Grade Five Sample Test Item—Reading
Achievement Level: Standard Exceeded

Snow Buggies
by Linda Crotta Brennan

Take a walk in the woods in winter. It may be cold and snowy, but at least there won't be any insects . . . or will there?

Insects are cold-blooded, which means their bodies stay the same temperature as the air around them. When it gets cold, an insect's organs and muscles get cold, too, and they don't work very well. In winter many insects enter a kind of hibernation called diapause. Some, like monarch butterflies, migrate south. Others stay under the earth or in water, where temperatures don't get below freezing. But there are some insects that are active even in the snow.

On a sunny winter day, check the snow covering near the south side of a tree. You may see a sprinkle of little black spots that look like pepper. If you watch carefully, you'll see the "pepper" jump. These energetic black spots are tiny insects called springtails or snow fleas.

Although people often call them snow fleas, they aren't really fleas, and they won't bite you or your pet. Entomologists, scientists who study insects, prefer to use the name "springtail." These beneficial insects eat decaying matter, like old leaves and plants, and turn it into dirt. Because springtails are so tiny, most people don't even know they exist, but they are the most common insect on land. There are millions of them in each acre of earth, busily enriching the soil.

Springtails get their name from two tiny prongs at the end of their bodies. These prongs are held down by hooks, and when the hooks let go, the insects spring three or four inches through the air.

There are many species of springtails. Some of them are aquatic, or live in water, while others can survive in the Antarctic and Arctic. In spring the golden snow flea forms a golden carpet on the snow in British Columbia. Other species

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are white, brown, green, blue, or red. Many, but not all, are active in the winter.

Sometimes groups of almost a million springtails make long migrations, trips of over 25 meters that can take two days to complete. The insects stay together in a round mass with the springtails on the surface hopping and the ones below crawling. At night, they all stop to rest under the leaf litter.

Springtails are considered primitive insects because they have neither wings nor compound eyes. And even though they molt, or shed their outer shell as they grow bigger, they don't go through a body change or metamorphosis as other insects do. They don't even have organs for breathing! Instead they get oxygen directly through their skin. Because the skin needs to be moist for oxygen exchange to occur, the springtails stay in wet places, such as a sunny spot where the snow is beginning to melt.

That warm sunny spot on the snow is called a microclimate, a small area with a different climate than the surrounding region. Because springtails are so tiny, they can live in a very small microclimate.

They also have two other adaptations that allow them to survive in the cold. First, springtails stop eating and empty their stomachs in very cold weather; otherwise, ice crystals might form around their food and kill them. They also produce special chemicals called cryoprotectants in their blood. These chemicals act like the antifreeze we put in our cars and prevent the springtails' blood from freezing.

So go ahead and take that winter walk in the woods. And be sure to watch for the springtails speckling the snow at the sunny base of a tree!

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The following question has two parts. First, answer part A. Then, answer part B.

Part A

Click on the statement that **best** provides an inference about why the author included information about insects in winter in paragraph 2.

A. The author wanted readers to understand how winter affects insects.

B. The author wanted readers to understand why animals hibernate or migrate.

C. The author wanted readers to understand how springtails are different from other insects.

D. The author wanted readers to understand the difference between warm-blooded and cold-blooded insects.

Part B

Click on the sentence from the text that **best** supports your answer in part A. Choose **one** option.

Insects are cold-blooded, which means their bodies stay the same temperature as the air around them. When it gets cold, an insect's organs and muscles get cold, too, and they don't work very well. In winter many insects enter a kind of hibernation called diapause. Some, like monarch butterflies, migrate south. Others stay under the earth or in water, where temperatures don't get below freezing. But there are some insects that are active even in the snow.

Area	**Reading** Demonstrating understanding of literary and nonfiction texts
Standard(s)	Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s).
Answer	Part A: C Part B: "But there are some insects that are active even in the snow." Note: Students must correctly answer both Part A and Part B in order to receive the point. There is no partial credit for answering just one part correctly.