

# Talk About Dense

When you drop ice cubes into a glass of water, the ice floats to the top. Why? Ice is not as dense as water. But is that always a cold, hard fact?

In most substances, the solid form is more dense than the liquid form. A bar of solid gold, for example, sinks to the bottom of a bucket of liquid gold.

Scientists have been trying to determine why water is an exception. In the process, they have developed a new kind of ice that is denser than water.

This new ice is made of water molecules. Unlike regular ice molecules, the molecules in the new ice do not fall into regular patterns. They are packed more tightly, as well.

In order to make ice that sinks, scientists squeeze regular ice at very low temperatures- much colder than the temperature in your freezer. The squeezing and freezing changes the arrangement of water molecules into high-density ice. Scientists have found five new kinds of water ice, in addition to 13 types already known. Scientists think that the new ices may exist naturally elsewhere in the universe.

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. According to the passage, how many types of ice do scientists know about already?
  - A 18
  - B 5
  - C 13
  - D 1
  
2. According to the passage, what happens when you drop a bar of gold into liquid gold?
  - A it floats at the top
  - B it sinks to the bottom
  - C it stays at the surface
  - D it sinks down to the middle
  
3. Based on the passage, it is likely that
  - A ice is always less dense than water
  - B scientists have found all the types of ice in the universe
  - C most people would not be able to create ice that is denser than water
  - D solid gold is less dense than liquid gold
  
4. Read the following sentence and answer the question below: "The squeezing and freezing changes the arrangement of water molecules into high-density ice. Scientists have found five new kinds of water ice, in addition to 13 types already known"

What does the word **arrangement** mean?

  - A smell
  - B feel
  - C pattern
  - D size
  
5. This passage is mostly about
  - A the discovery of a new kind of water that can be frozen into ice
  - B how to turn liquid gold into a solid
  - C the discovery of a new ice that is denser than liquid water
  - D how water freezes

6. How are the new ice molecules different from the old ones?

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7. Based on the passage, did the scientists mean to create a new kind of ice? Why or why not?

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8. The question below is an incomplete sentence. Choose the word that best completes the sentence.

Most ice is less dense than water so it floats, \_\_\_\_\_ scientists have discovered a new ice that is denser than water.

- A however
- B because
- C so
- D after

9. Answer the following questions based on the sentence below.

Last year, scientists made dense ice by squeezing regular ice at very low temperatures.

Who? scientists

(did) What? \_\_\_\_\_

When? \_\_\_\_\_

How?

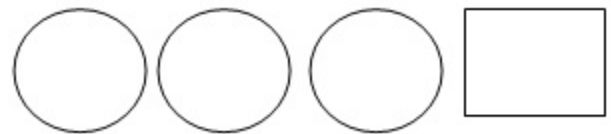
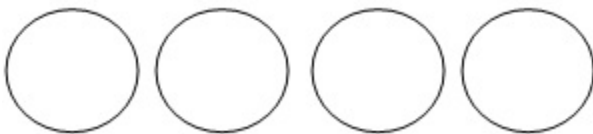
**Directions:** Read the vocabulary word and definition below to complete questions 10a, 10b, and 11.

Vocabulary Word: **exception** (ex-cep-tion): not included, usually in a group or a rule.

**10a.** Read the sentences below and underline all forms of the word **exception**.

1. We usually have to do our homework immediately after school, but today mom made an exception and we got ice cream instead!
2. Everyone in class today is wearing a green shirt, with the exception of Sam, who wore a purple one.
3. Everyone is going on the field trip, with the exception of Bob, because he forgot his permission slip.
4. Everyone flew to Hawaii, but Tom, who is afraid of planes, was the exception.
5. Mammals do not generally lay eggs, with the exception of the platypus, which does lay eggs.

**10b.** Which image demonstrates an exception?



**11.** If your landlord does not allow pets in the building, but he allows you to have a dog, is that an exception? Why or why not?

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