years trying to isolate that substance.

Finally, in 1939, the Australian pathologist Howard Florey and his researcher, Ernst Chain, managed to isolate the active substance, called penicillin. Penicillin was tested on mice, and its dramatic ability to cure infections in them was soon demonstrated, followed shortly thereafter by successful tests in humans. By 1943, penicillin was being produced on a large scale for military use and by 1944, it was being used on civilians. Since then, untold millions of lives have been saved. In 1945, Fleming, Florey, and Chain shared the Nobel Prize in Medicine.

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Penicillin has since become the most widely used antibiotic to date and is still used for many bacterial infections, including strep throat and meningitis. It brought about the biggest search in medical history, because it was reasoned that if there was one antibiotic in nature, there must be many more. Without the discovery of penicillin, the others might never have been discovered.

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1 The word **it** refers to

- ◯ value
- ◯ hard work
- ◯ logical thinking
- ◯ luck

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2 The word **where** refers to

- ◯ the laboratory
- ◯ a point of temperature
- ◯ the culture plate
- ◯ a chain of events

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3 The word **it** in paragraph 2 refers to

- ◯ Staphylococcus
- ◯ the plate
- ◯ the tray
- ◯ the antiseptic

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4 The phrase **that substance** refers to

- ◯ mold
- ◯ bacteria
- ◯ a chemical
- ◯ a colony of staphylococci

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5 The word **them** refers to

- ◯ mice
- ◯ tests
- ◯ infections
- ◯ Howard Florey and Ernst Chain

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Penicillin has since become the most widely used antibiotic to date and is still used for many bacterial infections, including strep throat and meningitis. It brought about the biggest search in medical history, because it was reasoned that if there was one antibiotic in nature, there must be many more. Without the discovery of penicillin, the others might never have been discovered.

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6 The word **then** refers to

- ◯ penicillin being isolated
- ◯ penicillin being tested on mice
- ◯ penicillin being tested on humans
- ◯ penicillin being used on civilians

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7 The word **more** refers to

- infections
- searches
- antibiotics
- nature

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8 The word **others** refers to

- antibiotics
- uses of penicillin
- Florey and Chain
- searches

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