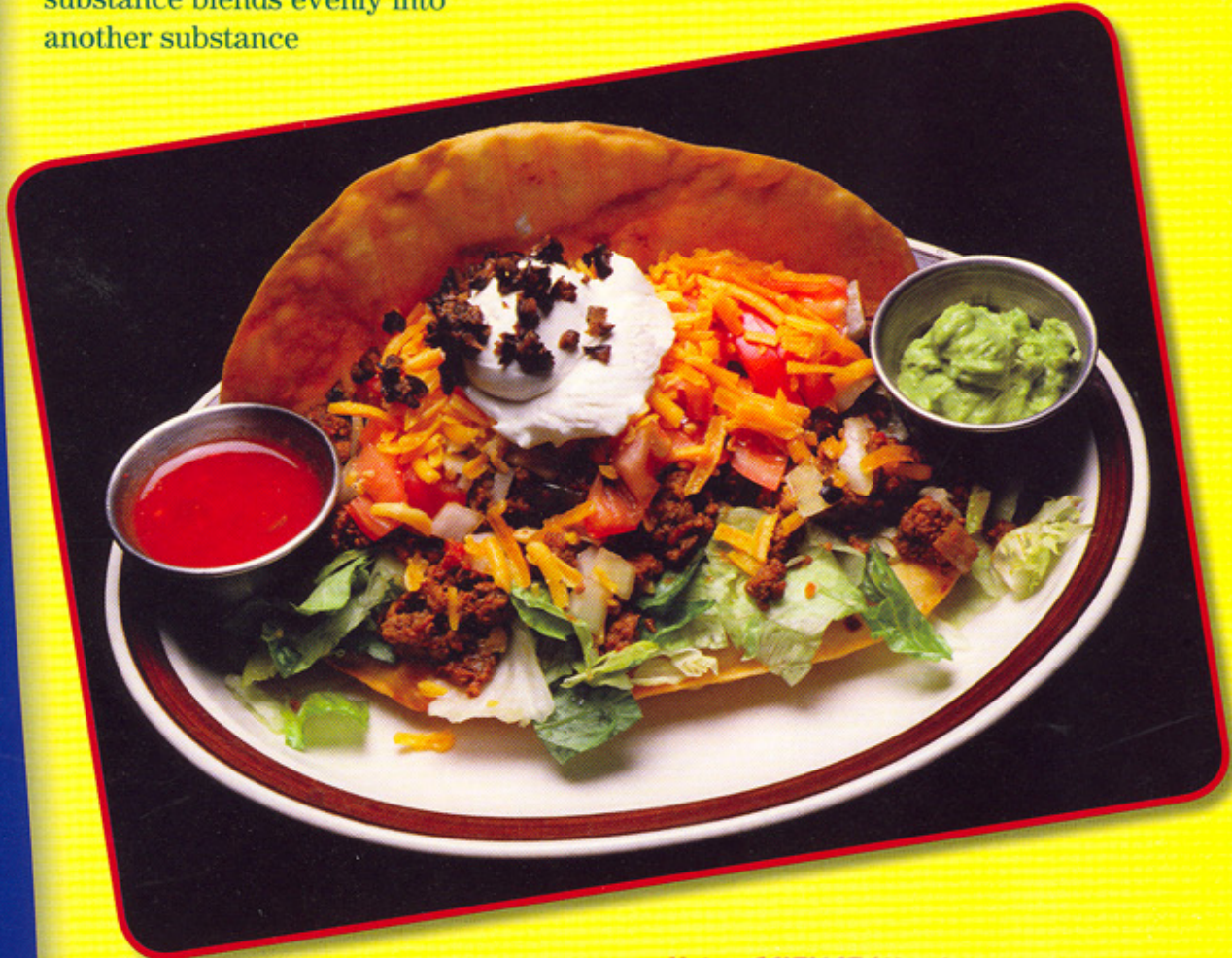


Combining Substances

Mixture (miks' chər) a combination of two or more substances

Solution (sə lū'shən) a mixture in which one substance blends evenly into another substance



Using SCIENCE Words

1. Which statement below is true?
 - A. A mixture is a solution.
 - B. A mixture has one substance.
 - C. A solution is a mixture.

- 1 When you add substances together, you get a **mixture**. You eat and drink mixtures every day. A taco is a mixture of meat, beans, and cheese. A salad is a mixture of vegetables. Chocolate milk is a mixture of chocolate and milk.
- 2 Oceans are also mixtures. They contain water, salt, and bits of sand. Rocks are usually mixtures of minerals. Air is a mixture of gases.
- 3 No new substances are created in a mixture. The substances in a mixture keep their own properties. This means that mixtures can be undone.
- 4 Think of a salad. You can see different substances. There are tomatoes, carrots, and lettuce. Tomatoes still have the properties of tomatoes. Carrots still have the properties of carrots.
- 5 Salt water is a different kind of mixture. It is not as easy to tell its substances apart. Pour salt into a glass of water. Then stir it with a spoon. The mixture will look like water. You can't see the salt anymore.
- 6 The salt dissolved in the water. This means that the salt mixed evenly in the water. Salt water is a solution. A **solution** is a mixture in which one substance mixes easily into another substance.
- 7 Lemonade is another solution. Sugar dissolves in water and lemon juice. The sugar is mixed evenly in the water and lemon juice. You cannot see grains of sugar.
- 8 It's not as easy to separate the substances in a solution. Still, it can always be done. How could you separate the salt in the saltwater solution?
- 9 Leave a solution of water and salt in a sunny place. The sun's heat will make the water evaporate. Only salt will be left in the cup. You also could boil the solution. The water would escape as steam. The salt would remain.
- 10 Heat changes the water from a liquid to a gas. Changing the state of one substance is a common way to separate a solution.

COMPREHENSION

Write the letter of the best answer.

- Any combination of two or more substances is a _____.
 - food
 - liquid
 - mixture
- An ocean is _____.
 - a substance
 - a mixture
 - two substances
- You can always separate a mixture because _____.
 - the substances keep their own properties
 - mixtures are always solids
 - the new substance is easy to see
- The substances in a solution _____.
 - don't mix easily
 - mix together evenly
 - can't be separated
- What is one way to separate a solution?
 - Solutions cannot be separated.
 - Stir the solution.
 - Heat the solution.

LEARN ABOUT WORDS

- A. You can often tell the meaning of a word by reading the words around it. Look at each number in parentheses. Find the paragraph in the reading with the same number. Then find the word that fits the given meaning. Write the word.
- a mixture of vegetables (1)
 - taken apart (3)
 - features that describe something (3)
 - same all the way through (6)
 - small pieces of sugar (7)
 - dry up (9)
- B. Pups are **little** dogs, not **big** ones. Words with opposite meanings are antonyms. *Little* is an antonym of *big*. Read each sentence, and write the word that means the opposite of the word in **bold type**.
- It is **easy** to make mixtures.
simple difficult
 - You **combine** peanut butter and jelly to make a sandwich.
blend separate
 - Substances are **blended** in a solution.
mixed separated
 - Water is a **common** substance.
rare usual

THINK ABOUT IT

Suppose you are investigating ways to separate mixtures. You have these four mixtures:

1. water and sand
 2. water and sugar
 3. sand and iron filings
 4. sugar and flour
-
17. Which mixture could be most easily separated with a sieve?
 - A. 1
 - B. 2
 - C. 3
 - D. 4

 18. Which mixture could be most easily separated with a magnet?
 - A. 1
 - B. 2
 - C. 3
 - D. 4

Using SCIENCE Words

1. C

Comprehension

2. c
3. b
4. a
5. b
6. c

Learn About Words

- A. 7. salad
8. undone
9. properties
10. evenly
11. grains
12. evaporate
- B. 13. difficult
14. separate
15. separated
16. rare

Think About It

17. A
18. C

Writing About Science

List a solution, and explain how you could separate the substances.