



Bypassing the liquid water phase, those molecules
condense directly onto the established hexagonal pattern.

As a result, the flake grows outward into bigger and more complex hexagonal arrangements surrounding the original hexagonal shape at the center of the flake. [C]

[3]

In 2009, Libbrecht and Arnold's experiments revealed that triangular snowflakes begin with the same process of chemical bonding and forms a hexagonal shape. The triangular shape is an illusion resulting from

one significant addition to the process dust.

[4]

Triangular snowflakes begin to form when a tiny dust particle or other such impurity collides with the flake as it falls, thereby pushing one edge upward. [D] The downward edge of the snowflake encounters more wind resistance than the rest of the flake. The greater the pressure from the wind, causes bonds to form

quick at this edge than in the rest of the snowflake.

[5]

The resulting snowflake has three long sides and three sides that are so short they are difficult to detect. Although these snowflakes appear to have a triangular shape—they actually have a hexagonal pattern. Such snowflakes offer evidence that even when impurities

interfere, the basic laws of chemistry still apply.

7. If the writer were to delete the underlined portion (adjusting the capitalization as needed), the sentence would primarily lose:

- A. an explanation of the process water molecules undergo to change from liquid to vapor to solid.
- B. a detail that mentions a step some water molecules skip in changing from vapor to solid.
- C. a visual description of what water vapor molecules look like.
- D. an explanation of how molecules react to various air temperatures.

8. F. NO CHANGE
G. were they to form
H. if they formed
J. form

9. A. NO CHANGE
B. process is
C. process:
D. process;

10. F. NO CHANGE
G. pressure from the wind, which
H. the pressure, as the wind
J. pressure from the wind

11. A. NO CHANGE
B. more quickly
C. most quickly
D. quickest

12. F. NO CHANGE
G. shape,
H. shape;
J. shape:

13. Which choice most effectively concludes the sentence and the essay?

- A. NO CHANGE
- B. scientists can be certain that a solution to even the most confusing event will be found.
- C. snowflakes will still fall if atmospheric conditions are favorable.
- D. snowflakes come in many different shapes and sizes.



Questions 14 and 15 ask about the preceding passage as a whole.

14. The writer is considering adding the following sentence to the essay:

This growth can take the form of either branching (which forms stable, symmetrical shapes) or faceting (which forms unstable, complex shapes).

If the writer were to add this sentence, it would most logically be placed at Point:

- F. A in Paragraph 1.
- G. B in Paragraph 1.
- H. C in Paragraph 2.
- J. D in Paragraph 4.

15. Suppose the writer's primary purpose had been to offer an example of a discovery that changed the way scientists viewed the basic laws of chemistry. Would this essay accomplish that purpose?

- A. Yes, because it describes how the observation of triangular snowflakes has led scientists to discover that their understanding of the basic laws of chemistry is flawed.
- B. Yes, because it describes how scientists have applied the knowledge they've gained through studying snowflakes to other areas of chemistry.
- C. No, because it focuses on how scientists are struggling to determine how triangular snowflakes are formed.
- D. No, because it explains that triangular snowflakes appeared to, but don't actually, violate the basic laws of chemistry.

PASSAGE II

Climbing Mt. Fuji

[1]

Bundled up in wool sweaters and thick

coats, and we watched the sun setting on Mt. Fuji

¹⁶

in Japan. It was August and our clothes were stifling,

but we would have needed the warmth from our bodies

¹⁷

sealed around us as we hiked into the high altitudes.

Three friends and I stepped away from the crowd of

other hikers and spoke our intention: "Sunset at the

base, sunrise at the top." [A]

[2]

As we hiked, a patchwork of clouds swept across

the darkening sky, hiding all traces of our surroundings

outside our flashlights' beams. The trail gradually changed

from compact dirt to a jumble of volcanic rocks. [B]

- 16. F. NO CHANGE
- G. coats while watching
- H. coats, we watched
- J. coats watching
- 17. A. NO CHANGE
- B. would need
- C. will need
- D. need



We tried to steady ourselves with our
walking sticks but slipped and stumbled

because of the jumbled rocks we were slipping on.

18

[3]

Every thousand feet, we came to a small station
constructed of tin and cement, barely able to block
the wind. At each one, we noted the roof piled high on
fallen rocks and felt both unsettled and reassured by this
evidence of the station's protective ability. We rested
uneasily for a moment as a clerk burned the station brand
into our walking sticks which it was proof of our progress
through the darkness.

20

[4]

As we neared the summit, the whole group of
hikers—thinly spread across the mountain for most of

21

the route—condensed, forming an illuminated line along

22

the trail. [C] Our pace slowed. Progressing along the trail,
we reached the summit just five minutes before dawn. [D]

23

In the half-light of the rising sun: we began to make

24

out the dark lines of the cliffs' at the crater's edge.

25

18. F. NO CHANGE
G. even though we used our walking sticks.
H. despite any efforts to remain steady.
J. with each step.

19. A. NO CHANGE
B. piling high with
C. piled high with
D. piling high on

20. F. NO CHANGE
G. sticks, it was proof of
H. sticks, proof of
J. sticks proved

21. A. NO CHANGE
B. the most part
C. majority
D. more

22. F. NO CHANGE
G. they formed
H. there was
J. we saw

23. Which choice emphasizes the slowness of the ascent and supports the idea that the narrator's group of friends did not set their own pace?
A. NO CHANGE
B. Able to advance only a few steps at a time,
C. Moving forward with each step,
D. Climbing higher in altitude,

24. F. NO CHANGE
G. sun—
H. sun,
J. sun;

25. A. NO CHANGE
B. cliff's at the craters'
C. cliffs at the crater's
D. cliffs at the craters

He crouched down on fitting pieces of rock and waited for the shifting clouds to clear. He waited for the sun. :

27

Generally, a sudden gap in the clouds left us thinking

27

as the sunlight splashed out the severe landscape of gray volcanic rock. He leaned against each other, spent.

28

Perhaps there is truth in the old Japanese saying: wise man climbs it. Only a fool climbs it twice.

Questions 29 and 30 ask about the preceding passage as a whole.

29. The writer wants to add the following sentence to the essay:

We clipped small flashlights onto our coats, picked up our walking sticks, and started up the trail with the other hikers as the sun dipped below the trees.

The sentence would most logically be placed at point:

- A. in paragraph
- B. in paragraph
- C. in paragraph
- D. in paragraph

26. If the writer were to delete the preceding sentence, the paragraph would primarily lose:

- F. a restatement of an idea that emphasizes the hikers' anticipation when they reached the summit.
- G. a statement that introduces the idea of waiting, which is the focus of the following paragraph.
- H. an unnecessary detail that contradicts information presented earlier in the paragraph.
- J. a clear image that conveys what the hikers saw when they reached the summit.

27. A. NO CHANGES

- B. Furthermore,
- C. Once again,
- D. Finally,

28. Which choice most dramatically emphasizes the ruggedness of the landscape?

- F. NO CHANGES
- G. shattered over
- H. smothered
- J. went over

30. Suppose the writer's primary purpose had been to describe the experience of doing something difficult. Could this essay accomplish that purpose?

- F. Yes, because it tells about a variety of challenges the hikers faced along their journey.
- G. Yes, because it focuses primarily on the hikers' need for walking sticks and other tools to make it up the trail.
- H. No, because it focuses on the rewarding nature of the experience but does not describe the hike as challenging.
- J. No, because it focuses mainly on the beauty of the surrounding landscape.

PASSAGE III

The Pottery of Mata Ortiz

In the early 1990s, a twelve-year-old

boy named, Juan Quezada, gathered firewood

31

in the mountains near the village of Mata Ortiz

in Chihuahua, Mexico. Though he dreamed of

becoming an artist, Quezada spent all of his free

time selling firewood to help support his family.

31. A. NO CHANGES

- B. boy named Juan Quezada
- C. boy, named Juan Quezada
- D. boy named Juan Quezada,



In the mountains, Quezada found shards of
pots, and an occasional complete pot, painted with
intricate red and black designs. These were artifacts
from his ancestors, the Paquimé (or Pasas Grandes
Indians, who lived in the area from about 2000 B.C. to
A.D. 900). Fascinated by the geometric designs,
Quezada wondered, if he could make pots like these.

He dug the clay, soaked it, and tried to shape it
into a pot. In time, he figured out how his ancestors had
mixed the clay with volcanic ash to keep it from cracking
and had used minerals found nearby to create paints. When
it was time to paint his pots, Quezada designed his own
complex geometric patterns.

As an adult, Quezada found a job with the
railroad, but he always made time for his art. When
he was selling pots to travelers and had taught several
members of his family how to make pots. Three of
Quezada's pots were discovered in a junk shop in
New Mexico by anthropologist Spencer MacCallum,
who at first thought they were prehistoric.

His search for their creator led him to Tula

Tlaxcala and an eventual partnership with Quezada.

32. Which of the following alternatives to the underlined
portion would be acceptable?

- F. pots—along with an occasional complete pot—
- G. pots, along with an occasional complete pot,
- H. pots, (and an occasional complete pot)
- J. pots (and an occasional complete pot)

33. A. He dug the clay, soaked it, and tried to shape it
B. wondered if he could make pots like these.
C. wondered, if he could make pots like these.
D. wondered if he could make pots like these.

34. Which of the following true statements would provide
the best transition from the preceding paragraph to this
paragraph?

- F. The village of Tula is only three streets wide
but stretches for a mile between the Pasas Grandes
and the railroad tracks.
- G. The patterns on Tula pottery that Quezada
admired are based on the techniques of the ancient
Paquimé.
- H. Quezada began working with clay from the
mountains.
- J. Quezada's painted designs became increasingly
complex.

35. A. He dug the clay, soaked it, and tried to shape it
B. a dedication to teaching
C. a teacher of
D. has taught

36. In the preceding sentence, the clause "who at first
thought they were prehistoric" primarily serves to
indicate

- F. how close Quezada had created his pots within
the Paquimé tradition.
- G. that Quezada's technique as a potter wasn't
well developed yet.
- H. how strikingly simple Quezada's pots were in
shape and design.
- J. that the style of Quezada's pots was outmoded.

37. A. He dug the clay, soaked it, and tried to shape it
B. lead himself
C. led himself
D. lead him

38. Which choice most strongly suggests that Quezada's
partnership with MacCallum was not formed right
away upon MacCallum's arrival in Tula?

- F. He dug the clay, soaked it, and tried to shape it
- G. a circumstantial
- H. a momentary
- J. a timely