

PRO-VISION① LESSON 9

Snow Crystals-Winter's Miracles of Beauty

テスト形式での復習

単語問題

日本語は英語に、英語は日本語にきなさい

奇跡	
charm	
reference book	
motif	
fascinate	
add A to B	
図表	
実験	
natural の反対語	
condition	
装置、道具	
温度	
determine	
contribution	
分類する	
水蒸気	
countless	
六辺の	
sculpture	
naturalist	
admire	

Snow Crystals—Winter’s Miracles of Beauty

I 文を読んで設問にこたえよ

Imagine it is snowing on a cold winter day. You look up and see millions of tiny ice sculptures falling from the sky. Each of those sculptures, snow crystals (also called snowflakes) is (a)a small work of art no bigger than a few millimeters. While you are playing in the snow, you look closely at some of them on your hand and notice that they have amazingly complex and beautiful shapes.

Look at the photos on these pages. These are examples of snow crystals. Some snow crystals, like the ones in these photos, have almost perfect symmetry. But (b)there are no two snow crystals with exactly the same shape.

Henry David Thoreau, an American naturalist and writer who lived in the 19th century, admired the beauty of these perfectly-formed masterpieces of ice. He said (c)the air must be full of “creative genius” to produce such star-shaped crystals.

Of course, the design of a snow crystal does not come from a plan, (d)nor is it a living thing based on genes. It is (e)nothing more than a bit of frozen water that has fallen from a cloud. Snow crystals come in a countless variety of beautiful shapes, but how are they formed?

問1 下線部(a),(b)を日本語に直しなさい

問2 下線部(c)を must と不定詞の用法を意識して訳しなさい

問3 下線部(d)の書き換えを完成しなさい、そして訳しなさい

⇒and it is () a living thing based on genes, ().

問4 下線部(e)をほぼ同じ意味を表す一語の英単語に変えなさい

II 文を読んで設問に答えよ

Snow crystals are born in clouds thousands of meters up in the sky. First, a tiny water droplet freezes and becomes a six-sided ice crystal. It is “a baby snow crystal” that is about 0.01 millimeters in size. Then water vapor sticks to the crystal, and it gets bigger and heavier. The crystal grows to a size of several millimeters as it falls through the cloud. (a)It takes about an hour for the crystal to fall to the earth from the time it is born.

Starting from a simple six-shape, a snow crystal grows into its own unique shape. There are two main factors that (d) the shape. One is the

air temperature in the clouds. (D) on the temperature, (b)a snow crystal can spread out to become a plate-like shape, or it can grow longer and become a column-like shape. The other factor is the (a) of water vapor surrounding it. (c)The more water vapor there is, the more complete the shape of the crystal becomes.

問1 a)~f)を正しい順序にしてください

- a) Water vapor sticks to the crystal.
- b) A tiny water droplet becomes a six-sided ice crystal.
- c) The crystal falls through the cloud
- d) The crystal gets bigger and heavier.
- e) The crystal grows to a size of several millimeters.
- f) A tiny water droplet freezes in a cloud.

問2 下線部(a),(c)を日本語にしてください

問3 下線部(b)の不定詞の用法を意識して訳してください

問4 ()内に与えられた文字で始まる単語を入れなさい

Ⅲ 次の文を読んで設問に答えなさい

(a)It was the Japanese scientist Nakaya Ukichiro who made a great contribution to finding out how crystals are formed. In 1932, he began observing natural snow crystals. He took about three thousand photos of snow crystals and classified all the major types. He then decided to create artificial snow crystals to learn (b)under what conditions the different crystal types are formed.

It was not easy to make snow crystals. After three years of hard work, Dr. Nakaya created a unique device for his experiments. Using the device, he repeated experiments in a low-temperature laboratory set at a temperature of minus 30 degrees. In 1936, he finally succeeded in creating the world's first artificial snow crystal on a rabbit hair.

By changing the temperatures and amounts of water vapor, Dr. Nakaya was able to produce many different kinds of snow crystals. He showed the results of his experiments in a diagram, which is known throughout the world as the "Nakaya Diagram." By looking at this diagram, we can see (c)what kinds of snow crystals are formed under what conditions. The shapes of snow crystals tell us about the conditions in the sky. "Snow crystals are letters from the sky," said Dr. Nakaya.

- 問1 下線部(a)を強調構文ではない普通の平叙文に変えなさい
 問2 下線部(b),(c)を日本語に直しなさい
 問3 Why did Dr. Nakaya say, “Snow crystals are letters from the sky”?

IV 次の文を読んで設問に答えよ

The complex and beautiful shapes of snow crystals have long fascinated scientists. Thanks to their research, we understand how snow crystals are formed. Snow crystals have also fascinated (A). Design motifs inspired by snow crystals came to be used in (B). The gentle elegance of snow crystals has (C) beauty to people’s lives.

In Japan, a reference book on snow crystals called Sekka Zusetsu was published in 1832, and snow crystal patterns became popular during the late Edo period. These patterns began to be seen on bowls, plates, kimonos and ukiyoe. Even today they appear on jewelry, clothes, and various other things. In areas where it snows a lot, you can find snow crystal designs on school (D).

Snow crystals have moved the hearts of people throughout history. The charm of snow crystals was perhaps best expressed by an American farmer and photographer of snow crystals named Wilson Bentley: “Under the (E), I found that snow crystals were miracles of beauty. Every crystal was a masterpiece of design and no one design was ever (F). When a snow crystal (G) that design was forever (H). A little beauty was gone, without leaving any record behind.”

(I) it snows, you will have a (J) to take a closer look and admire the beauty of these masterpieces of ice. “Miracles of beauty” are waiting for you just outside your door.

- 問1 (A)~(J)に入れるべきものを下の語群から選べ

語群

- 1) repeated 2) added 3) emblems 4) arts and crafts 5) the next time
 6) melted 7) artists and artisans 8) lost 9) microscope 10) chance

Window 1 Creating artificial snow crystals に関する問題

Dr. Nakaya thought he could create snow crystals on a thin string hung from the top of this device. He tried [to use / using] various materials for the string, [excluding / including] cotton and wool, but he finally succeeded by using rabbit hair. Tiny lumps on the rabbit hair [served as / served for] the cores of the crystals.

問 []内の正しいものを選び

Window2 Zekka Zusetsu(pictorial Explanation of Snow Crystals)に関する問題

This was the first [illustrating / illustrated] reference book of snow crystals in Japan. It was published by Doi Toshitsura, the fourth daimyo of the Koga Domain of Shimousa Province (Present-day Koga City in Ibaraki Prefecture). Toshitsura used a microscope [exported / imported] from Holland and made [experiments / observations] of snow crystals over a 20-year period. The book includes drawings of 86 different kinds of snow crystals under a microscope.

問 []内の正しいものを選び