

Advanced Natural Disasters: Curriculum Challenges

Natural Disasters · Answer Key · 10 Questions

1. Which geological process is primarily responsible for the formation of volcanic arcs, such as the Andes Mountains?

- A) Continental drift of tectonic plates
- B) Subduction of an oceanic plate beneath a continental plate**
- C) Erosion by glacial ice sheets
- D) The accumulation of aeolian sediments over millennia

2. The Richter scale, historically used to measure earthquake magnitude, is logarithmic. This means that an earthquake measuring 7 on the Richter scale releases approximately how many times more energy than an earthquake measuring 5?

- A) 2 times
- B) 10 times
- C) 32 times
- D) 1000 times**

3. Which of the following atmospheric phenomena is characterised by the formation of a strong vortex of air that rotates around an eye of very low atmospheric pressure?

- A) A mesocyclone
- B) A derecho
- C) A supercell thunderstorm
- D) A tropical cyclone**

4. In the context of tsunamis, the term 'wave shoaling' refers to:

- A) The decrease in the wavelength as the wave approaches shallow water.
- B) The increase in the wave's height as it moves into shallower water.**
- C) The scattering of wave energy by coastal features.
- D) The gradual subsidence of the seabed during seismic activity.

5. Which type of mass wasting event is characterised by a rapid, chaotic flow of rock, earth, and debris mixed with a significant amount of water?

- A) Slump
- B) Creep
- C) Debris flow**
- D) Rockslide

6. The 'Ring of Fire' is a region around the Pacific Ocean that is known for its high frequency of earthquakes and volcanic eruptions. What is the primary geological reason for this high activity?

- A) It is the location of numerous underwater mountain ranges.
- B) It is where the Pacific Plate is subducting under other plates.**
- C) It is a vast area of geothermal vents.
- D) It is influenced by a stationary mantle plume.

7. Which of the following is a primary hazard associated with pyroclastic flows from a volcano?

- A) Long-term atmospheric ash dispersal
- B) Sudden inundation of coastal areas
- C) Intense heat and high-speed movement of volcanic material**
- D) Groundwater contamination with sulfur dioxide

8. La Niña events are part of the El Niño-Southern Oscillation (ENSO) cycle. During a La Niña, which region typically experiences increased rainfall and flooding, while another experiences drought?

- A) Australia and South America**
- B) North America and Africa
- C) Europe and Asia
- D) Antarctica and the Arctic

9. The Saffir-Simpson Hurricane Wind Scale categorises hurricanes based on their wind speed. What is the minimum sustained wind speed required for a tropical cyclone to be classified as a Category 1 hurricane?

- A) 64-82 km/h (40-50 mph)
- B) 119-153 km/h (74-95 mph)**
- C) 154-177 km/h (96-110 mph)
- D) Greater than 252 km/h (157 mph)

10. What is the primary mechanism by which glaciers cause landforms like U-shaped valleys and fjords?

- A) Deposition of sediment in meltwater streams
- B) Abrasion and plucking of bedrock as the ice moves**
- C) Thermal expansion of ice within rock fissures
- D) Chemical weathering accelerated by ice melt