

# 英 語

1 英文を読み問題に答えなさい。(指示がある場合以外は日本語で答えること)

What color is the sky? What about the ocean? Or the grass? These may seem like simple questions with easy answers. The sky is blue. ( 1 ) the ocean. Grass is green. Bananas are yellow. If you speak English, this is all very obvious. But ( 2 ) you speak a different language?

In Kyrgyzstan, a country in Central Asia, a traditional song ( 3 ) with a line about mountains touching the blue sky. The Kyrgyz word *kok* (pronounced like cook) means blue. Yet *kok* also means green—Kyrgyz people walk through *kok* grass. Many Kyrgyz people also speak Russian. In Russian, the sky is *goluboy* (GOL-uh-boy), which means “blue.” However, Russians would not call the ocean *goluboy*. That color is *siniy* (SEE-nee). *Goluboy* and *siniy* are usually translated as light blue and dark blue, but to a Russian speaker they are as different as pink and red are to someone who speaks English.

All people share the same type of brain ( 4 ) senses that work the same way. The human eye contains light-detecting cells called rods and cones. Three different types of cones capture a vast rainbow of around 1 million different hues.\* In rare cases, a person may have fewer types of cones than usual. That causes color-blindness. There are also reports of an even rarer condition that adds a fourth type of cone. These people may see ( 5 ) colors than the rest of us. Unless you have one of these rare conditions, it doesn’t matter if you speak Kyrgyz, Russian or English. You’ll see the same shade\*\* of sky.

In 2017, Bevil Conway, a neuroscientist at the Massachusetts Institute of Technology, and Edward Gibson, a cognitive scientist at the National Institute of Health, conducted research aimed at understanding why cultures vary so much in their color word usage. They hypothesized that color words are developed for (A)efficient communication, which means that we introduce new words into a language when there is something that we want to talk about and care about. When it comes to color, it implies “easy color communication,” where people imagine a very similar shade when someone says a color name. They tested this hypothesis by asking participants from three different languages, English, Spanish and Tsimane (Chi-MAH-nay, a native Amazonian language), in an experiment to name a color chip from a set of 80 chips, selected from the *Munsell color system*.\*\*\*

(B)The results were fascinating, and the scientists concluded that all languages have the same basic structure. “Warm colors are easier to communicate and cool colors are harder,” Gibson says. Names of warm colors, such as pink, red, orange and yellow, tend to have fewer variations of shades between languages. People also tend to agree more on which shades



should get these names.

Why? (c) Conway thinks the answer has to do with why people name colors in the first place. Think about bananas. “Bananas aren’t yellow,” he says. They start out green. The peel eventually turns yellow, but the fruit is white. When they go bad, they turn brown and black. Yet, people use yellow to describe the color of bananas. “Yellow is the color of bananas that you care about,” Conway says. People name colors in order to categorize things that are meaningful to them. And people tend to care most about things that they can touch and interact with.

In order to verify this idea, Conway and Gibson did (d) more research using a database of 20,000 photographs of objects, both natural and artificial, and backgrounds. It turned out that objects—people, animals, berries, fruits and so on—are more likely to be warm-colored, while backgrounds—sky, water, grass, and trees—are cool-colored. Basically, these warm-colored objects are things that humans can touch and interact with, whereas cool-colored backgrounds, like the sky, are often things we cannot touch.

Although people with standard vision can see millions of colors, human language categorizes them into only a few basic colors. In an industrialized culture, for example in American English, it is eleven (black, white, red, green, yellow, blue, brown, orange, pink, purple and gray), but non-industrialized cultures typically have far fewer words for colors. Often, if a language has very few basic color words, then most people who speak that language follow a traditional lifestyle. That may include farming or hunting and gathering. One explanation for this may be that natural objects tend not to come in many different colors, so (e) in non-industrialized cultures, naming objects’ colors may be unimportant. For instance, Gibson has spent time with the Tsimane people, who live in the Amazon rainforest in Bolivia. “They all know black, white and red,” he says. They have some words for other colors, but they tend not to agree on what they mean. “They just don’t talk about the other colors,” says Gibson. That is, in these cultures, people do not need many color names to communicate efficiently.

A person’s language is that person’s sense of home and belonging, and sharing a language means sharing a way of categorizing and making sense of the world. Anyone can learn to speak any language. That means anyone can learn new categories for colors. So, is the sky blue? The answer depends on what “blue” means to you—in your ( あ ) and in your ( い ).



\*hue: a degree of lightness, darkness, strength, etc. of a color

\*\*shade: a type or degree of color (e.g., shades of yellow = light yellow, dark yellow)

\*\*\* Munsell color system (マンセル表色系): a means to visually identify and match color using a scientific approach developed by Albert Munsell, a painter as well as a teacher of art

〔 1 〕 空欄(1)―(5)に入る最も適切なものを選びなさい。

- (1) (a) And too (b) Same means (c) So is (d) Why not  
(2) (a) what about (b) what do (c) what for (d) what if  
(3) (a) describes (b) opens (c) sings (d) writes  
(4) (a) for (b) in (c) to (d) with  
(5) (a) even fewer (b) far worse (c) many more (d) much better

〔 2 〕 下線部(A)が、Conway と Gibson の研究においてどのようなことを示すか説明しなさい。

〔 3 〕 下線部(B)に関して、どのようなデータが得られたか具体的に答えなさい。

〔 4 〕 下線部(C)に関して、Conway がどのように考えたか説明しなさい。

〔 5 〕 下線部(D)に関して、以下を答えなさい。

- (1) 研究対象は何か  
(2) どのような考察をしたか

〔 6 〕 下線部(E)の理由を 120-140 字以内で説明しなさい。

〔 7 〕 空欄( あ )と( い )に入る語の組み合わせで最も適切なものを選びなさい。

- (a) (あ) country (い) family (b) (あ) culture (い) language  
(c) (あ) learning (い) sharing (d) (あ) mind (い) world



2

Read the following passage and answer the questions.

Sneezing is far from a ( 1 ) human behavior. Maybe you’ve seen your dog or cat do it, or watched a YouTube video of a giraffe sneezing on an unsuspecting toddler at the zoo. In fact, sneezing doesn’t ( 2 ) a nervous system or a nose. It’s observed even in some of the first multicellular animals in the ocean: sponges.

[A] “It’s the most successful animal that I know of, because it’s so old, and it’s everywhere,” said Jasper de Goeij, a marine ecologist at the University of Amsterdam. As filter feeders, sponges play a crucial role in their aquatic ecosystems, ( 3-a ) water filled with varied organic matter, ( 3-b ) it and ( 3-c ) it as waste on which organisms like snails, brittle stars and tube worms feed. “A sponge is basically an animal that has a lot of little mouths and one, or several, larger outflow openings,” said Dr. de Goeij. Those “little mouths” are called ostia, and the openings where water flows out are oscula.

[B] For years, scientists have known that sponges can regulate their water flow with a many-minutes-long body contraction—i.e., a “sneeze”—but now, Dr. de Goeij and colleagues have found that sponges appear to sneeze as a form of self-cleaning, releasing waste particles in mucus\* through their ostia.

4

To figure out what those “stringy things” could be, the researchers recorded the movement of sponges, ( 5 ) the Caribbean tube sponge *Aplysina archeri*. In the lab, they were able to identify the threads as streams of mucus carrying waste. They would come out of the sponge’s ostia, move across the organism’s surface, gather and form clumps that could be released with a sneeze, and then quickly be eaten by other ocean creatures.

When first reviewing the recording, Yuki Esser, a study co-author, was disappointed, thinking that the movement she was seeing (i.e., the sneeze) was just a camera focusing error. “I thought there must be a drop of water or something on the camera lens causing this,” she said. ( 6 ) In fact, Ms. Esser and her colleagues found they had captured nearly identical video of *A. archeri* off the coast of Curaçao. It turned out the sponge was sneezing.

The researchers believe sneezing out waste-laden mucus is a widespread common action among sponges all over the world. [C] And the study raises more questions, said Sally Leys, an evolutionary biologist and a co-author of the study. “The mucus,” she said. “Is it similar to other animals’ mucus? And what cells are making it?” ( 7 ) “How does a sponge know that this is the moment to sneeze?”



Studying this mucus might improve scientists' understanding of how microbes, and possibly disease, are transmitted in reef ecosystems, said Blake Ushijima, who studies corals at the University of North Carolina Wilmington and was not involved in the new research. He's also interested in what this study could teach us about our own evolution. [D] "This could give us hints of how early life evolved from these squishy brainless things into these complex organisms building spaceships," Dr. Ushijima said.

\*mucus: a thick liquid produced in some parts of your body, for example the inside of your nose

[ 1 ] Which choice fits gap ( 1 ) the best?

- (a) originally      (b) uniquely      (c) typically      (d) unusually

[ 2 ] Which choice fits gap ( 2 ) the best?

- (a) control      (b) improve      (c) require      (d) occur

[ 3 ] Which choice fits gaps (3-a), (3-b) and (3-c) the best?

	3-a	3-b	3-c
(a)	absorbing	warming	cooling
(b)	soaking up	scrubbing	squeezing
(c)	drawing in	processing	releasing
(d)	letting out	recycling	purifying

[ 4 ] Arrange the following sentences in the correct order to make paragraph [ 4 ].

One option has already been given in its right place.

- (a) However, things got interesting when he started seeing milky-white, stringy material coming from the sponges.
- (b) "I would spend entire days just looking at the surface of them; it was quite boring," he recalled.
- (c) Mr. Kornder was scuba diving in the Caribbean at the time.
- (d) The researchers came across sponges sneezing mucus while working on a project investigating the role played by sponges in moving nutrients through a reef ecosystem.
- (e) "Then I'd come back to it later, and the stringy things would be gone," he said.
- (f) The work required Niklas Kornder, another marine ecologist at Amsterdam, to spend a lot of time with sponges.

(     ) — (     ) — (     ) — (c) — (     ) — (     )



[ 5 ] Which choice fits gap ( 5 ) the best?

- (a) respectively      (b) correctly      (c) exactly      (d) specifically

[ 6 ] Which choice fits gap ( 6 ) the best?

- (a) Unable to proceed, they gave up on the study.  
(b) The research team purchased a new video camera.  
(c) What she found commonly occurred with lenses.  
(d) But she soon realized it wasn't a mistake.

[ 7 ] Which choice fits gap ( 7 ) the best?

- (a) The researcher hopes to study similar organisms.  
(b) Leys is curious about how the sneezing mechanism in sponges evolved.  
(c) She is interested in discovering if all sponges produce the same mucus.  
(d) She also wants to know what triggers the sneeze.

[ 8 ] Choose the best place [A], [B], [C], or [D] in the passage for the following sentence.

The sponge has been around for at least 600 million years.

[ 9 ] Read the following statements and identify 2 true statements based on the entire passage.

- (a) Sponges are the most complex multicellular organisms known to man in marine ecosystems.  
(b) Recently scientists have discovered that sponges control the movement of water in and out of their bodies through sneezing.  
(c) The recordings of *A. archeri* enabled the researchers to determine that the stringy things were in fact mucus.  
(d) Yuki Esser incorrectly identified a contraction as a sneeze due to a technical problem.  
(e) This research has the potential to shed light on human evolution.



3

Choose the most appropriate expression for the given situation in terms of grammar, logic and context.

- [ 1 ] A friend of yours talks to you, asking for advice about buying a new computer. What would you say?
- (a) Hey, why don't we go to the store together this weekend and we can compare a few different models?
  - (b) How about us going to the shop with so that you will choose the one you want to?
  - (c) Well, I'm thinking to come with you to some stores to find out a better computer for you to shop.
  - (d) So, I could go with you if you want me to with you to check in a shop to buy a nice computer.
- [ 2 ] You are talking to a friend about a movie you saw the night before. You didn't enjoy the movie that much and didn't stay in the theater until the end. What do you say about this movie to your friend?
- (a) What I was watching was the movie which is bad and boring. The acting felt unpleasant, and I exited through the door halfway.
  - (b) A movie which I was watching was so wrong. It was boring as well as the actors were bad. I could go out of the theater in the middle.
  - (c) The movie I saw last night was terrible. The story was boring, and I've never seen such bad acting. I walked out after about an hour.
  - (d) Last night's movie is awful. I had no experience with boring and bad acting like that. I was out of the theater before the end.
- [ 3 ] You're studying with a friend at the school library. It's 10:00 PM. You have received a message from your mother saying, "It's already 10:00!" How do you reply to her?
- (a) Don't worry, Mom. I'll go out of the library immediately.
  - (b) I'm sorry, Mom. I'm back soon.
  - (c) I knew that. I was about to leave here for home.
  - (d) I didn't realize it was so late. I'll come home right away.



- [ 4 ] You are talking about a new teacher at your school. There are two new teachers, so you want to specify the one you are talking about. What would you say?
- (a) You've known the one who is putting glasses of the face, a math teacher is it?
  - (b) I mean the teacher who wears long hair, and a teacher of math.
  - (c) I am saying you about the other one whose a long hair and a math teacher.
  - (d) You know, the one who has got long hair and teaches math.
- [ 5 ] Your friend just asked if you are free to go shopping this weekend, but you do not feel like going out. You want to say no to your friend softly, not directly. What would you say?
- (a) Wow, sounds good, but I have scheduled. Sorry!
  - (b) I'm sorry, I have plans this weekend. Maybe next time.
  - (c) Look, I don't want to go out this weekend.
  - (d) OK, let me consider with my diary first, and speak to you later.

