

# Critical and creative thinking questions essay sample

[Environment](#), [Earth](#)



## Chapter 1

1. How do you think the principle of uniformitarianism accounts for occasional catastrophic events such as meteorite impacts, huge volcanic eruptions, or great earthquakes? Uniformitarianism and catastrophic events go hand and hand, uniformitarianism is the earth continuing to change due to natural processes, those natural processes would be catastrophic events. Technology is rapidly progressing, the detection of catastrophic events can be discovered before it even begins to happen, and eventually these events will be a part of the geological process.

2. In what ways do geologic processes affect your daily life? Geological processes such as Weathering, erosion, volcanic eruption, and plate tectonics affect my life on a daily basis, I don't think individuals actually realize how dependent we really on certain materials. Appreciating and understanding how important the Earth's natural resources are is significant for our population to eventually reach sustainability.

## Chapter 2

3. When a volcano erupts, spewing forth a column of hot volcanic ash, the ash particles are tiny fragments of solidified magma that slowly fall to Earth's surface, forming a layer of sediment. Would a rock formed from cemented particles of volcanic ash be igneous or sedimentary? Can you think of other circumstances that might form rocks that are intermediate between two of the major rock families? The rock would be igneous, igneous rocks are formed from the solidification of molten rocks. Rocks can be formed in numerous ways a few examples are erosion and earth quakes. I think that

metamorphic rocks are the perfect example for combining all the three different rocks together because, metamorphic rocks were originally igneous or sedimentary rocks that simply changed over time.

4. Identify which of the following materials are minerals and why: water, beach sand, diamond, wood, vitamin pill, gold nugget, fishbone, and emerald. Should a synthetic diamond be considered a true mineral? Water- not a mineral, it's an element

Beach sand- mineral, broken down rocks (which are made by minerals)

creates sand Diamond- mineral, it is a carbon compound

Wood- not a mineral, comes from trees which is not an inorganic substance

Vitamin pill-not a mineral, it's an organic compound

Gold nugget- mineral, crystalline substance (usually)

Fishbone- not a mineral

Emerald- mineral, crystalline substance

Synthetic diamond- not a mineral, manmade object derived from an inorganic substance

### Chapter 3

5. How old are the rock formations in the area where you live and attend college or university? How can you find out the answer to this question? Rock formations in Texas are estimated to be about 600 million years old. In order to discover how old the rock formations actually are; you can search for fossils within that formation, and you can also research other minerals in the formation. You have to figure out what the geologic time period it belongs in.

6. Choose one of the geologic periods or epochs listed in Figure 3. 8 and find out all you can about it. How are rock formations from that period identified? What are its most characteristic fossils? Where are the best samples of rock from your chosen period found? The Jurassic period is the most interesting to me, the majority of the rocks identified during this period were metamorphic marine deposit. Dinosaur fossils were discovered mainly during the Jurassic period. The source of these rocks can be discovered underneath the layers of the earth's crust.

## Chapter 15

7. Recall from Chapter 1 (see Table 1. 1) that Earth and Venus are so similar in size and overall composition that they are almost "twins." Why did these two planets evolve so differently? Why is Earth's atmosphere rich in oxygen and poor in carbon dioxide, whereas the reverse is true on Venus? What would happen to Earth's oceans if Earth were a little bit closer to the Sun? The planet Earth and Venus evolved so differently because, their distances from the sun differ. Venus is closer to the sun which makes the planet much hotter, it also lacks in oxygen because there are no plants to turn the carbon dioxide into oxygen. The Earth is rich in oxygen and low in carbon dioxide because of photosynthesis, plants are constantly changing the carbon dioxide into oxygen. If the Earth were a little bit closer to the Sun; the Earth's oceans would simply dry out there would be limited water on Earth.

8. What do you think might have happened to mammals if the end-of-Cretaceous extinction had not wiped out the dinosaurs? If the end-of-Cretaceous extinction did not wipe out dinosaurs, mammals simply would

not exist. The dinosaur species would dominate the earth making it basically impossible for other species and mammals to evolve. The Cretaceous extinction completely wiped out numerous species paving the way for other species to have the opportunity to “ rise”.

#### References:

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