

Vocabulary

1 Choose the appropriate answer.

- (1) The storm caused () damage to ten buildings.
 a. earthen b. interior c. northern d. structural
- (2) This technique is no longer () in medical treatment.
 a. employed b. incorporated c. limited d. tricked
- (3) The accident has raised questions about the () of campus security.
 a. direction b. intersection c. effectiveness d. landscape
- (4) His most () political achievement was the establishment of mail service.
 a. optical b. significant c. various d. vertical
- (5) Despite the () of the survey, it did show some general trends.
 a. illustration b. illusion c. limitations d. surface
- (6) () we can find a way of solving this problem.
 a. Slightly b. Historically c. Hopefully d. Precisely

2 Put the appropriate word below into each blank.

- (1) Here is an example to () what I mean.
- (2) The artist has developed various () of creating an illusion of depth.
- (3) The land () gently toward the river.
- (4) The vaccination program has been one of major () in the improvement of health standards.
- (5) Traffic lights have been placed at all major ().

[factors / illustrate / inclines / intersections / techniques]

3 Write the word that the definition means. Every answer is from **W** in Lesson 1.

- (1) everything you see when you look across a large area of land, especially in the country
 → _____
- (2) a place where people can cross a street and where drivers must stop to let them cross
 → _____
- (3) very often or many times → _____
- (4) a direction or place from which you look at something → _____


4 Choose the appropriate word in each sentence.

- (1) Our children were fascinated by (that / who / what) is called “capsule toy.”
- (2) In the electronic industry, (in / for / on) instance, 6,000 jobs have been lost.
- (3) A lot of people suddenly began to run (at / in / to) the same direction.
- (4) If I can be (in / of / on) any help to you, I'd be willing to come anytime.

5 Put the appropriate word into each blank.

- (1) レポートを書くときはこれらのポイントを頭に入れておきなさい。
 You should () these points () () when writing a report.
- (2) 彼らはそこで起きていることをわかっていないようだった。
 They () not () realize what was happening there.
- (3) 私の叔父は海の近くの小さな家に住んでいた。
 My uncle lived in a small house () () the sea.

6 Translate the sentence into English. You must use the words in the brackets.

- (1) 砂漠はほとんどの種類の動物が住んでいそうにない環境です。(in / which / few types / an)
 A desert _____ are likely to live.
- (2) 彼は背景に音楽が流れる中、アートプロジェクトに取り組んだ。(with / his art project)
 _____ in the background.
- (3) 彼女は犬を飼いたくないし、犬に触ることもできないのです。(nor / can / have a dog / one)
 She _____.

7 Translate the sentence into Japanese. The beginning of the Japanese sentence is given.

- (1) The walls of the tower have been kept in good condition with regular cleaning.
 定期的に汚れを落とすことで _____。
- (2) The movie was not a great success despite receiving a good advance review.
 前評判は _____。

1 Read the following passage and answer the questions.

Take a look at the object in the illustration below. What does it look like to you? To some people this might appear to be a rabbit facing to the right, while ①() others it may seem like a duck looking in the opposite direction. This illustration is an example of what is called an “optical illusion”, in other words it shows how our brains can interpret the same image ②() different ways. Illusions such as these have a variety of uses and are often seen around us in our daily lives.

To start, these types of illusions have traditionally been incorporated into various structural and architectural designs. For example, the *karesansui* (dry landscape) garden at the Zen temple Ryōanji in Kyoto illustrates this concept well. At first glance, its entire surface may appear perfectly flat, but if we look closer, we can see that it actually inclines towards the garden’s south-east corner. Also, the earthen wall on the west-side is slightly higher on its northern end. These features combine to create an optical illusion and to our eyes the surface actually appears to be deeper than it truly is. This same effect can also be seen in the Ponzo Illusion, in which the uppermost horizontal line closer appears to be longer than the line just below it, even though the two are exactly the same length.

Second, if we look at the image below we can see another example of an optical illusion. The interior of the house appears to have an extremely high ceiling though it is actually much lower than it looks. Our brains interpret the image in this way as a result of the Fick Illusion (Figure 2), in which the vertical line seems longer than the horizontal line, even ③() they are exactly the same length. This effect can be very useful in architecture, as it can cause us to think a room is much more (a) spacious than it actually is.

Third, another valuable technique which has been used successfully in recent times is the creation of what appears to be a three-dimensional object on a two-dimensional surface. For example, in one particular train station people are often unable to find an elevator because it is located in a blind spot, so a sign that appears three-dimensional has been painted on the floor in order to help them find it more easily. The sign quickly catches people’s attention and has been extremely successful in helping reduce the number of people who have been become lost while trying to locate the elevator.

Last, they have been found to be useful in the field of transportation, in particular at intersections which don’t have traffic lights. Crosswalk markers which appear to be three-dimensional have been painted on some roads in an effort to prevent traffic accidents from occurring. ④() the viewpoint of approaching drivers, it looks like they are about to hit large concrete blocks which are in the road. These were created in hopes that the drivers (b) (see / get / slow / and / them / down / as / the crosswalk / they / nearer / will).

(c) They cannot magically make a garden larger, ⑤() can they truly make a ceiling higher. Over time, even if a crosswalk is painted to appear three-dimensional, it will eventually lose its effectiveness in preventing accidents as drivers who regularly see these markers will get used to them and come to understand that what they are seeing is just an illusion and they won’t slow down. That being said, even if we recognize such common limitations of these illusions, we should be able to find numerous other useful applications for optical illusions in society.

(1) Put the appropriate word into blanks ①~⑤.

① () ② () ③ () ④ () ⑤ ()

(2) Choose one whose underlined word has the same meaning as (a).

- a. The topic is of universal interest. b. I liked his liberal way of thinking
c. I went into a large living room. d. His home is a long way from this station.

(3) Put the words in underlined part (b) into the correct order.

... the drivers _____.

(4) Choose the appropriate sentence into (c).

- ① In all ages, optical illusions are of great use.
② Optical illusions are just illusions.
③ By using optical illusions effectively, we will be released from reality.
④ There will always be drivers who are tricked by such optical illusions.

(5) The optical illusion often employed in the interior design of a house is able to .

- ① make a ceiling appear higher than it really is
② make a ceiling appear larger than it actually is
③ make the walls look darker than they really are
④ make the walls look farther than they really are from each other

(6) Optical illusions used on some roads are useful .

- ① to make drivers frequently have a look at traffic lights
② when some guides for drivers are needed
③ for making drivers drive safely
④ to make the roads look narrower than they actually are

(7) According to the passage, one fact is that .

- ① optical illusions trick our eyes and make the real length longer
② we should find a wider variety of useful applications for optical illusions
③ the first illustration looks the same to everyone
④ optical illusions have been historically incorporated in Japanese landscape architecture

1 Listen to the dialog and choose the most appropriate answer to the question.

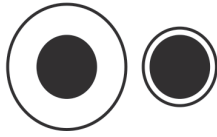
- (1) [A] It is an old painting of scenery in Italy.
[B] It is an upside-down portrait of the artist's face.
[C] It is a painting of a pear tree that looks like a human face.
[D] It is a painting that tricks the eyes.
- (2) [A] He enjoys visiting history museums.
[B] He will take the girl to an art gallery.
[C] He took some wonderful pictures of three-dimensional art at a museum.
[D] The rain will stop by the weekend.
- (3) [A] A picture of rocks at different angles.
[B] An illusion of a hole in the ground.
[C] A picture of a scene in London.
[D] Safety markings for car drivers.

2 Listen to the explanation and choose the most appropriate answer to the question.

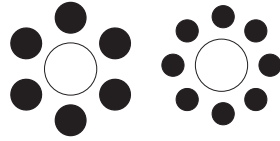
- (1) [A] Attract a mate using optical illusions.
[B] Build a nest using stones and flowers.
[C] Line up stones to protect its partner.
[D] Decorate itself with flowers and feathers.
- (2) [A] Buy a mirror for the living room.
[B] Put a table against the wall.
[C] Paint the living room ceiling white.
[D] Paint dark colors on the walls.

3 Listen to the dialog and choose the picture that matches the content.

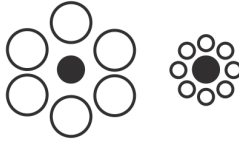
①



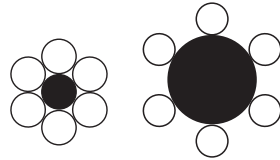
②



③



④



4 Listen to the dialog and choose the most appropriate answer to the question below.
You may take notes in the table below.

Mia	
Ken	
Sarah	
Ricky	

Question: What do Mia and Sarah disagree about?

- [A] The blue dress with white stripes is the most attractive.
- [B] The pink dress is the perfect length for Mia.
- [C] Mia's skin tone would look good in a pink dress.
- [D] Horizontal stripes give the illusion of width.



1 Read the following passage and answer the questions. (静岡大学)

When psychologist Joseph Jastrow created his (1)strange duck/rabbit picture (see Fig. 1) in 1899, it was to prove that an individual's way of seeing the world is based on their emotional state, background, and surroundings.

A child with a favorite pet rabbit, for example, or an adult looking forward to Easter would naturally see the rabbit, while the thoughts of an outdoor sports lover should immediately turn towards the duck. But now cooks believe the same mind games could alter the taste of food.

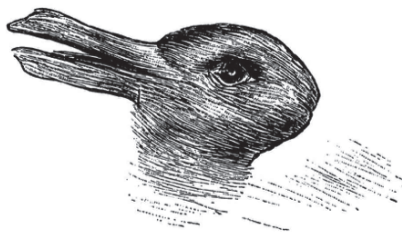


Fig. 1 The duck/rabbit picture created by Jastrow
(Source: Wikimedia Commons)

An experiment based on Jastrow's picture is currently attempting to see if it can alter the taste of food simply by encouraging the brain to switch between two states while eating.

The duck/rabbit picture is known in scientific terms as (2)a "bistable precept" or an image made up of two realities, which forces the brain to choose just one picture at a time or switch between the two.

To test if such brain switching could also change the taste of food, (3)the research team has created a dish which is a mixture of duck and rabbit. A simpler version of Jastrow's picture of the duck/rabbit image is then decorated onto the plate in an orange sauce in the hope that the switch between the two will essentially alter the flavor. If it works, it will be the first time that anyone has proven that taste can be altered simply by looking at a picture.

A professor of experimental psychology who has helped to create the dish said, "It may take two to three seconds but we think people might start to notice a different taste in their mouth, based on the image they are looking at. We found that people tend to see one of the pictures more easily to begin with, but then there comes the moment when they suddenly see the other, and the brain starts to switch between the two over and over, and it is that we are interested in."

The team is also hopeful that the moment of understanding the trick will also stimulate the reward center of the brain, flooding the body with happy hormones which, in turn, improves the taste.

Recently they created a clever dish in which the restaurant customer sitting opposite could pick out the face of Picasso, again creating the surprising moment of discovery which improves flavor and enjoyment.

The professor said, "We know that tricks like this create a sudden increase of happiness and pride when people finally see them, which starts the brain's reward mechanism and creates a more positive experience. It also stimulates laughter and conversation, and that kind of atmosphere at the table has been shown to improve our sense of taste."

"(4)Rabbit is also something we should be eating more of, so if we can convince people to have a conversation about the taste, and give it a try to see if they like it, then it might change their idea of it being an acceptable meat. Currently in Britain rabbits are viewed as pets, but in Spain they are seen as

everyday ingredients, so maybe we could change the perception in the UK because rabbit is an easy-to-find source of protein which we should be using more.”

In the first part of the experiment, the scientists asked nearly 1,000 people online to choose whether they thought the sauce on the dish was a duck or a rabbit.

The team is also experimenting with playing the sounds of duck hunting and the killing of animals while customers are eating to encourage people to take greater responsibility for where their food comes from.

(Adapted from Sarah Knapton, Gastro-trickery: how optical illusions could fool our minds and our taste buds. <https://www.telegraph.co.uk/science/2018/05/20/gastro-trickery-optical-illusions-could-fool-minds-taste-buds/>)

Questions

1. Why is Jastrow’s duck/rabbit picture described as ⁽¹⁾strange? Choose the most appropriate answer from the following, and write (a), (b), (c), or (d).
(a) Because it is strange that the picture looks like anything a person wants to see.
(b) Because the picture draws a strange animal that is part duck and part rabbit.
(c) Because it is strange that the picture looks like both a duck and a rabbit according to a person’s point of view.
(d) Because the picture is so strange that nobody understands what it is. _____
2. According to the article, what does the brain do when it sees ⁽²⁾a “bistable percept”?

Answer **in Japanese**.

3. According to the article, ⁽³⁾the research team has created a dish. What kind of dish did they create?
Answer **in Japanese**.

4. What do the scientists expect to happen during the first cooking experiment? Answer **in Japanese**.

5. The professor says, “⁽⁴⁾Rabbit is also something we should be eating more of.” Why aren’t people in the UK eating more rabbit? Answer **in Japanese**.
