

Dynamic Planet 2013 Clio Invitational

True/False

Indicate whether the statement is true or false.

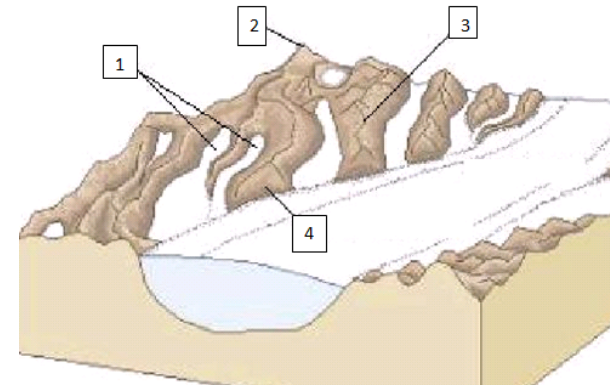
- ___ 1. Valley Glaciers are larger than ice sheet glaciers, and form in mountains.
___ 2. A cirque is a round shaped basin at the bottom of a glacial valley?

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- ___ 3. Which of the following is an example of an ice sheet glacier?
A. Antarctica
B. Rocky Mountains
C. The Alps
D. Himalayas
- ___ 4. How do glaciers move?
A. They don't
B. Gravitational Forces
C. Internal movements only
D. External and internal movements
- ___ 5. The slipping on a layer of water between the ice and the bedrock is known as:
A. Slip and slide
B. Faulting
C. Glacier slipping
D. Basal slipping
- ___ 6. What takes place at the zone of accumulation on a glacier?
A. The glacier begins to lose ice and water due to an increase in temperatures.
B. Snow accumulation occurs and builds up over time.
C. Basal Slipping
D. Icebergs begin to form.
- ___ 7. What takes place at the zone of ablation?
A. Accumulation of snow and ice occur.
B. The glacier begins to deposit till.
C. Snow and ice loss occur through melting and calving.
D. This is where a geologist sleeps at night.
- ___ 8. What is a tarn?
A. Built up sediment at the end of a glacier.
B. A small lake left behind in a cirque from glacial ice melt.
C. A long winding river that travels through a hanging valley into the main glacial trough.
D. Where Harrison Ford swims in the summer.
- ___ 9. What is an outwash plain?
A. A moraine.
B. Sand and gravel deposited by glacial melt water.
C. A large group of cirques lined adjacent to each other.
D. Something that has been washed out because it is dirty.
- ___ 10. Where do mountain glaciers form?
A. High latitudes.
B. High altitudes.
C. Low altitudes.
D. Low latitudes.
- ___ 11. Where do continental glaciers form?
A. High latitudes.
B. High altitudes
C. Low altitudes.
D. Low latitudes.
- ___ 12. Where within a mountain glacier does the ice move the fastest?
A. The outside.
B. The middle.
C. The front.
D. The back.
- ___ 13. Sediment deposited on land or in water as a result of glaciation are
A. Loess
B. Sand
C. Glacial deposits
D. Dirt
- ___ 14. A boulder transported by glaciers and left behind on the surface as the glacier ice melted is.
A. Till
B. Iceberg
C. Fruity Pebbles
D. Erratic
- ___ 15. What direction do glaciers advance from?
A. North
B. South
C. East
D. West
- ___ 16. This layer of the atmosphere is where weather occurs, contains 80% of the atmosphere's mass, and temperature decreases with increasing height.
A. Thermosphere
B. Mesosphere
C. Troposphere
D. Stratosphere
- ___ 17. This layer of the atmosphere contains 18% of the atmosphere's mass, temperature increases as height increases, and contains the Ozone layer.
A. Troposphere
B. Stratosphere
C. Mesosphere
D. Thermosphere
- ___ 18. This global atmospheric circulation cell is found near the equator at latitudes of 0 to 30 degrees. It also carries warm moist air.
A. Hadley Cell
B. Ferrel Cell
C. Will Ferrel Cell
D. Polar Cell
- ___ 19. All of the following are green house gases except.

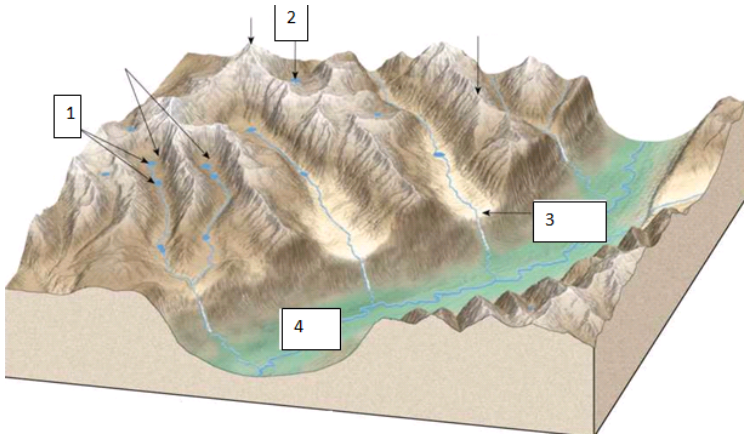
- A. Carbon Dioxide
 B. Water Vapor
 C. CFC's
 D. Oxygen
 E. Methane
- ___ 20. What drives surface currents?
 A. Wind
 B. Water
 C. Lava
 D. Lightning
- ___ 21. The movement of material (sediment, sand, and gravel) along a beach at an angle is known as.
 A. Short shore transport
 B. Medium shore transport
 C. Longshore transport
 D. Beach drift
- ___ 22. What are Sea arches and sea stacks associated with?
 A. Wave reflection
 B. Hurricanes
 C. Longshore transport
 D. Wave Refraction
- ___ 23. What does a wave move?
 A. Water
 B. Sand
 C. Energy
 D. Nemo (Yes the Fish!)
- ___ 24. Tides are driven by
 A. The gravitational influence of Earth's core
 B. Earth's magnetic field
 C. The gravitational influence of the moon and the sun
 D. The gravitational influence of the big dipper
- ___ 25. What drives thermohaline currents?
 A. Saltier warm water rises, less salty cold water sinks.
 B. Saltier cold water sinks, less salty warm water rises.
 C. Saltier warm water sinks, less salty cold water rises.
 D. Saltier cold water rises, less salty warm water sinks.
- ___ 26. What is a desert?
 A. A place that receives more than 10 inches of rain a year.
 B. A place that receives less than 10 inches of rain a year.
 C. A very hot place
 D. A place that were Mickey Mouse lives in the winter.



Match the following glacial features with their appropriate description, use the image above.

- A. Arête
 B. Horn
 C. Truncated spur
 D. Cirque
- ___ 27. Number one is pointing to an amphitheater shaped basin that lies at the head of a glacial valley.
 ___ 28. What glacial erosional landform is number two pointing to?
 ___ 29. Number three is pointing to a knife shaped ridge that has been eroded away on two sides.
 ___ 30. Number four is pointing to a triangular shaped cliff that lies at the end of an arête.

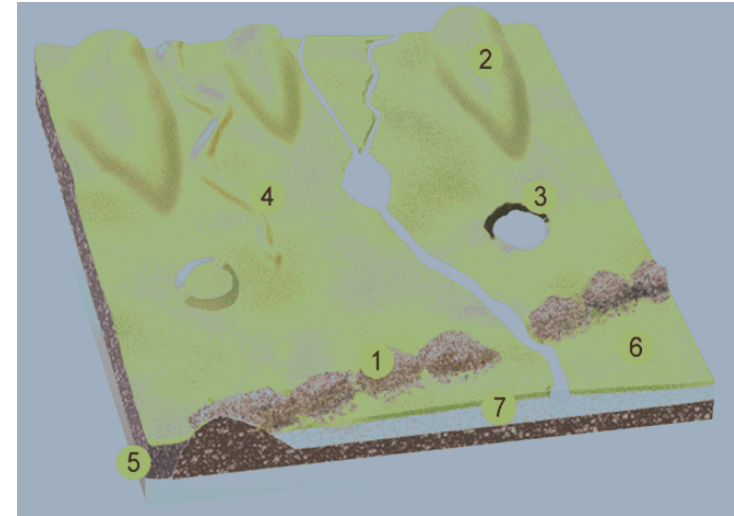
Matching



Match the following glacial features with their description, use the image above.

- | | |
|-------------------|-----------------------|
| A. Tarn | C. Pater Noster Lakes |
| B. Hanging Valley | D. Glacial Trough |

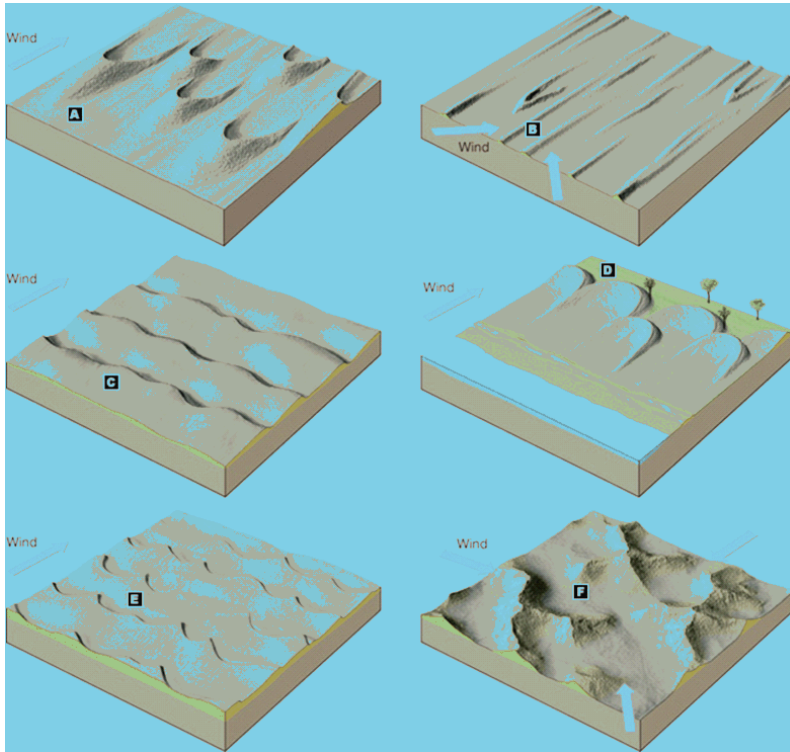
- ___ 31. Number one is pointing to a string of small glacial lakes (tarns) connected by a tributary.
- ___ 32. What is number four? (Hint: the u shaped valley structure).
- ___ 33. Number three is pointing to a landform where a tributary runs through and enters a glacial trough from high above the trough floor.
- ___ 34. What is number two pointing to?



Match the following glacial features and deposits with their description, use the image above.

- | | |
|-------------------|----------------------------|
| A. Ground Moraine | D. Outwash Plain |
| B. Drumlin | E. Till (terminal moraine) |
| C. Kettle Lake | F. Esker |

- ___ 35. What is number one pointing to?
- ___ 36. What is number three pointing to?
- ___ 37. Number four is a ridge of sorted sand and gravel deposited in sub glacial melt water tunnels.
- ___ 38. What is number six pointing to?
- ___ 39. Number two is pointing to an elongated hill formed when a glacier overrides glacial till.
- ___ 40. Number five is pointing debris accumulated under the glacier.



Match the following sand dune types with their description

- | | |
|--------------|---------------|
| A. Barchan | D. Transverse |
| B. Linear | E. Star |
| C. Parabolic | |

- ___ 41. In picture B, this sand dune forms from wind converging in two directions. There is also limited sand supply.
- ___ 42. In picture D, this sand dune forms on beaches as wind blows onshore, sand is plentiful.
- ___ 43. In picture A, this type of sand dune forms from wind that blows from one direction and has a limited sand supply.
- ___ 44. In picture C, this sand dune forms from wind in one direction, and there is plenty of sand.
- ___ 45. In picture F, there is limited sand supply and wind blows in many directions.

Short Answer

- 46. Define a glacier.
- 47. What are the differences between a Valley (Mountain or Alpine) Glacier?
- 48. What are the three types of internal glacier movement.
- 49. What are the two distinct types of glacial sediment and what is the difference between them?
- 50. What are the three stages of glaciation in Illinois and what are the years associated with them?
- 51. Explain the Milakovitch Theory
- 52. What three factors affect climate change?
- 53. What are the four layers of the atmosphere from lowest to the highest?
- 54. Why is the ozone layer important?
- 55. List some of the gases that made up our ancient atmosphere.
- 56. What are the two most abundant constituents of our present day atmosphere?
- 57. What is acid rain and how does it form?
- 58. Describe the green house effect.
- 59. Define the parts of a wave.
- 60. What causes a wave to break?
- 61. What is the difference between a spring and neap tide?
- 62. What effect does the thermohaline current have on our climate?
- 63. List the types of deserts and where we find them.
- 64. Describe wind transport.

**Practice Exam 4: Glaciers, Atmosphere, Oceans, and Deserts
Answer Section**

TRUE/FALSE

1. ANS: F
Valley glaciers are smaller.

PTS: 1
2. ANS: F
Cirques are at the head of a glacial valley.

PTS: 1

MULTIPLE CHOICE

3. ANS: A PTS: 1
4. ANS: D PTS: 1
5. ANS: D PTS: 1
6. ANS: B PTS: 1
7. ANS: C PTS: 1
8. ANS: B PTS: 1
9. ANS: B PTS: 1
10. ANS: B PTS: 1
11. ANS: A PTS: 1
12. ANS: B PTS: 1
13. ANS: C PTS: 1
14. ANS: D PTS: 1
15. ANS: A PTS: 1
16. ANS: C PTS: 1
17. ANS: B PTS: 1
18. ANS: A PTS: 1
19. ANS: D PTS: 1
20. ANS: A PTS: 1
21. ANS: C PTS: 1
22. ANS: D PTS: 1
23. ANS: A
Water
Sand
Energy
Nemo (Yes the Fish!)

PTS: 1
24. ANS: C PTS: 1
25. ANS: B PTS: 1
26. ANS: B
A place that receives more than 10 inches of rain a year.

A place that receives less than 10 inches of rain a year.
A very hot place
A place that were Mickey Mouse lives in the winter.

PTS: 1

MATCHING

27. ANS: D PTS: 1
28. ANS: B PTS: 1
29. ANS: A PTS: 1
30. ANS: C PTS: 1

31. ANS: C PTS: 1
32. ANS: D PTS: 1
33. ANS: B PTS: 1
34. ANS: A PTS: 1

35. ANS: E PTS: 1
36. ANS: C PTS: 1
37. ANS: F PTS: 1
38. ANS: D PTS: 1
39. ANS: B PTS: 1
40. ANS: A PTS: 1

41. ANS: B PTS: 1
42. ANS: C PTS: 1
43. ANS: A PTS: 1
44. ANS: D PTS: 1
45. ANS: E PTS: 1

SHORT ANSWER

46. ANS:

-A mass of ice that flows.

PTS: 1
47. ANS:
-Mountain glaciers form at high altitudes and are smaller. Continental glaciers form at high latitudes and are larger.

PTS: 1
48. ANS:
-Rotation of grains (firn), slipping along weak surfaces, and melting and refreezing.

PTS: 1

49. ANS:
-Till: unsorted sediment deposited directly by the glacier. Sorted Sediments: sorted material laid down by glacial melt water.

PTS: 1
50. ANS:
-Pre-Illinoian (1.8 million to 700,000), Illinoian (300,000 to 125,000), and Wisconsinan (75,000 to 10,000).

PTS: 1
51. ANS:
-Change in Earth's tilt (41,000 years ago)
-Precession of Equinoxes, which means that the Earth wobbles on its axis (22,000 years ago).
-Eccentricity, a change in Earth's orbital pattern (100,000 years ago).

PTS: 1
52. ANS:
-Milankovitch cycles
-Decrease in Carbon Dioxide
-Continental Drift

PTS: 1
53. ANS:
Troposphere, Stratosphere, Mesosphere, Thermosphere

PTS: 1
54. ANS:
-Because it protects us from UV radiation.

PTS: 1
55. ANS:
-Methane, water vapor, ammonia, and hydrogen.

PTS: 1
56. ANS:
-Nitrogen and Oxygen

PTS: 1
57. ANS:
-Results from the chemical reaction between water and certain compounds in the atmosphere. Rain with a pH lower than 7. Is the result of carbon dioxide, sulfur oxides, and nitrogen oxides.

PTS: 1
58. ANS:

-Incoming solar radiation consists of short, high energy waves. These waves pass through the atmosphere and are absorbed by the Earth. Some of this absorbed energy is then released back into the atmosphere as long, low energy waves, which are absorbed by the particles in the atmosphere and raise the temperature.

PTS: 1
59. ANS:
-Crest, trough, and wave length

PTS: 1
60. ANS:
-When a wave's base is equal to 1/2 its wave length.

PTS: 1
61. ANS:
-Spring tides occur when the moon, earth, and sun are aligned. The high tides will be very high and the low tides will be very low. These are very strong tides.
-Neap tides occur when the sun and moon work at right angles. There is a small difference between the high tide and low tide. These tides are weak.

PTS: 1
62. ANS:
-It moderates our climate by redistributing energy.

PTS: 1
63. ANS:
-Subtropical: 30 degrees latitude.
-Continental interior: far from source oceans
-Rainshadow: adjacent to mountain ranges
-Coastal: next to oceans
-Polar: Arctic, high latitudes.

PTS: 1
64. ANS:
-Suspension, saltation, and surface creep.

PTS: 1