DRILL 1

LITERARY NARRATIVE: This passage is adapted from the novel *Prima Ballerina* by Laurie Sigel (©2008 by Laurie Sigel). Alicia Alonso (born 1921) is a Cuban ballet dancer.

After the revolution, her life had become different in many ways, but the ballet was the thing that stood out in vivid color among her faded black-and-white memories of early childhood. Going to school was strange enough. Her older sister hadn't gone, because girls didn't, and her brother didn't, because they couldn't afford the fees. Under the new regime, however, not just poor children, but even poor girls went to school.

Nevertheless, school was at least something she had known about. That cold, bright day in January of 1967, when she boarded a rusty, sputtering bus for a class field trip to the *Palace of the Galician Centre* to see Alicia Alonso dance *Giselle,* felt like a rebirth to her, as if she were emerging from her cocoon into a new and bigger world. She couldn't believe she was going to actually walk into such a stately building, and was half-afraid that the marble statues keeping watch over the entrance would come to life and forbid her to enter. Enter she did though, and the grandness of the interior forced her into a hush, as if she were in the Cathedral, not a theater. She tried to walk quietly, but her hard-soled school shoes insisted on asserting their presence on the shiny floor and the immense marble staircase that curved insistently upward, seemingly to heaven.

Years later, Isabel Moreno would go to that theater many times, confidently clicking her high-heeled shoes on the same staircase, but that day as a schoolgirl, she hadn't known such places existed. She sat gingerly on the edge of her seat, afraid to lean back into the luxurious plush red upholstery. Then, when the music started and the dancers appeared, she couldn't lean back because she was so mesmerized by what was happening on stage. The elegance of the ballerinas in their pointe shoes was unlike anything she had seen; the dancers' movements, impeccably controlled and flawlessly in time with the music, transported Isabel to the joyful and yearning world of peasant girls celebrating the bountiful harvest and young love. She knew those feelings, but had never been able to imagine or express them as perfectly as the dancers did.

After that performance, Isabel had begged her mother to let her try out for the ballet school—she felt as though her life would never have meaning unless she could be one of those dancers on stage. She wasn't accepted, and wept for weeks afterwards. Even as an adult, every time she went to the ballet she felt that overwhelming sadness again that became so powerful it felt strangely joyful. The *pas de deux* of Siegfried and Odette in Act 2 of *Swan Lake* seemed to her a more truthful presentation of the awakening of love than anything she would experience in real life. When Cinderella had to leave the ball at the end of Act 2 for fear of being discovered as her dress turned back to rags, Isabel felt keenly the anxiety of living a relatively comfortable life, so far removed from the poverty of her childhood.

Isabel's son, Alejandro, had been trying to get her to come visit Miami for years, but she had never accepted, claiming that the paperwork was too complicated, that she couldn't take the time off from the hospital. Alejandro had tried to entice his mother with visits to the Miami Ballet, but Isabel wasn't interested. The dancers in Miami weren't as good as the Cuban dancers, she'd say. Eventually, Alejandro realized he had to tempt her with something she couldn't see in Havana. When he called Isabel to say he had purchased tickets to see Mikhail Baryshnikov in Miami, it was as if she were the mechanical doll Coppélia suddenly brought to life. She needed to see the legendary Russian dancer who had defected from the Soviet Union and abandoned classical ballet for modern dance with a fierceness that overcame her hesitations about paperwork and vacation time.

The program started with a short solo dance by Baryshnikov, and he was a marvel of unassuming, fluid grace. Isabel had often thought that male dancers were too assertively athletic, that the ballerinas were the real stars of the show. But that evening, in that short, simple dance, Isabel

understood that the classical Cuban ballet she so loved was only one small part of the expressive possibility of dance. She was transported back to that first day at the ballet when she was a schoolgirl, and she felt that same sense of wonder that she hadn't known about this heartbreakingly beautiful art form before. When the first dance ended, she was too stunned to clap. Alejandro touched her arm lightly, worried that Isabel hadn't liked it. After a moment, Isabel turned to her son, tears now leaking out of the corners of her eyes, and embraced him warmly. "*Gracias, mi hijo*," she whispered, "thank you, my son."

1. The point of view from which the passage is told is best described as that of:

- **A.** a son who understands his mother's thoughts.
- **B.** a narrator who relates events from the perspective of Alejandro.
- **C.** a school girl seeing classical ballet for the first time.
- **D.** an impartial narrator who understands what the characters are thinking.

2. The passage establishes all of the following about Isabel EXCEPT that she:

- **F.** had wanted to be a dancer when she was a child.
- **G.** could identify with some of the issues that Cinderella faced.
- **H.** felt that *Swan Lake* accurately portrayed the process of falling in love.
- **J.** enjoyed performing.

3. Which of the following statements best characterizes Alejandro's relationship with his mother, as it is presented in the passage?

- **A.** He feels isolated from her.
- **B.** He hopes to become a dancer to please her.
- **C.** He would like his mother to visit him.
- **D.** He is hesitant to spend time with her.

4. In the passage, lines 11–17 primarily serve to:

- **F.** suggest that the theater building was more important to Isabel than the ballet performance.
- **G.** describe the experience of going to the Cathedral.
- **H.** imply that the fear Isabel felt prevented her from enjoying the ballet.
- **J.** provide details that show how new and strange an experience it was.

5. Isabel's reaction to the *Giselle* performance is most clearly reflected in the way Isabel:

- **A.** "tried to walk quietly" (line 24).
- **B.** "couldn't lean back" (line 35).
- **C.** "wept for weeks afterwards" (lines 50–51).
- **D.** "embraced him warmly" (line 99).

6. The passage indicates that Alejandro ultimately decided to buy the tickets to see Baryshnikov because Alejandro:

- **F.** decided to take a chance on an obscure dancer.
- **G.** thought his mother loved Baryshnikov.
- **H.** was unable to get tickets to the Miami Ballet.
- **J.** realized that Baryshnikov was unlikely to perform in Cuba.

7. The phrase *insistently upward* (line 27) is most likely included in the passage to suggest that Isabel:

- **A.** was awed by the grandeur of the theater.
- **B.** believed the staircase led to heaven.
- **C.** became tired climbing the stairs.
- **D.** was afraid of heights.

8. The statement in lines 51–54 most nearly means that Isabel:

- **F.** was ashamed of the poverty of her childhood.
- **G.** thought her feelings could only be expressed through ballet.
- **H.** believed she would never experience love.
- **J.** was deeply moved by ballet performances.

9. The statement "she hadn't known such places existed" (lines 31–32) most directly refers to the fact that Isabel:

A. was unaware that there was anything like the *Palace of the Galician Center* in Cuba.
B. had never traveled to the country to celebrate the bounty of the harvest.
C. wore only shoes with no heels before she became an adult and started shopping at fancier shoe stores.
D. had heard stories about what the interior of the Cathedral looked like but had never visited it herself.

10. According to the passage, the event that made Isabel feel "as if she was the mechanical doll Coppélia suddenly brought to life" (lines 75–76) was:

F. the time her son called to say he had tickets to see Baryshnikov.
G. traveling to Miami to see Baryshnikov dance.
H. going to the see Alicia Alonso perform when she was a school girl.
J. attending the Miami Ballet's performance of *Giselle*.

DRILL 2

NATURAL SCIENCE: This passage is adapted from the article "The Microbial World Within" by Janet Fisher (©2013 by Science Monthly).

"I'm not your typical new dad," says biologist Rob Knight. "When the baby's diaper needs changing, I'm always excited to do it." Knight runs a lab that is part of the American Gut project, through which thousands of people have paid to send in samples of their feces to be analyzed, and his sixteen-month-old daughter's diapers play an important role in his research.

"I know it sounds a bit crazy that people pay to send us their poop, but we're using a crowd-funding model to both help pay for the research and get a wide variety of samples," explains Knight. As for his daughter's diapers, he's been studying the way her microbiome, the make-up of bacteria and other microbes in her digestive tract, has been changing since she was born.

Humans have around 100 trillion microbes living on and in them, typically of several hundred different species. They are not visible to the naked eye, but all together they account for about three pounds of a person's weight. Recent research indicates that they have a huge influence on our health.

What Knight and his colleagues do with the feces samples they receive from around the country is analyze the genetic material present to establish what kinds of microbes live in the donors' guts. They combine the genetic information with data from a survey that donors fill out and enter all the information in a giant database. Their goal is to have enough samples to be able to start to decode the influence of lifestyle on the characteristics of a microbiome. The survey asks donors questions about their diets, where they live, whether they have pets, and even how frequently they wash their hands, all of which can affect the numbers and kinds of bacteria present in a person's digestive tract.

Microbes were first discovered in the seventeenth century, but not extensively studied until Louis Pasteur began formulating his germ theory in the nineteenth century. Even then, the focus of microbial research mainly had to do with pathogens, the microbes that make us sick.

The technique used by Knight for analyzing the genetic makeup of microbes wasn't widely used until the 1980s. This genetic analysis allows scientists to see all the different strains of microbes that are present in a microbiome, the vast majority of which are beneficial. The understanding of just how many there are is leading to new research in treatments for chronic health problems such as obesity, cardiovascular disease, and even cancer.

For example, several studies have found that obese mice that are given transplants of intestinal colonies from lean mice lose weight. There is growing evidence to suggest that inflammation may be behind cardiovascular disease, diabetes, and other such conditions. Patrice Cani at the Université Catholique de Louvain in Brussels has been studying the role of microbes in maintaining a healthy epithelium, the lining of our digestive system that is supposed to allow nutrients through to the bloodstream, but keep toxins out.

Cani's research has shown that mice fed a high-fat diet have lower numbers of the microbes that help keep the epithelium healthy, which means that more toxins are able to make their way into the bloodstream. In turn, the toxins lead to general inflammation, which eventually leads to metabolic syndrome, the precursor to diseases such as diabetes.

Microbes may also play a role in our mental health: the bacteria in our guts produce neurochemicals, including serotonin, which helps to regulate mood, sleep, and appetite and can affect memory and learning. For this reason, our digestive tract is sometimes referred to as our "second brain."

A study conducted by Dr. Premysl Bercik at McMaster University studied the effect of changing the composition of shy mice's gut bacteria by feeding them a specially designed mix of antibiotics. "Their behavior completely changed," Bercik says. "They became bold and adventurous."

The question of how to regulate the microbes in our guts for optimal health is one that can't be answered until scientists have a better picture of what constitutes a healthy microbiome. This is part of the goal of the American Gut Project, and other scientists are going even further. María Gloria Dominguez-Bello, a microbiologist at New York University, travels to remote areas of the world to collect samples from peoples who have had very little contact with the Western world.

Dominguez-Bello has found that the microbiomes of people who have never had antibiotics or processed food are far more diverse than the typical Western microbiome, and the people they come from have a very low rate of allergies, asthma, and chronic conditions such as diabetes and cardiovascular disease.

It's too early for microbiologists to promise that regulation of a patient's microbiome will be able to cure chronic health conditions, but the research is quickly gaining traction, and some patients with gastro-intestinal disorders are already being treated with "fecal transplants" from healthy donors.

Though there is still much to be learned about the relationship between our bodies and the teeming colonies of unseen organisms living within them, scientists are optimistic about the paths such research is leading them down.

1. The main idea of the passage is that:

A. a healthy microbiome can help a person maintain a healthy weight.
B. scientists are just beginning to understand how important our intestinal microbes are to our overall health.
C. taking a specially designed mix of antibiotics can affect serotonin levels, which will improve mental health.
D. new understandings of beneficial microbes have led scientists to believe that old notions of germ theory are incorrect.

2. The passage's mention of scientists' efforts to "decode the influence of lifestyle on the characteristics of a microbiome" (lines 33–34) most nearly refers to their efforts to:

F. determine how important pets are in maintaining a healthy microbiome.
G. track how a baby's microbiome develops over time.
H. analyze the genetic material of the beneficial microbes in a feces sample.
J. understand how choices in diet and living conditions affect intestinal microbes.

3. Which of the following is NOT mentioned in the passage as something that scientists believe is influenced by intestinal microbes?

A. Mental health
B. Lifestyle
C. Metabolic syndrome
D. Diabetes

4. Rob Knight's statement in line 1 is based mainly on the assumption that most people:

F. understand the importance of studying a baby's microbiome.
G. believe changing diapers is an important skill.
H. don't think the contents of a baby's diaper are worthy of study.
J. enjoy hearing stories about the experiences of new fathers.

5. Within the passage, the eleventh and twelfth paragraphs (lines 88–105) primarily serve to:

- **A.** prove a connection between a Western lifestyle and chronic cardiovascular disease.
- **B.** indicate the importance of introducing antibiotics to remote areas of the world.
- **C.** explain one way in which scientists are trying to establish what a healthy intestinal microbiome looks like.
- **D.** resolve a disagreement among scientists about which strains of bacteria should be present in a healthy microbiome.

6. The passage indicates that all of the following contribute to intestinal microbes' influence on metabolic syndrome EXCEPT:

- **F.** a high-fat diet.
- **G.** diabetes.
- **H.** an unhealthy epithelium.
- **J.** toxins that lead to inflammation.

7. According to the passage, how do intestinal microbes affect mental health?

- **A.** Intestinal microbes produce neurochemicals that can regulate moods.
- **B.** Serotonin affects the brain function of intestinal microbes.
- **C.** The second brain is regulated by the neurochemicals that also regulate intestinal microbes.
- **D.** Antibiotics can change the serotonin levels produced by the microbes in an adventurous person's intestines.

8. According to the passage, research in intestinal microbiomes is:

- **F.** promising; fecal transplants have already helped some patients.
- **G.** promising; scientists have found a cure for metabolic syndrome.
- **H.** unpromising; scientists don't have enough information to make such research useful.
- **J.** unpromising; the effects of lifestyle choices on microbiomes is unclear.

9. The passage indicates that the diversity of bacteria living in a person's gut is directly related to:

- **A.** the person's age.
- **B.** the health of the person's epithelium.
- **C.** how many pets the person has.
- **D.** whether the person has ever taken antibiotics.

10. According to the passage, which of the following was the focus of early microbe studies?

- **F.** Babies
- **G.** Pathogens
- **H.** Obesity
- **J.** Genetics