Geology 3

Class 2: World map and geologic time

This exercise is designed for you to become familiar with the **world map** in terms of ocean and continent location, patterns physical features have, latitude and longitude.

1. The approximate latitude and latitude of San Jose is:
2. There is more land than water in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ hemisphere.
3. Label the 7 continents.
4. Sketch in the location of the following trenches using one of the colored pencils and label: Peru-Chile; Central America; Cascadia; Aleutian; Kurile; Japan; Mariana; Java, Sunda; Philippine; Tonga, Kermadec, and Puerto-Rico.
5. Collectively, these trenches are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
6. Sketch in the location of the mid-Atlantic Ridge and the East Pacific Rise with another colored pencil.
7. Label the Hawaiian Islands and sketch in the Emperor seamounts.
	1. The Hawaiian Islands and Emeror seamounts are produced as the Pacific tectonic plate moves over a hot spot. Geologists state that the movement of the tectonic plate may be traced by following the islands. Has the Pacific tectonic plate always moved in the same direction?
8. Label the 4 main oceans.
9. Name one piece of new information you learned from this exercise?
10. What else would you like to know?

**Geologic Time** (use the chart on the next page to help with these questions):

1. The string represents the length of time of Earth’s history. Each card represents an event listed below.
2. Fifteen volunteers to stand-up and hold the sign along the string.
3. Notice the spacing between events using the string model.
4. Calculate the percentage of Earth’s history that each event listed below comprises.
5. Which eon or era represents the most time?

Complete the time portion of this table.

|  |  |  |
| --- | --- | --- |
| **What does each represent?** | **Time (Eon, Era, Period, Epoch, Millions of Years Ago)** | **Percentage of time: Precambrian; Paleozoic; Mesozoic; Cenozoic** |
| Earth’s Formation | 4.6 by: beginning of Precambrian |  |
| Moon’s Formation | 4.4 by: Precambrian |  |
| Water/atmosphere | 4.1 by: Precambrian |  |
| Bacteria | 3.6 by: Precambrian |  |
| Algae | 3.6 by: Precambrian |  |
| Atmosphere oxygenated | 2 by: Precambrian |  |
| Worms | 1.7 by: Precambrian |  |
| Jellyfish | .7 by: Precambrian |  |
| Cambrian explosion: hard parts developed | .5 by: Precambrian |  |
| Pennsylvanian coal fields | 345 my: Paleozoic |  |
| Paleozoic/Mesozoic boundary | 225 my: Paleozoic/Mesozoic boundary |  |
| Formation of the Sierra Nevada Volcanic Arc | 140 my: Mesozoic |  |
| Mesozoic/Cenozoic boundary | 65 my: Mesozoic/Cenozoic boundary |  |
| Initiation of the San Andreas Fault | 30 my: Cenozoic |  |
| Hominids present | 5 my: Cenozoic |  |

