

Chemical evidence shows that platelets (minute flat portions) of ice form in the water and then **accrete** and stick to the bottom of the ice shelf to form a slush (partially melted snow). The slush is compacted by an unknown mechanism, and solid, bubble-free ice is formed from water high in soluble organic substances. When an iceberg separates from the ice shelf and capsizes, the green ice is exposed.

10. The word “**accrete**” in the passage is closest in meaning to

- advance
- transfer
- flatten out
- come together

11. Which of the following is NOT explained in the passage?

- Why blocks of ice break off where glaciers meet the ocean
- Why blocks of shelf ice sometimes capsize after breaking off
- Why green icebergs are commonly produced in some parts of Antarctica
- Why green icebergs contain large amounts of dissolved organic pigments

12. The passage supports which of the following statements about the Amery Ice Shelf?

- The Amery Ice Shelf produces only green icebergs.
- The Amery Ice Shelf produces green icebergs because its ice contains high levels of metallic compounds such as copper and iron.
- The Amery Ice Shelf produces green icebergs because the seawater is rich in a particular kind of soluble organic material.
- No green icebergs are found far from the Amery Ice Shelf.

Icebergs are ordinarily blue to white, although they sometimes appear dark or opaque because they carry gravel and bits of rock. They may change color with changing light conditions and cloud cover, glowing pink or gold in the morning or evening light, but this color change is generally related to the low angle of the Sun above the horizon. **(1)** However, travelers to Antarctica have repeatedly reported seeing green icebergs in the Weddell Sea and, more commonly, close to the Amery Ice Shelf in East Antarctica.

(2) One explanation for green icebergs attributes their color to an optical illusion when blue ice is illuminated by a near-horizon red Sun, but green icebergs stand out among white and blue icebergs under a great variety of light conditions. **(3)** Another suggestion is that the color might be related to ice with high levels of metallic compounds, including copper and iron. **(4)** Recent expeditions have taken ice samples from green icebergs and ice cores—vertical, cylindrical ice samples reaching down to great depths—from the glacial ice shelves along the Antarctic continent. Analyses of these cores and samples provide a different solution to the problem.

13. **Directions:** Look at the part of the passage that is displayed above. The numbers **(1), (2), (3),** and **(4)** indicate where the following sentence could be added.

Scientists have differed as to whether icebergs appear green as a result of light conditions or because of something in the ice itself.

Where would the sentence best fit?

- Choice 1
- Choice 2
- Choice 3
- Choice 4

14. **Directions:** An introductory sentence for a brief summary of the passage is provided below. Complete the summary by selecting the THREE answer choices that express the most important ideas in the passage. Some sentences do not belong in the summary because they express ideas that are not presented in the passage or are minor ideas in the passage. **This question is worth 2 points.**

Several suggestions, ranging from light conditions to the presence of metallic compounds, have been offered to explain why some icebergs appear green.

-
-
-

Answer Choices

1. Ice cores were used to determine that green icebergs were formed from the compaction of metallic compounds, including copper and iron.
2. All ice shelves can produce green icebergs, but the Amery Ice Shelf is especially well suited to do so.
3. Green icebergs form when a two-layer block of ice breaks away from a glacier and capsizes, exposing the bottom sea ice to view.
4. Ice cores and samples revealed that both ice shelves and green icebergs contain a layer of bubbly glacial ice and a layer of bubble-free sea ice.
5. Green icebergs are white until they come into contact with seawater containing platelets and soluble organic green pigments.
6. In a green iceberg, the sea ice contains large concentrations of organic matter from the seawater.