Geologic

This test will begin at 10:30. The first slide will ask you for your school, team and team members. 1 person should submit answers for the team. Be sure to hit Submit on each set of questions and watch the timer, once the section gets to 0:00, the test moves on.

Open Ended Question

Please list your School Name, Team (V, JV1, JV2, JV3), and team member first names.
Don't forget to hit submit to record your answers before the timer gets to 0:00.

Please enter your answer here.

Quiz

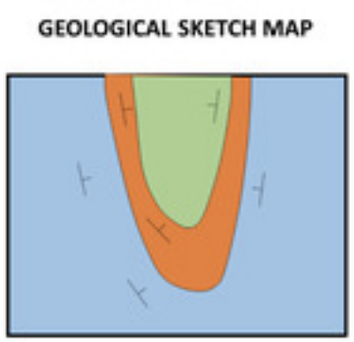
Quiz Section 1

For this geological map, assuming the beds are not overturned, the rocks get progressively younger toward which direction? You can click on the image to make it larger.

- top of page
- bottom of page
- right
- left

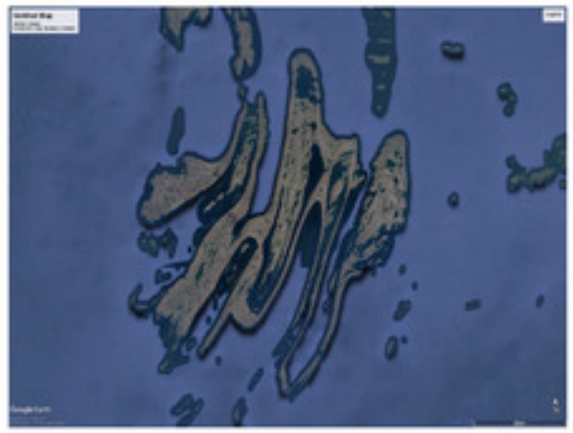
Sedimentary deposits of glacial moraines are _____.

- poorly sorted
- cross bedded
- fine grained
- medium to coarse sand
- quartz and feldspar



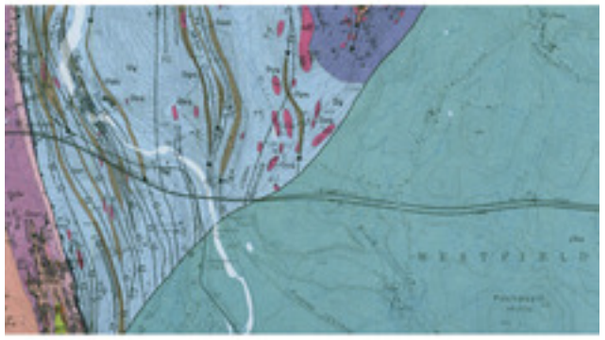
What type of geological structure is shown in this sketch map?

- North-plunging anticline
- South-plunging anticline
- North-plunging syncline
- South-plunging syncline
- **Trick question! As shown, map is impossible!**



This Google Earth photo shows an example of ___. You can click the image to make it larger.

- a thrust fault
- a volcanic arc
- the Great Lakes
- dikes and sills
- plunging folds

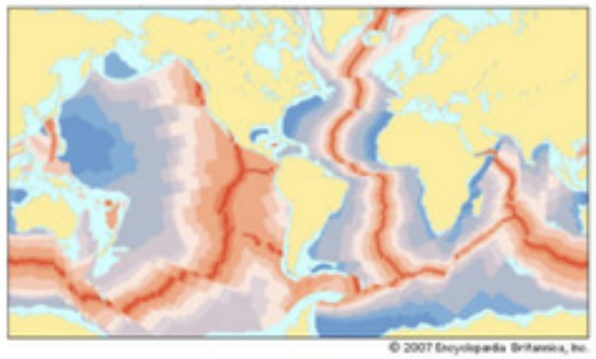


This geological map excerpt from western Massachusetts is divided approximately in half by a fault (north is toward the top). On which side of the fault are the older rocks, and how do you know?

- On the east side, because they are metamorphic whereas those on the west are igneous.
- On the east side, because they are not folded whereas those on the west are metamorphic.
- On the west side, because they are folded whereas those on the east are not folded.
- On the west side, because that side is much higher in elevation.
- On the west side, because that side is much lower in elevation.

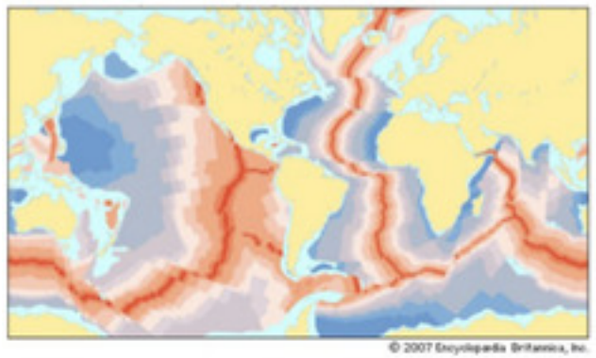
Quiz

Quiz Section 2



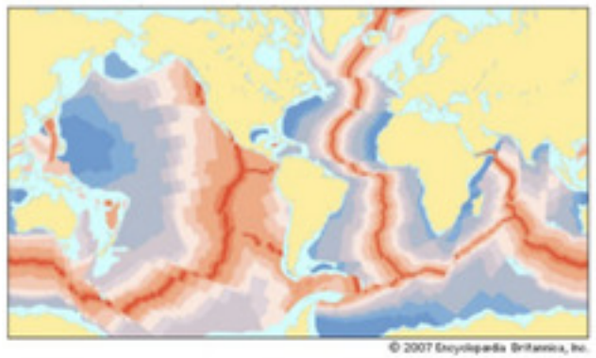
The colors in the ocean basins represent specific ages of rocks, not rock types. What color is the oldest ocean crust?

- gray
- red
- light blue
- dark blue
- pink



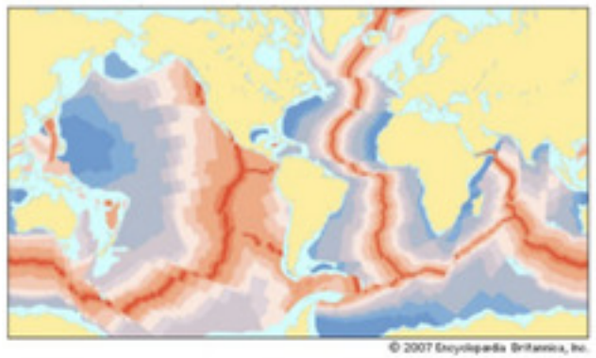
The thin red stripes that run down the center of the ocean basins represent:

- the magnetic poles
- convergent plate boundaries
- divergent plate boundaries
- subduction zones
- transform faults



Where are the oldest rocks?

- the North Atlantic
- the South Pacific
- the East Indian
- the South Atlantic
- the continents



What are the lines that appear to offset the color stripes in the ocean basin?

- the magnetic poles
- convergent plate boundaries
- divergent plate boundaries
- subduction zones
- transform faults

Look at the area shown in this Google Earth photo from Russia. There are numerous examples of _____ in the photo. You can click it to make it bigger.

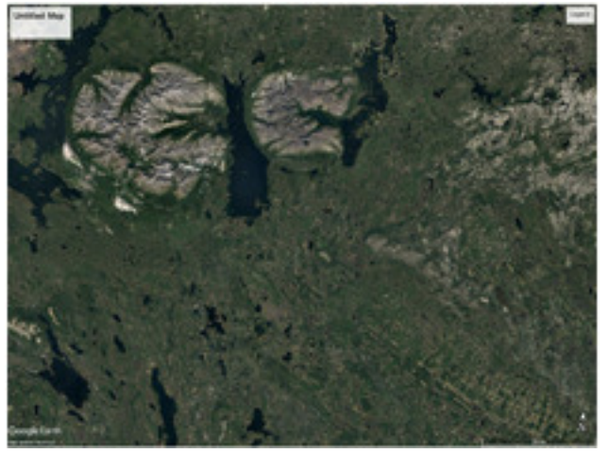
- Stratovolcanoes
- High-latitude deserts
- Fault-block mountains
- Glacial cirques and horns
- Flood basalts

The area is most likely located closest to which of these tectonic features?

- Transform boundary
- Subduction zone
- Fold-and-thrust belt
- Mid-ocean ridge
- Rift valley

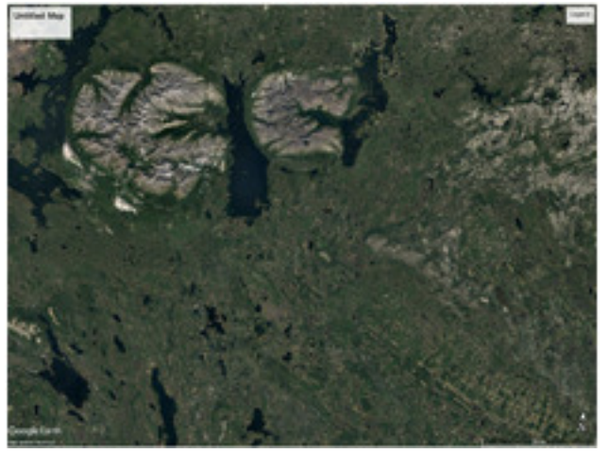
Quiz

Quiz Section 3



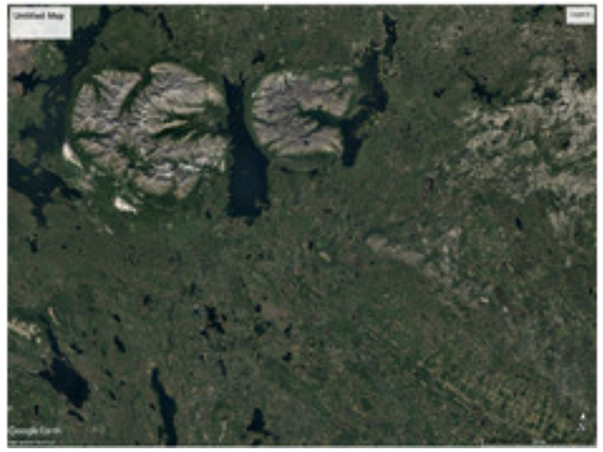
The two circular features in the northwestern portion of the photo are most likely _____.

- Plutons
- Domes
- Basins
- Impact craters
- Pingos



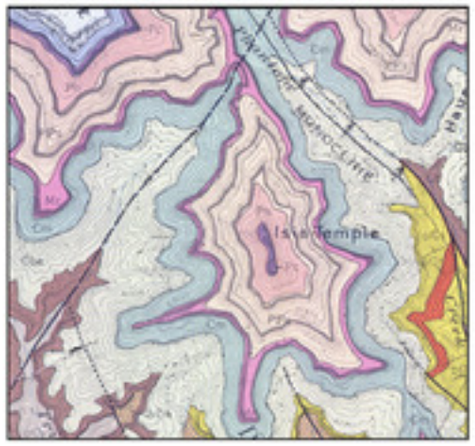
Which of these is the most recent geological event to affect this area?

- Folding
- Intrusion
- Faulting
- Glaciation
- Metamorphism



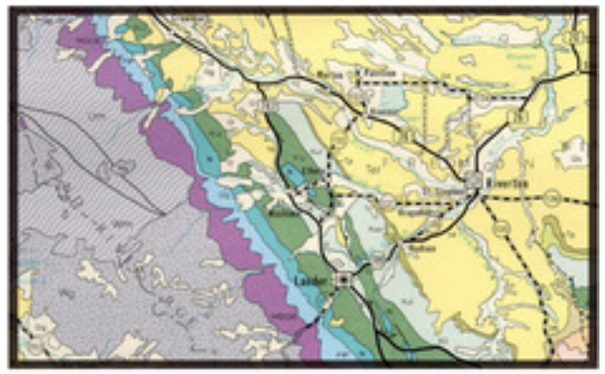
Which of the following is the strike of the oldest layered rocks in this area?

- N30W
- N30E
- N50W
- N50E
- None of these



In this geological map excerpt, the sedimentary rocks are mainly: (North is towards the top of the screen.)

- striking northwest
- striking southwest
- striking northeast
- flat
- none of these



In this geological map, the purple band is a sedimentary rock unit. Using the Rule of V's, in which direction does the purple unit dip? North is towards the top of the screen.

- northeast
- southeast
- east
- southwest
- northwest

Open Ended Question

(4 pts) On a geological map, what is the relationship between topographic contour lines and the contacts between vertically dipping sedimentary rock units? Don't forget to hit submit before the timer gets to 0:00 to record your answer.

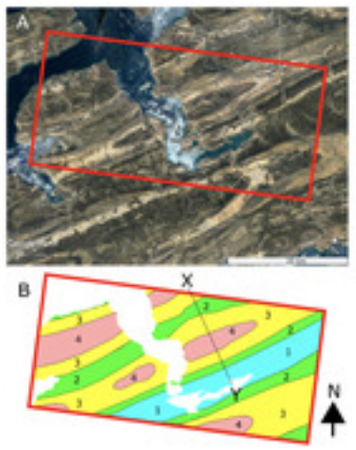
Please enter your answer here.

Quiz

Quiz Section 4

These sedimentary deposits are characterized by _____ and _____.

- **Poor sorting, graded beds, and angularity**
- **Fine grain size and graded beds**
- Fine grain size, good sorting, and cross-beds
- **Medium to coarse grain size**
- Poor sorting, cross-beds, and feldspar

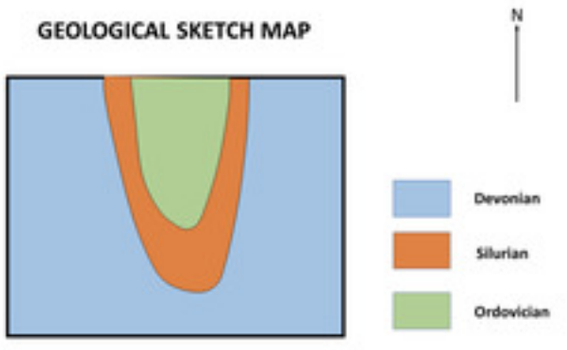


This figure shows a satellite image and a partial geological map of a remote island in northern Canada (Nunavut). In the geologic map, the relative ages of rock units are, from oldest to youngest: blue, green, yellow, and pink. What kind of geological structure is shown in the red box?

- anticline plunging northeast
- anticline plunging southwest
- doubly plunging anticline
- doubly plunging syncline
- could be any of these; need more information

This photo shows a sedimentary structure that was most likely formed in what sort of environment?

- **Lake bottom**
- Deep-sea trench
- **Tidal inlet**
- Mid-ocean ridge
- **Mountain streambed**



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- South-plunging syncline
- **Trick question! As shown, map is impossible!**

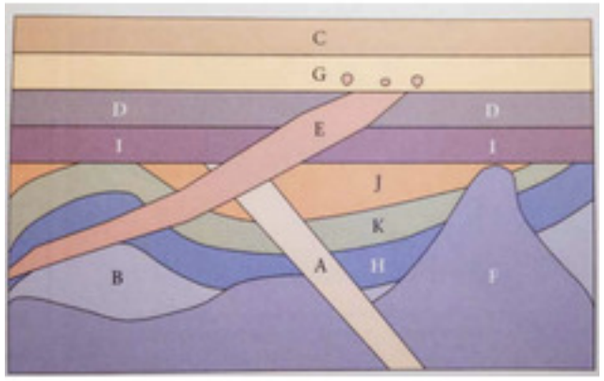
Open Ended Question

(4 pts) In the field, you find a rock exposure containing sedimentary rocks and igneous rocks in mutual contact. How could you determine which is older?

Please enter your answer here.

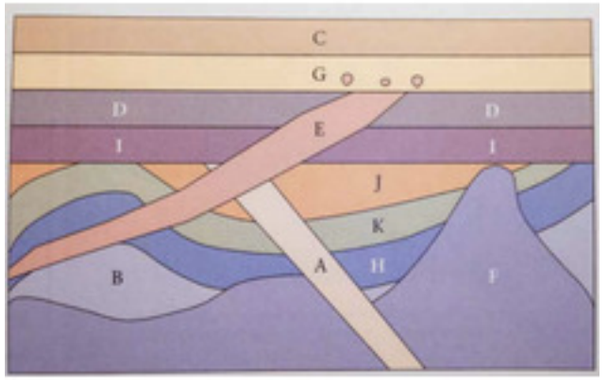
Quiz

Quiz Section 5



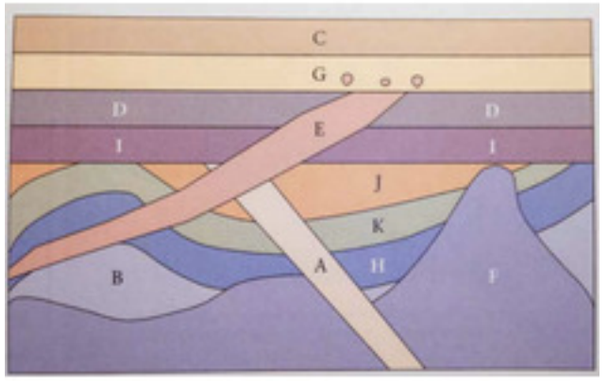
In this schematic geological cross-section of a hypothetical area, rock units A, E, and F are igneous, rock unit B is metamorphic, and the rest are sedimentary. What is the contact between Unit A and Unit E?

- Conformable
- Nonconformity
- Angular unconformity
- Intrusive
- Disconformity



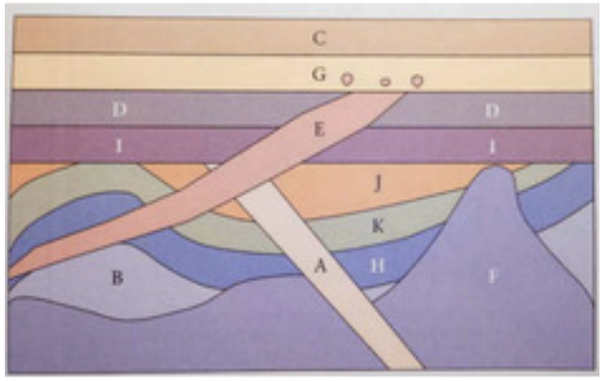
In this schematic geological cross-section of a hypothetical area, rock units A, E, and F are igneous, rock unit B is metamorphic, and the rest are sedimentary. What is the contact between Unit E and Unit G?

- Conformable
- Nonconformity
- Angular unconformity
- Intrusive
- Disconformity



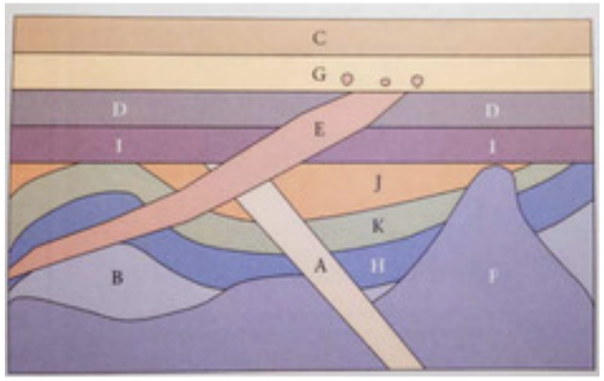
In this schematic geological cross-section of a hypothetical area, rock units A, E, and F are igneous, rock unit B is metamorphic, and the rest are sedimentary. What is the contact between Unit D and Unit G?

- Conformable
- Nonconformity
- Angular unconformity
- Intrusive
- Disconformity



In this schematic geological cross-section of a hypothetical area, rock units A, E, and F are igneous, rock unit B is metamorphic, and the rest are sedimentary. What is the contact between Unit I and Unit J?

- Conformable
- Nonconformity
- Angular unconformity
- Intrusive
- Disconformity



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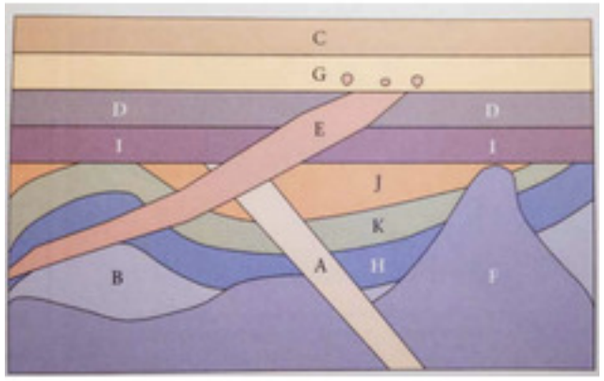
- Conformable
- Nonconformity
- Angular unconformity
- Intrusive
- Disconformity



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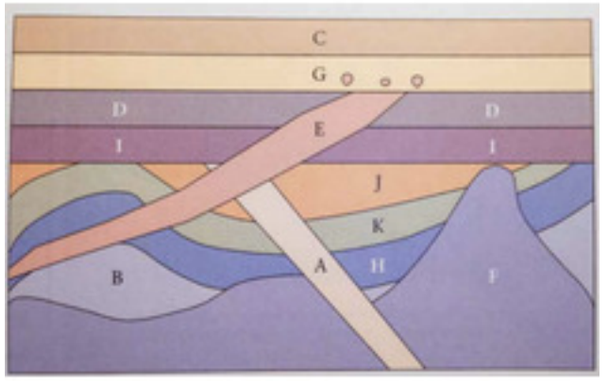
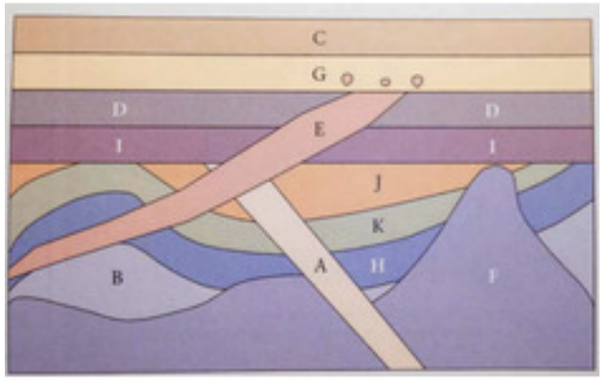
- Conformable
- Nonconformity
- Angular unconformity
- Intrusive
- Disconformity



In this schematic geological cross-section of a hypothetical area, rock units A, E, and F are igneous, rock unit B is metamorphic, and the rest are sedimentary. What is the contact between Unit B and Unit H?

- Conformable
- Nonconformity
- Angular unconformity
- Intrusive
- Disconformity



In this schematic geological cross-section of a hypothetical area, rock units A, E, and F are igneous, rock unit B is metamorphic, and the rest are sedimentary. What is the contact between Unit K and Unit H?

- Conformable
- Nonconformity
- Angular unconformity
- Intrusive
- Disconformity

Quiz

Quiz Section 6

In this geological map of a portion of Nash County, NC, which is the youngest rock unit?

- PPga
- Jd
- CZmgs
- CZ mmv
- CZfmv

Which layer of the Earth's interior is liquid?

- inner core
- outer core
- lower mantle
- asthenosphere
- uppermost mantle

Which layer of the Earth's interior is responsible for the Earth’s magnetic field?

- inner core
- outer core
- lower mantle
- asthenosphere
- uppermost mantle

Which layer of the Earth's interior is the thinnest?

- oceanic crust
- outer core
- continental crust
- asthenosphere
- uppermost mantle

Which layer is the main source region of basalt magma?

- oceanic crust
- outer core
- continental crust
- asthenosphere
- uppermost mantle

The “tectonic plates” include the crust and the _____.

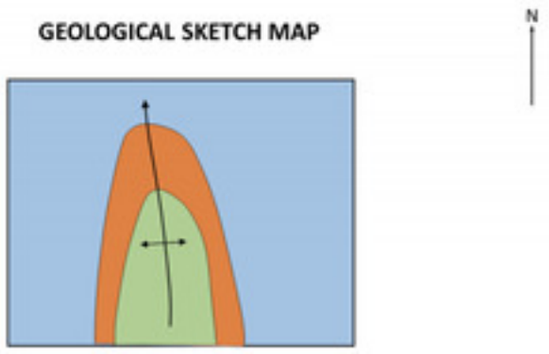
- oceanic crust
- outer core
- continental crust
- asthenosphere
- uppermost mantle

Which is composed mostly of solid metallic iron and nickel?

- oceanic crust
- inner core
- lower mantle
- asthenosphere
- uppermost mantle

Quiz

Quiz Section 7



What type of geological structure is shown in this sketch map?

- North-plunging anticline
- South-plunging anticline
- South-plunging syncline
- North-plunging syncline
- **Trick question! As shown, map is impossible!**

In this excerpt of the geological map of the Cary quadrangle, the measured dips in the east range from 41 degrees to 82 degrees, while in the west they range from 10 degrees to 13 degrees. What is the most likely reason for the big difference?

- The rocks on the west are older sedimentary rocks
- The rocks on the west are younger sedimentary rocks.
- The rocks on the west are metamorphosed sedimentary rocks.
- The rocks on the west are volcanic igneous rocks.
- The rocks on the west have been recumbently folded.

The East Pacific Rise is a feature that separates the Pacific Plate from the Nazca Plate. Which of these would be least common along this feature?

- Basalt pillow lavas
- Shallow earthquakes
- Pyroclastic eruptions
- Normal faults
- Extensional forces

A continent's shoreline that does not coincide with a plate boundary is known as a passive margin. Which of the following plates includes the most passive margin shoreline?

- African Plate
- South American Plate
- Pacific Plate
- Juan de Fuca Plate
- Arabian Plate

Quiz

Quiz Section 8

In this geological map of New York, which labelled region is a part of the Appalachian mountain belt?

- Catskills
- Long Island
- Adirondacks
- Niagara Falls
- Hudson Valley

All of these regions contain sedimentary rocks except which one?

- Catskills
- Finger Lakes area
- Adirondacks
- Niagara Falls area
- Hudson Valley

Which labelled region is a glacial depositional feature?

- Catskills
- Finger Lakes
- Long Island
- Niagara Falls
- Hudson Valley

Which labelled region contains the oldest rocks?

- Catskills
- Finger Lakes
- Adirondacks
- Niagara Falls
- Hudson Valley

Today, the water of the Great Lakes drains to the ocean via which path?

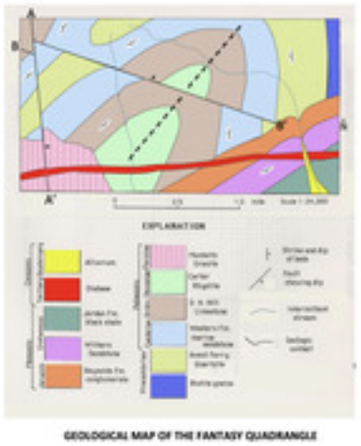
- St. Lawrence Seaway
- Finger Lakes
- Lake Champlain
- Mohawk Valley
- Hudson Valley

At one time or other during the Pleistocene, the Great Lakes drained via all of these except which?

- St. Lawrence Seaway
- Finger Lakes
- Lake Champlain
- Mohawk Valley
- Hudson Valley

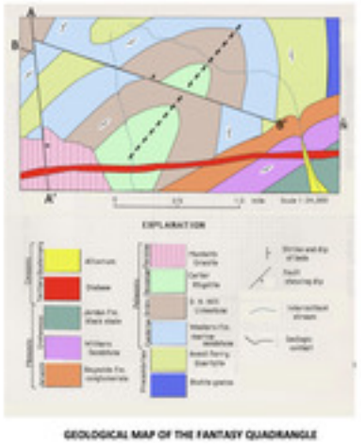
Quiz

Quiz Section 9



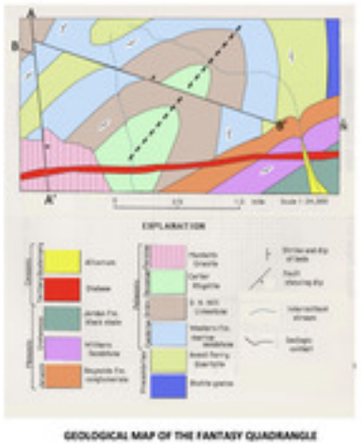
What is the nature of the contact between the Reynolds Formation and the D. H. Hill limestone?

- Conformable sedimentary contact
- Unconformity (any type of unconformable contact)
- Intrusive contact
- Fault contact
- None of these



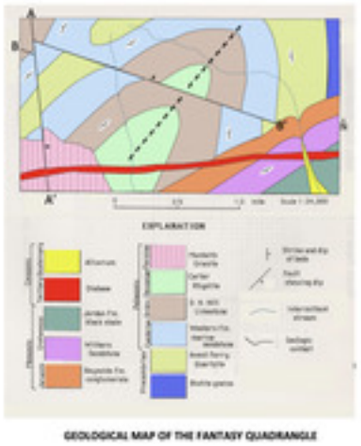
What is the nature of the contact between the Monteith granite and the diabase?

- Conformable sedimentary contact
- Unconformity (any type of unconformable contact)
- Intrusive contact
- Fault contact
- None of these



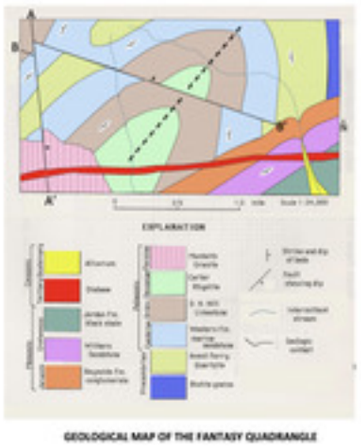
What is the nature of the contact between the Withers sandstone and the Jordan Formation?

- Conformable sedimentary contact
- Unconformity (any type of unconformable contact)
- Intrusive contact
- Fault contact
- None of these



(Tiebreaker #1) What is the feature B-B'?

- **Normal fault**
- **Reverse fault**
- **Thrust fault**
- Strike-slip fault
- **Subduction zone**



(Tiebreaker #2) Which of the following is the correct sequence (oldest to most recent; i.e. first to last)?

- Carter Rhyolite, Diabase, Monteith Granite, Avent Ferry Quartzite, Alluvium, Withers Sandstone
- Avent Ferry Quartzite, Monteith Granite, Carter Rhyolite, Withers Sandstone, Diabase, Alluvium
- Withers Sandstone, Alluvium, Carter Rhyolite, Monteith Granite, Avent Ferry Quartzite, Diabase
- Avent Ferry Quartzite, Carter Rhyolite, Monteith Granite, Withers Sandstone, Diabase, Alluvium
- Monteith Granite, Withers Sandstone, Diabase, Carter Rhyolite, Avent Ferry Quartzite, Alluvium

Open Ended Question

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Please enter your answer here.

You are done!