

2 VOCABULARY PREVIEW

A Read the word lists. Put a check (✓) next to the words that you know and can use in a sentence. Compare your answers with a partner. Then look up any unfamiliar words in a dictionary.

Food and Nutrition	Academic Word List	Culinary Arts
additive food chemist seaweed	isolate occur physical respond (to)	chef flavor (v.) fry ingredient sauce

The chart shows selected words from the reading related to food and nutrition, culinary arts, and the Academic Word List (AWL). For more information about the AWL, see page 121.

B Fill in the blanks with words from Part A.

- 1 She cooks in a large restaurant. She is an excellent _____.
- 2 You need an egg to make this cake. The egg is an important _____.
- 3 He studies and does experiments with food. He is a/an _____.
- 4 Scientists had to _____ the virus so that they could make a vaccine.
- 5 She felt better as soon as her body began to _____ to the medicine.
- 6 She poured the thick _____ on top of the meat.
- 7 Herbs, salt, and pepper give food more taste. They _____ food.
- 8 He had a bad _____ reaction to the food.
- 9 "How are you going to cook the chicken?" "I'm going to _____ it."
- 10 Sometimes answers to problems _____ to us when we aren't trying to think about them.
- 11 The food contained a/an _____ to help it stay fresh.
- 12 The ocean contains a lot of _____. As a food, this is a great source of minerals for the human body.



3 READING

Preview the question in Reading Check Part A on page 61. Then read the story.

The Fifth Taste



Since ancient times, people have recognized four basic tastes. One is sour, like a lemon. Another is salty, like potato chips. The third is sweet, like sugar. The fourth taste is bitter, like coffee or unsweetened chocolate.

It wasn't until the late 1800s in Paris that a famous chef, Auguste Escoffier, made a new discovery about taste. First, he fried beef in a pan at a very high heat until it was brown. Then he added a liquid and scraped the browned meat from the bottom of the pan. The taste of the browned meat stock¹ wasn't sweet, salty, bitter, or sour. Escoffier was a chef, not a scientist, but he was sure he had found a fifth taste. He used his discovery to create some of his famous sauces.

About 20 years later in Japan, Kikunae Ikeda was eating a bowl of soup. As he ate, he tried to decide what made the soup so delicious. His wife told him how she made it. The basic ingredient was *dashi*, a stock made with kelp, or dried seaweed. Suddenly, it occurred to him, too: there weren't four tastes. There was a fifth taste, and this was it – the deep, full taste in the stock!

Ikeda was a food chemist. He decided to use his knowledge and skills as a chemist. He wanted to know exactly what this fifth taste was. He went to work in his laboratory and found the answer –

¹ *stock*: a liquid used to add flavor to food that is made by boiling meat or fish bones or vegetables in water

glutamate. Glutamate is an amino acid² that is produced when living things begin to die. For example, the production of glutamate happens when cheese ages or meat cooks. Its taste is very different from the other four tastes. Ikeda decided to call the taste *umami*. This comes from a Japanese word that means “delicious.”

5 Ikeda continued to work with glutamate. He wanted to use this natural amino acid to make food more delicious. He was looking for a way to make umami similar to salt or sugar – an additive to flavor food. Finally, he isolated the glutamate and found that he could add salt (sodium) to it. Monosodium glutamate, or MSG, was the food additive he was looking for. It produced the fifth taste.



Kikunae Ikeda

6 Ikeda and another man started a company, Ajinomoto, to make MSG. Soon Ajinomoto was selling MSG all over the world. Today 1.5 million tons of MSG are used every year, and Ajinomoto sells one-third of it.

7 Ikeda’s MSG was a huge commercial success, but some scientists did not believe umami was really a fifth taste. They continued to believe that there were only four tastes. Then, in 2000, almost 100 years after Ikeda’s discovery, scientists found physical proof. The human tongue contains tiny receptors, or taste buds,³ which allow us to tell the difference between tastes. Scientists found that these receptors responded to glutamate in a special way. In fact, they found that the receptors responded in that way only to glutamate, and not to any of the other four tastes.

8 It turns out that the great French chef Escoffier was right. There are five tastes, not just four. Today, chefs in many parts of the world are using their knowledge of this fifth taste to create a new type of cuisine. The chefs are trying to use less salt and less butter. They are using foods with a lot of natural glutamate. The result is healthy food that is also very tasty. It’s delicious. It’s umami!

² *amino acid*: a chemical substance found in plants and animals

³ *taste buds*: groups of cells on the tongue that allow people to recognize tastes

4 READING CHECK

A Circle the number of the sentence that best expresses the main idea of the reading.

- 1 A chef and a chemist identified the fifth taste.
- 2 Amino acids are in the foods we eat.
- 3 People all over the world use MSG to flavor food.

B Circle the letter of the best answer.

- 1 Escoffier was famous for his ____ .
a sauces b fifth taste c umami
- 2 Ikeda was eating ____ when he discovered the fifth taste.
a seaweed b soup c sauce
- 3 Which of these is *not* true?
a Glutamate is the fifth taste.
b Glutamate is an amino acid.
c Glutamate is only in cooked food.
- 4 Escoffier's sauces had the fifth taste because ____ .
a they were very famous
b he made a sauce with seaweed stock
c he cooked the meat at a high temperature
- 5 In his laboratory, Ikeda added ____ to glutamate.
a sugar
b a stock
c sodium
- 6 People add MSG to food because it makes food ____ .
a healthier
b taste better
c cook more quickly
- 7 For many years, scientists did not believe Ikeda because ____ .
a they did not like the taste of MSG
b the amino acid glutamate did not exist
c there was no physical proof of a fifth taste
- 8 Special receptors on the ____ respond to glutamate.
a heart
b tongue
c nose

5 VOCABULARY CHECK

A Retell the story. Fill in the blanks with the correct words from the box.

additive	chef	flavor	food chemist
fried	ingredients	isolate	occurred
physical	respond	sauces	seaweed

Escoffier, a famous French _____¹, discovered a fifth taste when he _____² meat at a very high heat until it was brown. This was the way he made stock to use in his famous _____³.

A Japanese _____⁴ named Kikunae Ikeda was eating a delicious soup that his wife had made. One of the main _____⁵ of the stock was dried _____⁶. As he ate, it _____⁷ to him that the soup had a fifth taste. Ikeda did experiments in his laboratory. He found that the taste came from glutamate. He was able to _____⁸ glutamate and add sodium to it. He created a/an _____⁹ called MSG that people use to _____¹⁰ food.

Almost 100 years later, scientists found _____¹¹ proof that both Escoffier and Ikeda were right. The tongue has receptors that _____¹² only to this fifth taste.

B Which preposition follows the words in bold? Circle the answer.

- 1 She didn't **respond** (in / from / to) the question.
- 2 The answer **occurred** (in / from / to) her later.
- 3 MSG is an **additive** (in / from / to) many foods.
- 4 Sugar is an **ingredient** (in / from / to) most sodas.
- 5 The doctor **isolated** the sick patients (out / from / to) the healthy ones.

6 APPLYING READING SKILLS

Sometimes you are not sure about the meaning of a word or phrase in a reading. **Finding examples and definitions** of the word or phrase can help make its meaning clearer.

- A** Draw a line from the words on the left to an example or a definition from the reading on the right.

WORDS	EXAMPLES AND DEFINITIONS
salty	things found on the tongue that can tell different tastes
umami	like the taste of sugar
taste buds	like the taste of potato chips
kelp	an abbreviation for "monosodium glutamate"
sweet	related to the Japanese word for "delicious"
MSG	another word for "dried seaweed"

- B** Practice finding examples and definitions. Look back at the reading. Find examples or definitions of the following words.

WORDS	EXAMPLES AND DEFINITIONS
sodium	_____
bitter	_____
fried	_____
sour	_____
an additive	_____

7 DISCUSSION

Discuss the following questions in pairs or groups.

- 1 Which of the following describe you? Which do not describe you? "I like spicy food." "I have a sweet tooth." "I enjoy salty food." "I try not to eat food with MSG." Explain.
- 2 In your family, who is the best cook? Why is his or her cooking so good?
- 3 What foods do you think people will be eating a hundred years from now?