

# 令和7年度 学校推薦型選抜

## 基礎学力試験（英語）

11月16日（土）

11:00 ~ 12:00

問題用紙 1 ~ 7頁
解答用紙 1頁

### 注 意 事 項

1. 試験開始の合図があるまで、この注意をよく読むこと。
2. 試験開始の合図があるまで、この問題の印刷されている冊子を開かないこと。
3. 試験開始の合図の後に問題用紙、解答用紙の定められた位置に受験番号、氏名を記入すること。
4. 解答はかならず定められた解答用紙のそれぞれ定められた位置に、問題の指示に従って記入すること。
5. 解答はすべて黒鉛筆を用いてはっきりと読みやすく書くこと。
6. 質問は文字に不鮮明なものがあるときにかぎり許される。
7. 問題に、落丁、乱丁の箇所があるときは手をあげて交換を求めること。
8. 途中退場は認めない。体調が悪くなったら監督者に申し出ること。
9. 試験終了の合図があったとき、ただちに筆記用具を置くこと。
10. 試験終了の合図の後には、問題用紙は本表紙を上にして、解答用紙は裏にして通路側から解答用紙、問題用紙の順に並べて置くこと。また、問題用紙、解答用紙はいっさい持ち帰ってはならない。
11. その他、監督者の指示に従うこと。

受験番号		氏 名	
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ハエトリグモに関する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。

Jumping spiders that use their four pairs of large eyes to find their prey and leap on them, can sometimes hang around all night—literally. The gorilla jumping spider, *Evarcha arcuata*, frequently hangs from a silky thread at night, suspended in mid-air for hours. Harvard University researcher Daniela Roessler suggests that spiders may use this thread as a kind of alarm system or as a way to keep themselves safe from predators. Her research team predicts that jumping spiders may adapt to darker environments by using vibrations to detect danger, as visual information becomes difficult to obtain in the darkness.

Roessler had been experimenting with jumping spiders in the US when the COVID-19 pandemic hit, so she returned to Germany and collected some of the local gorilla jumping spiders. That's when she noticed these spiders had a strange night-time habit. The first time Roessler saw it was one night after coming home from dinner. After switching on the light, she looked at the shelf where the boxes with the spiders were placed. She was shocked to see all the spiders hanging from the ceiling of the small plastic boxes, and wondered if they were dead.

Jumping spiders don't make webs to catch prey, but they are known to build silk shelters to rest in safe places like rolled-up leaves. However, (A) this situation was quite different. Roessler and her research team decided to return to the place where she had collected these spiders, this time during the night. There, they found a significantly larger number of spiders—about three times as many as during the day—and noted that it was much easier to find them when they hung from the plants. Although the hanging spiders were easy for the researchers to discover, by floating in the air, they were perhaps not as easily detected by crawling night-time predators like ants.

There, Roessler observed the following. When she gently touched the silk thread, the jumping spiders would almost always drop to the ground and quickly run away. However, when the plant they were hanging from was touched, none of the females would drop; instead, they would all climb back up. In contrast, only about half of the males would climb up in this situation, while the rest would drop. Roessler described



this behavior as unusual but (B)happening in the same way every time, emphasizing it as an area that needed more research. Roessler noticed that the spiders she kept in boxes at home sometimes built silk shelters, leading her to believe they used different resting methods. It seemed that some factors must guide their choices about where and how to rest. However, (C)little research has been done on resting and sleep behaviors among invertebrates, such as insects, largely due to the challenges involved in studying them in the wild.

Paul Shaw, a neuroscientist from Washington University School of Medicine in St. Louis, who was not involved in Roessler’s study, agreed that most research on rest and sleep in nature has focused on mammals and birds because scientists have long believed that a complex brain is necessary for sleep. He recalled that a couple of decades ago when two research groups discovered that fruit flies actually sleep, the idea was not accepted at first. It took a few years to convince other researchers, but now it is widely accepted. Shaw confidently stated that the jumping spiders Roessler observed were certainly sleeping, emphasizing that sleep is a fundamental biological process that may not be exclusive to more complex animals. For jumping spiders, hanging by a thread from plants while sleeping might be a strategy to protect themselves from predators.

Roessler says that since she published her findings, there have been many reports of seeing this night-time hanging behavior of jumping spiders in California, New Zealand, and India. “We feel like we already know a lot about what’s in our backyard, but we really don’t,” she says, adding that there’s still much to learn about these common and fascinating spiders and why they behave the way they do.

- [1] 下線部 (A) が指し示す内容を説明しなさい。
- [2] 下線部 (B) が指し示す内容を説明しなさい。
- [3] 下線部 (C) の背景として本文で説明していることを2つ答えなさい。
- [4] 本文の内容に合致するものを2つ選び、記号で答えなさい。



- a. In addition to using the web, jumping spiders sometimes use eight eyes to find their prey, leap on them to catch them, and hide them in their silk shelters.
- b. Paul Shaw explored the sleeping activities of fruit flies and other insects, and his findings have now been widely accepted.
- c. Roessler observed that the jumping spiders in her containers hung by a thread and also built a silk shelter to rest.
- d. The unique night-time behavior of spiders that Roessler observed was also reported from various other places, which indicates a need for further exploration in this study area.
- e. When Roessler’s team went out to the field to catch spiders, a significant number of ants were waiting for the spiders to prey on them.

[5] この英文につけるタイトルとして、最も適切なものを選択肢から選び、記号で答えなさい。

- a. Hanging Around at Night: Vibrations of Jumping Spiders
- b. Hunting or Sleeping: The Strategies of Jumping Spiders
- c. Suspended in the Dark: The Mysterious Nightly Habit of Jumping Spiders
- d. Web Builders: The Silk Threads and Shelters of Night-time Spiders
- e. What We Think We Know: Jumping Spiders and Fruit Flies

**2** You are reading the digital handout for your science class on your computer. Before the next class, you need to understand the activity procedure.

 **Candy Bar Geology**

**Background**

Geologists study a planet’s solid features, like soil, rocks, and minerals. There are many types of rocks and minerals that make up our planet—as well as the Moon, Mars, and other rocky worlds. By studying these features, we can learn more about how rocky worlds form and change over time.

A great way to practice classifying rocks is by describing the structures found



inside different candy bars, such as Snickers or Milky Way. Like rocks and soil, candy bars have features that offer clues about what they're made of and how they formed. Unlike rocks, we can easily see inside candy bars by cutting them in half, creating what's called a cross-section.

Let's learn about rocks by making connections between familiar candy bars and unfamiliar samples. Draw and describe the samples using everyday terms without using food terms. You can find a list of "Geology Vocabulary" to describe the samples by clicking the following link.

Geology Vocabulary: [http://www.aaa/bbb/geo\\_terms](http://www.aaa/bbb/geo_terms)

### **Preparation**

To get ready for the activity, you need to collect 10 candy bars, each from a different brand, to use as samples. Once you have the candy bars, carefully cut them with a knife to expose a flat interior surface. After cutting, place each piece into a small plastic bag to keep them organized and fresh. To make sure the activity runs smoothly, it's important to prepare three complete sets of all the candy bar samples ahead of time. When you're ready to start, divide the participants into three groups. Lastly, don't forget to download the file from "Candy Bar Geology Worksheet" using the provided link to guide the activity.

Candy Bar Geology Worksheet: [http://www.aaa/bbb/geo\\_worksheets](http://www.aaa/bbb/geo_worksheets)

### **Materials and equipment**

For this activity, you will prepare cross-sectioned samples of 10 different brands of candy bars. Additionally, make sure to have pens or pencils for note-taking, as well as colored pencils to help with detailed observations. Scissors will also be necessary. With all the items prepared, you will be ready to do the activity.

### **Procedure**

First, select a plastic bag containing a sample and bring it to your team. Share the sample with your team members, but remember that it's important not to consume the samples for safety reasons, including the risk of sickness or allergic reactions. Next, use the worksheet to draw pictures of the cut surface and describe



them with words. When writing your descriptions, avoid using food-related terms such as “chocolate” or “peanuts.” For instance, you could use terms such as “outer/inner layer,” “a thin coat,” and “brown material.”

Once you’ve sketched and described a sample, follow the same procedure until all 10 samples have been completed. Afterward, cut the worksheet to separate the sketches and descriptions. To prevent confusion during the next step, record the pairings of sketches and descriptions on a separate sheet of paper.

Now, exchange the description sections with another team while keeping the sketch sections for your group. Your next task is to match each description you receive with your own sketches. Discuss the vocabulary and terms used in the descriptions with your team to aid in this process. Finally, once you’ve successfully matched each description to a sketch, share your results and feedback with the entire class.

1. Read the handout and answer the questions.

- (1) What kind of information can you learn from this handout?
  - a. How the materials of stars in the universe are made
  - b. How to make candy bars with different flavors
  - c. How to create a food sample using ingredients at home
  - d. How to imitate the process of investigating rocks that geologists use
  
- (2) What is the purpose of using candy bars in this activity?
  - a. To explore how temperature affects the interior surface of objects in nature
  - b. To learn how to identify the ingredients of familiar food and see how they correspond to those in nature
  - c. To learn how to classify and describe structures in unfamiliar objects using familiar items
  - d. To practice cutting hard natural objects using a knife

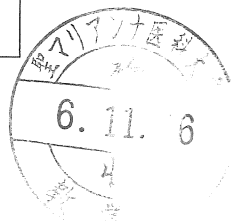


- (3) What is the purpose of introducing the link to “Geology Vocabulary”?
- To become familiar with geological terms through the activity
  - To be able to make a vocabulary list on the worksheet
  - To prepare for the exam after the experiment
  - To compare food terms and geology terms
- (4) Which one is NOT an essential part of the preparation for this activity?
- To discuss safety procedures for handling foods and knives with participants
  - To place the cut candy bar samples in small plastic bags for distribution
  - To collect a variety of candy bar brands for use in the experiment
  - To slice the candy bars with a knife to reveal a flat interior surface
  - To create several sets of candy bar samples to ensure the activity runs smoothly
- (5) Which one is NOT a skill that could be learned from this activity?
- Use of geology-related vocabulary
  - Observation and description skills
  - Team collaboration skills
  - Use of devices such as a microscope

2. You are taking notes on this activity’s procedure to share with your team members. Choose the description that best fits in the blank.



- Pick a plastic bag with a sample and bring it to your team. Share the sample with your team members.
  - Important safety note: (1)
- Use the worksheet to sketch and describe the sample. For example, you might write: (2)  
Make sure to avoid using food-related terms.
- (3) until all 10 samples have been completed on the worksheet.
- After completing Step 3, cut each worksheet into separate sketch and description sections. (4)
- Exchange the description sections with other teams. Keep the sketch sections with your group.
- (5) you receive with your own sketches. Check the terms and vocabulary used in the descriptions in your group.
- Once all descriptions have been successfully matched to their sketches, share your results and feedback with the class.



- (1)
  - a. Do not take the samples with you because sick people might have touched them.
  - b. Due to the risks of illness and allergies from food, do not eat the samples.
  - c. To avoid food waste, use old candy bars.
  - d. Make sure to use clean plastic bags to avoid getting sick or allergies.
- (2)
  - a. The outside chocolate coating is hard, but the inside caramel is soft and smooth.
  - b. The Earth's outermost layer provides a solid and protective shell.
  - c. The outside coating smells like roasted beans, but the inner part smells very sweet.
  - d. The outer layer is a thin coat of light-brown material containing tan-colored round chunks.
- (3)
  - a. Repeat Steps 1 and 2
  - b. Review worksheets 1 and 2
  - c. Go over the vocabulary list for Step 2
  - d. Present your candy bars from Step 1
- (4)
  - a. Write down the pairings of sketches and descriptions on a separate sheet of paper to avoid any mix-ups in the next step.
  - b. Paste all the sections on a different piece of paper and put it on the wall so that other groups can see it.
  - c. Do not give your answers to the other group members to avoid cheating.
  - d. Record the other group members' presentations and listen to them later.
- (5)
  - a. Mix up all the samples
  - b. Read aloud each description
  - c. Present the description
  - d. Compare each description

