

Warm Up 1: Ocean Floors 9-20-18

LT I can explain the concept of Pangea. I can describe how Ocean Ridges form and give examples of them.

Q1. How do we get a diversity of birds?

Q2. How did the breeds of birds get all over the world (without flying across an ocean)?

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LT I can explain concept of Pangea. I can describe how Ocean Ridges form.

Q1. How do we get a diversity of dogs?

Ⓐ1. Different dogs are in different environments with different advantages to survive.

Q2. How did the species of dogs get all over the world?

Ⓐ2. Dogs (or any species) started on one land mass and the land mass moved with animals on it. Pangea

What do you see?



<https://www.youtube.com/watch?v=Wq9kLzm36h0>

White Board

1 Person from each table get white boards for everyone in group

White board Rules

Draw only what has been asked

When on your desk and not drawing, must have at top of desk with markers down

Erase all marking before putting away

Draw what you believe the ocean floor looks like - 2 minutes

Sea Floor spreading

Until the mid 1900s, most people, including many scientists thought that the ocean floor was essentially flat.

Advances in technology during the 1940s and 1950s, however, proved all of these widely accepted ideas to be wrong.

Technology

One advance that allowed scientists to study the ocean floor in great detail was the development of echo-sounding methods, such as sonar.

Sonar.

Sends out sound waves and measures how long it takes to return.
Measures water depth.

Another technological advance that was used to study the ocean floor was the magnetometer

Magnetometer.

A device that can detect small changes in magnetic fields.
It is towed by ships and records the magnetic fields strength in
the
rocks that make up the ocean floor.

mi What the new Technology told us

The maps made from the data collected by sonar and magnetometers surprised many scientists.

Underwater mountain chains called ocean ridges were found.

Later scientists found out that earthquakes and volcanism are common along the ridges.

Volcanism is part of the process of bringing material from the deep interior of a planet and spilling it forth on the surface

What the Technology showed us



The maps also revealed that the underwater mountain ranges had counterparts called deep-sea trenches.

Deep-sea trench

A narrow, elongated depression in the seafloor with very steep sides.

Who knows what this is?



Imagine it being 6 times deeper = Marianna Trench

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Mariana Trench

The deepest trench is in the Pacific Ocean, the chasm, is called Mariana Trench and it is just over 11km deep.

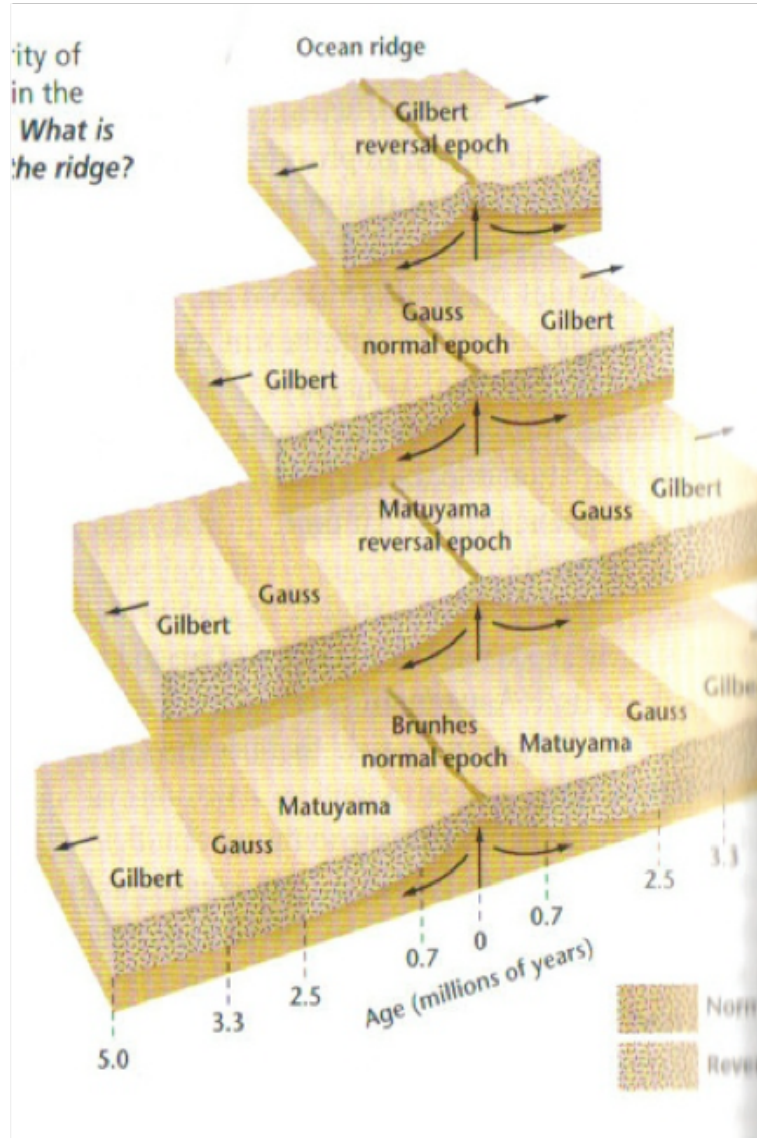
6 Times Deeper than the Grand Canyon!

11km is about 7 miles!

<http://www.youtube.com/watch?v=DWdMZjKO9Bg>

Seafloor spreading.

a theory that states the new ocean crust is formed at ocean ridges and destroyed at deep-sea trenches



What is happening at the Ocean Ridges

1. Hot, less dense magma rises out of the Earth and fills in the gap at the ocean ridge.
2. The magma cools and hardens, and a small amount of new ocean floor was added to Earth's surface.
3. As spreading along a ridge continues, more magma is forced upward and hardens.
4. Each cycle of spreading and adding of magma results in the formation of another small section of ocean floor, which slowly moves away from the ridge

Analysis of deep-sea rocks and sediments produced 2 important discoveries

1. The ages of the rocks that make up the seafloor vary in different places, and these variations change in a predictable way

Younger rocks near the ocean ridges, and older rocks are near deep-sea trenches

2. Measurements showed that the thickness of ocean-floor sediment is, in general, much less than expected.

Ocean floor sediments are typically a few hundred meters thick.

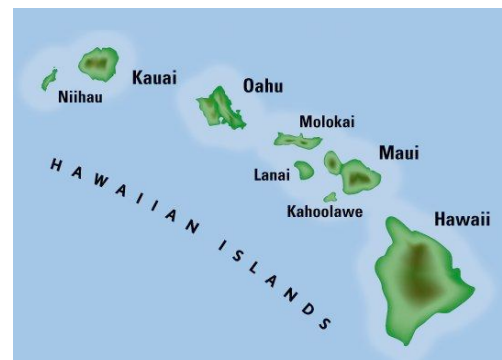
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Q1. How do we get a diversity of dogs?

Q2. How did the species of dogs get all over the world?

Q3. What are the Hawaiian Islands?

Q4. Why could they be in a line?



1 Warm Up: Ocean Floors

9-20-19

Q3. What are the Hawaiian Islands?

A3. Ocean Ridges that have come out of the water.

Q4. Why could they be in a line?

A4. Slow moving Sea Floor Spreading?

