Eosc 114   
Volcanoes

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| --- | --- |
| **1.** |  |
|  | |  |  | | --- | --- | | Which of the following correctly describes volcanism at a continental volcanic arc? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | low viscosity basaltic lavas and non-explosive volcanism |  |  | | B. | high viscosity dacitic lavas and explosive volcanism 100% |  | Student Response | | Student Response C. | high viscosity dacitic to rhyolitic lavas and non-explosive volcanism | 0% |  | | D. | low viscosity rhyolitic lavas and explosive volcanism |  |  | | E. | high viscosity andesitic to dacitic lavas and non-explosive volcanism |  |  | | | | Score: | 0/1 | |  | | |
| **2.** |  |
|  | |  |  | | --- | --- | | During the 1986 Lake Nyos eruption, the most dangerous areas to be in were \_\_\_\_ because the gas was \_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | on top of hills, less dense than air |  |  | | B. | on top of hills, flammable |  |  | | C. | on top of hills, acidic |  |  | | D. | in valleys, scalding |  |  | | Student Response E. | in valleys, denser than air | 100% | Student Response | | | | Score: | 1/1 | |  | | |
| **3.** |  |
|  | |  |  | | --- | --- | | Which of the following magma types is produced by partial melting of the Earth’s mantle? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | ultramafic | 0% |  | | B. | Mafic 100% |  | Student Response | | C. | intermediate |  |  | | D. | silicic |  |  | | E. | felsic |  |  | | | | Score: | 0/1 | |  | | |
| **4.** |  |
|  | |  |  | | --- | --- | | Fatalities from volcanic eruptions have increased steadily over the past 200 years because \_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | the number of eruptions have increased through time. |  |  | | B. | the world’s population has increased and people are living closer to 100% volcanoes. |  | Student Response | | C. | eruptions are becoming more explosive and violent through time due to global warming and the greenhouse effect. |  |  | | Student Response D. | eruption prediction has been complicated by the introduction of complex technologies such as GPS and InSAR. | 0% |  | | E. | there are now too many volcanologists who argue about how and when to evacuate towns and cities. |  |  | | | | Score: | 0/1 | |  | | |
| **5.** |  |
|  | |  |  | | --- | --- | | Which of the statements about composite volcanoes are TRUE? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Mount St. Helens is a composite volcano that can erupt magmas with the entire possible range of silica contents. | 100% | Student Response | | B. | Mount Rainier is a composite volcano that erupts only andesites. |  |  | | C. | An example of a composite volcano that erupts both mafic and felsic magmas is Kilauea. |  |  | | D. | A composite volcano such as Long Valley erupts only pyroclastic flows and the occasional dome. |  |  | | Student Response E. | A composite volcano such as Mauna Loa commonly erupts basalt flows and scoria. | 0% |  | | | | Score: | 0/1 | |  | | |
| **6.** |  |
|  | |  |  | | --- | --- | | What type of volcanic landform is MOST commonly associated with Hawaiian mafic volcanism? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | shield volcano | 100% | Student Response | | B. | stratovolcano |  |  | | C. | lava dome |  |  | | D. | caldera |  |  | | E. | composite volcano |  |  | | | | Score: | 1/1 | |  | | |
| **7.** |  |
|  | |  |  | | --- | --- | | A high volcano explosivity index (VEI) generally corresponds with \_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | large fissures in the side of the volcano |  |  | | Student Response B. | long recurrence intervals | 100% | Student Response | | C. | low and broad volcano shapes |  |  | | D. | underwater volcanoes |  |  | | E. | deep rift valleys |  |  | | | | Score: | 1/1 | |  | | |
| **8.** |  |
|  | |  |  | | --- | --- | | The type of magma most likely to cause a violent volcanic eruption is\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | mafic composition |  |  | | Student Response B. | high viscosity and relatively cool | 100% | Student Response | | C. | low silica composition |  |  | | D. | low viscosity and relatively warm |  |  | | E. | low viscosity and relatively cool |  |  | | | | Score: | 1/1 | |  | | |
| **9.** |  |
|  | |  |  | | --- | --- | | Which of the following is FALSE about a mineral? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | Minerals are abundant on Earth's crust. | 0% |  | | B. | All minerals are crystalline (have a crystal form), even if you cannot see the crystals without magnification. |  |  | | C. | All minerals have Si and O. | 100% | Student Response | | D. | Minerals may be compounds or made up solely on one element. |  |  | | E. | Minerals have a characteristic chemical composition. |  |  | | | | Score: | 0/1 | |  | | |
| **10.** |  |
|  | |  |  | | --- | --- | | Which of the following are NOT measured in volcano monitoring programs? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | ground deformation |  |  | | B. | growth of lava dome |  |  | | C. | seismic activity |  |  | | Student Response D. | temperature of the magma body at depth | 100% | Student Response | | E. | gas emissions |  |  | | | | Score: | 1/1 | |  | | |
| **11.** |  |
|  | |  |  | | --- | --- | | What was the volcanic hazard that caused the tragedy at Lake Nyos in Cameroon? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | fast flowing basaltic lava flows |  |  | | B. | a lahar |  |  | | C. | volcanic landslide |  |  | | D. | abundant acid rain from volcanic gasses |  |  | | Student Response E. | CO2 gas | 100% | Student Response | | | | Score: | 1/1 | |  | | |
| **12.** |  |
|  | |  |  | | --- | --- | | Pyroclastic flows originate in all of the following ways EXCEPT \_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | dome collapse |  |  | | B. | eruption column collapse |  |  | | C. | directed blast |  |  | | D. | over-spilling of the crater rim |  |  | | Student Response E. | fall of ballistic debris | 100% | Student Response | | | | Score: | 1/1 | |  | | |
| **13.** |  |
|  | |  |  | | --- | --- | | A common example of a mafic volcanic landform is a \_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | lava dome |  |  | | Student Response B. | shield volcano | 100% | Student Response | | C. | composite volcano |  |  | | D. | caldera |  |  | | E. | stratovolcano |  |  | | | | Score: | 1/1 | |  | | |
| **14.** |  |
|  | |  |  | | --- | --- | | A hazard NOT caused by volcanic ash and ash clouds is: | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | scratching an airplane windshield |  |  | | B. | collapsing houses in nearby tropical villages |  |  | | C. | fast moving mudflows |  |  | | D. | abrading an airplane engine |  |  | | Student Response E. | causing a tsunami when ash falls into the ocean | 100% | Student Response | | | | Score: | 1/1 | |  | | |
| **15.** |  |
|  | |  |  | | --- | --- | | Most magma is generated by melting of pre-existing rock through \_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | decompression melting | 100% | Student Response | | B. | heat transfer |  |  | | C. | vesiculation |  |  | | D. | decreasing the H2O content |  |  | | E. | decreasing the CO2 content |  |  | | | | Score: | 1/1 | |  | | |
| **16.** |  |
|  | |  |  | | --- | --- | | The majority of the world’s explosive volcanoes are found at: | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | divergent plate boundaries |  |  | | B. | transform faults |  |  | | C. | continental hot spots |  |  | | D. | oceanic hot spots |  |  | | Student Response E. | convergent plate margins | 100% | Student Response | | | | Score: | 1/1 | |  | | |
| **17.** |  |
|  | |  |  | | --- | --- | | Which of the following volcanic hazards is the LEAST hazardous to humans? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | pyroclastic flows |  |  | | B. | volcanic gases |  |  | | C. | lahars |  |  | | D. | lateral blasts and explosive eruptions |  |  | | Student Response E. | lava | 100% | Student Response | | | | Score: | 1/1 | |  | | |
| **18.** |  |
|  | |  |  | | --- | --- | | Which of the following is NOT a product of a volcanic eruption? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | intrusive igneous rocks 100% |  | Student Response | | B. | extrusive igneous rocks |  |  | | C. | volcanic glass |  |  | | D. | volcanic bombs |  |  | | Student Response E. | aa basalt | 0% |  | | | | Score: | 0/1 | |  | | |
| **19.** |  |
|  | |  |  | | --- | --- | | The MOST LIKELY place to find an active subaerial volcano is \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | above a subduction zone 100% |  | Student Response | | B. | along a strike-skip fault |  |  | | C. | in a mountain range formed by two continents colliding |  |  | | Student Response D. | on the oldest end of the Hawaiian-Emperor chain | 0% |  | | E. | on the deep ocean floor |  |  | | | | Score: | 0/1 | |  | | |
| **20.** |  |
|  | |  |  | | --- | --- | | A magma erupting at a temperature of 600-800°C, with high silica content, high gas content, and high viscosity will erupt as a/an \_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | andesite dome in a composite volcano |  |  | | B. | basalt lava flow in a shield volcano |  |  | | C. | rhyolite lava flow in a composite volcano |  |  | | Student Response D. | rhyolite pyroclastic flow in a caldera | 100% | Student Response | | E. | andesite lava flow in a caldera |  |  | | | | Score: | 1/1 | |  | | |

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| **1.** |  |
|  | |  |  | | --- | --- | | The explosivity of hot spot volcanism is dictated by which of the following? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | the composition of the overlying plate 100% | Student Response | | B. | the rate of plate movement |  | | C. | the silica composition of the mantle |  | | D. | the temperature of the overlying plate |  | | E. | the type of plate boundary at the hot spot |  | | | | Score: | 0/1 | |  | | |
| **2.** |  |
|  | |  |  | | --- | --- | | Which of the following statements would be TRUE about volcanism in an ocean-ocean convergence setting? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Mafic-intermediate lavas are common. 100% | Student Response | | B. | The silica content of magma is very high. |  | | C. | Lavas tend to be highly viscous. |  | | D. | Rhyolite is the most frequently erupted lava. |  | | E. | The Cascade Range is an excellent example of an ocean-ocean convergence arc. |  | | | | Score: | 0/1 | |  | | |
| **3.** |  |
|  | |  |  | | --- | --- | | How does a cinder cone form? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Relatively short-lived eruptions of pyroclastic material build up a small volcano. 100% | Student Response | | Student Response B. | Release of pressure causes a catastrophic lateral blast. |  | | C. | An extremely large eruption empties the magma chamber and the volcano collapses inward. |  | | D. | High volumes of lava create a very large volcano. |  | | E. | Alternating layers of magma and pyroclastic material build up a large volcano. |  | | | | Score: | 0/1 | |  | | |
| **4.** |  |
|  | |  |  | | --- | --- | | Which volcanic hazard does hydrothermal alteration promote? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Student Response A. | landslides | Student Response | | B. | lava flows |  | | C. | pyroclastic flows |  | | D. | tephra/ash |  | | E. | lateral blasts |  | | | | Score: | 1/1 | |  | | |
| **5.** |  |
|  | |  |  | | --- | --- | | Which is FALSE? A lava flow \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | is usually produced when magma erupts effusively |  | | B. | can be channelized or un-channelized |  | | C. | can move faster than a person can run |  | | D. | is typical of Hawaiian eruptions |  | | Student Response E. | is not typical of cinder cone eruptions | Student Response | | | | Score: | 1/1 | | |  |  | | --- | --- | | **1.** |  | |  | |  |  | | --- | --- | | Immediately after an eruption at Kilauea in Hawaii, the surface of the volcano \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | subsides, making the slopes of the volcano less steep 100% | Student Response | | B. | shows higher tilt in the north-south direction |  | | C. | cracks open in many places surrounding the summit |  | | D. | inflates, making the slopes of the volcano slightly steeper |  | | E. | shows higher tilt in the east-west direction |  | | | | Score: | 0/1 | |  | | | | **2.** |  | |  | |  |  | | --- | --- | | Which of the following volcanic hazards is typically the DEADLIEST for people? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | pyroclastic flows from stratovolcanoes 100% | Student Response | | B. | ash falls from maars |  | | C. | ash falls from stratovolcanoes |  | | D. | ash falls from Hawaiian eruptions |  | | E. | pyroclastic flows from Hawaiian eruptions |  | | | | Score: | 0/1 | |  | | | | **3.** |  | |  | |  |  | | --- | --- | | Which of the following eruptions had the highest Volcanic Explosivity Index (VEI)? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Kilauea, on-going |  | | B. | Mount St. Helens, 1980 |  | | C. | Mount Garibaldi, 12,000 years ago |  | | D. | Mt. Unzen, 1991 |  | | E. | Yellowstone caldera, 600,000 years ago 100% | Student Response | | | | Score: | 0/1 | |  | | | | **4.** |  | |  | |  |  | | --- | --- | | Which volcano poses the GREATEST risk to life and property in Vancouver and southern British Columbia? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Mount Cayley |  | | B. | Mount Rainier |  | | C. | Mount Baker 100% | Student Response | | D. | Mount Garibaldi |  | | E. | Mount Meager |  | | | | Score: | 0/1 | |  | | | | **5.** |  | |  | |  |  | | --- | --- | | Which magma composition will produce the most explosive volcanoes? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Gabbro |  | | B. | Andesite |  | | C. | Basalt |  | | D. | Dacite |  | | E. | Rhyolite 100% | Student Response | | | | Score: | 0/1 | |  | | | | **6.** |  | |  | |  |  | | --- | --- | | Why did you choose your answer for Question 5? That magma composition \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | has the highest viscosity 100% | Student Response | | B. | is typical of Hawaiian-type eruptions |  | | C. | is the most common in volcanoes |  | | D. | is rich in crystals |  | | E. | flows very fast |  | | | | Score: | 0/1 | |  | | | | **7.** |  | |  | |  |  | | --- | --- | | Which of the following poses the GREATEST hazard to the Metro Vancouver area from a nearby volcanic eruption? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | poisonous gases |  | | B. | ash fall 100% | Student Response | | C. | lateral blast |  | | D. | pyroclastic flow |  | | E. | lahar |  | | | | Score: | 0/1 | |  | | | | **8.** |  | |  | |  |  | | --- | --- | | Large eruptions from stratovolcanoes typically affect climate by \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | reducing alpine ice cover, contributing to global warming |  | | B. | heating ocean water with lava flows |  | | C. | heating the atmosphere, causing global warming |  | | D. | melting large quantities of ice causing sea level to rise |  | | E. | ejecting ash particles that block sunlight and cause global cooling 100% | Student Response | | | | Score: | 0/1 | |  | | | | **9.** |  | |  | |  |  | | --- | --- | | How did the residents of Vestmannaeyjar, Iceland, save their harbor from a lava flow? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | They extracted more geothermal energy that was being produced by the volcano, decreasing the volume of lava erupted. |  | | B. | As the lava cooled, they blasted the new rock away and dumped it offshore. |  | | C. | They chilled the lava flow with water, making the flow solidify before it blocked the harbor.100% | Student Response | | D. | They constructed high cement walls around the harbor and the lava solidified against the walls. |  | | E. | They dug channels that diverted the lava flow away from the harbor. |  | | | | Score: | 0/1 | |  | | | | **10.** |  | |  | |  |  | | --- | --- | | Which of the following is the most common volcanic rock on Earth? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | granite |  | | B. | rhyolite |  | | C. | Basalt 100% | Student Response | | D. | dacite |  | | E. | andesite |  | | | | Score: | 0/1 | |  | | | | **11.** |  | |  | |  |  | | --- | --- | | Aircraft flying at high altitudes between North America and Asia can be very susceptible to \_\_\_\_\_\_ erupted from volcanoes in Cascadia and Alaska. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | pyroclastic flows |  | | B. | volcanic bombs |  | | C. | lahars |  | | D. | volcanic ash 100% | Student Response | | E. | lava flows |  | | | | Score: | 0/1 | |  | | | | **12.** |  | |  | |  |  | | --- | --- | | Which of the following volcanic hazards can occur without an accompanying eruption? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | sector collapse / volcanic landslide 100% | Student Response | | B. | pyroclastic flow |  | | C. | volcanic ash cloud |  | | D. | lava flow |  | | E. | volcanic bombs |  | | | | Score: | 0/1 | |  | | | | **13.** |  | |  | |  |  | | --- | --- | | If you are hiking in Garibaldi Provincial Park and your map identifies a feature near your trail as "The Cinder Cone", what rock type would you be most likely to encounter as you walk near this feature? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | dacite |  | | B. | Basalt 100% | Student Response | | C. | granite |  | | D. | andesite |  | | E. | rhyolite |  | | | | Score: | 0/1 | |  | | | | **14.** |  | |  | |  |  | | --- | --- | | Why are stratovolcanoes the most common type of volcano around the Pacific Rim? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | they are typical of continental rifting |  | | B. | they are typical of continent-ocean subduction zones 100% | Student Response | | C. | they are typical of mid-ocean ridges |  | | D. | they are typical of hot spots |  | | E. | they are found nowhere else |  | | | | Score: | 0/1 | |  | | | | **15.** |  | |  | |  |  | | --- | --- | | Two volcanic gas products are \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | carbon monoxide and carbon |  | | B. | carbon dioxide and water vapour 100% | Student Response | | C. | nitrogen gas and carbon monoxide |  | | D. | hydrogen sulfide and oxygen |  | | E. | sulphur and vog |  | | | | Score: | 0/1 | |  | | | | **16.** |  | |  | |  |  | | --- | --- | | The Hawaiian volcanic chain extends from southeast to northwest, growing progressively older to the northwest. This age progression implies that movement of the Pacific Plate in this region has been towards the \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | southeast |  | | B. | Northwest 100% | Student Response | | C. | east |  | | D. | north |  | | E. | west |  | | | | Score: | 0/1 | |  | | | | **17.** |  | |  | |  |  | | --- | --- | | How can studying the geologic history of a volcano help most in eruption forecasting? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Most volcanoes erupt with a regular periodicity, so knowing the time period between eruptive cycles allows accurate predictions of when the next eruption will occur. |  | | B. | Mapping pyroclastic flows from previous eruptions will show exactly where the pyroclastic flows will go in the next eruption. |  | | C. | Information from geologic records allows scientists to pinpoint how big the next eruption will be from a certain volcano. |  | | D. | Mapping previous volcanic deposits from a volcano is helpful for developing hazard maps for land-use planning and disaster preparedness. 100% | Student Response | | E. | Mapping the extent of lahars from previous eruptions will show exactly where the lahars will go in the next eruption. |  | | | | Score: | 0/1 | |  | | | | **18.** |  | |  | |  |  | | --- | --- | | Good news! You have just been informed that your annual charity bicycle-ride is up to the top of a volcano. But it is next week and you have an injured knee. If you could choose the EASIEST ride up, which type of volcano would it be? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | a shield volcano 100% | Student Response | | B. | a stratovolcano |  | | C. | a cinder cone |  | | D. | a tuya |  | | E. | a composite volcano |  | | | | Score: | 0/1 | |  | | | | **19.** |  | |  | |  |  | | --- | --- | | Jokulhlaups are \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | rubbly, slow moving lava flows in Iceland, similar to a'a in Hawaii |  | | B. | low viscosity basaltic lava flows at hotspots like Iceland |  | | C. | floods induced by volcanic eruptions underneath glaciers 100% | Student Response | | D. | earthquake-triggering collapses of basaltic rock off of Iceland |  | | E. | plants that tolerate highly acidic soils that are the first to recolonize a lava flow |  | | | | Score: | 0/1 | |  | | | | **20.** |  | |  | |  |  | | --- | --- | | Maars are \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | lava flows on Earth's Moon |  | | B. | basaltic lava flows with low explosivity |  | | C. | lava flows in Hawaii that flow all the way to the ocean and are quenched by seawater |  | | D. | craters formed by the interaction of magma with groundwater 100% | Student Response | | E. | cinder cones on the flanks of larger volcanoes |  | | | | Score: | 0/1 | |  | | |     \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_DAVID   |  |  | | --- | --- | | 1. |  | |  | |  |  | | --- | --- | | Which of the following correctly describes volcanism at a continental volcanic arc? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | low viscosity basaltic lavas and non-explosive volcanism | 0% |  | | B. | high viscosity dacitic lavas and explosive volcanism |  | Student Response | | C. | high viscosity dacitic to rhyolitic lavas and non-explosive volcanism |  |  | | D. | low viscosity rhyolitic lavas and explosive volcanism |  |  | | E. | high viscosity andesitic to dacitic lavas and non-explosive volcanism |  |  | | | | Score: | 0/1 | |  | | | | 2. |  | |  | |  |  | | --- | --- | | The Volcanic Explosivity Index (VEI) is based on all of the following EXCEPT \_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | the height of an eruption column |  |  | | Student Response B. | the recurrence interval of eruptions | 100% | Student Response | | C. | the volume of material erupted |  |  | | D. | the duration of an eruption |  |  | | E. | eruptive style |  |  | | | | Score: | 1/1 | |  | | | | 3. |  | |  | |  |  | | --- | --- | | What are the two basic requirements for lahars? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | water and lava | 0% |  | | B. | glaciers and ice |  |  | | C. | steep slopes and volcanic bombs |  |  | | D. | tephra and water |  | Student Response | | E. | rivers and glaciers |  |  | | | | Score: | 0/1 | |  | | | | 4. |  | |  | |  |  | | --- | --- | | Which of the following volcanic HAZARDS is the most likely to kill people, plants, and animals? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | lahar |  |  | | B. | tsunami |  |  | | C. | toxic gas |  |  | | D. | lava flow |  |  | | Student Response E. | pyroclastic flow | 100% | Student Response | | | | Score: | 1/1 | |  | | | | 5. |  | |  | |  |  | | --- | --- | | Which statement is TRUE? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | A rock that forms from magma will have a fine-grained texture. |  |  | | Student Response B. | Lava is the extrusive equivalent of magma. | 100% | Student Response | | C. | Intrusive igneous rocks are a type of pyroclastic debris. |  |  | | D. | The grain size of igneous rocks is determined by viscosity and gas content. |  |  | | E. | The term igneous refers to extrusive and intrusive rocks and volcanic gas. |  |  | | | | Score: | 1/1 | |  | | | | 6. |  | |  | |  |  | | --- | --- | | Which of the following describe hot spot volcanism in Hawaii? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | dark-colored, low-temperature basalt, non-explosive volcanism |  |  | | Student Response B. | dark-colored, high-temperature basalt, non-explosive volcanism | 100% | Student Response | | C. | light-colored, low-temperature rhyolite, explosive volcanism |  |  | | D. | light-colored, intermediate-temperature andesite, explosive volcanism |  |  | | E. | dark-colored, high-temperature andesite, non-explosive volcanism |  |  | | | | Score: | 1/1 | |  | | | | 7. |  | |  | |  |  | | --- | --- | | \_\_\_\_\_\_ is another name for extrusive igneous rocks and \_\_\_\_\_\_\_ is another name for intrusive igneous rocks. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | explosive; non-explosive |  |  | | B. | plutonic; volcanic |  |  | | C. | volcanic; plutonic |  | Student Response | | Student Response D. | granite; basalt | 0% |  | | E. | silica-rich; silica-poor |  |  | | | | Score: | 0/1 | |  | | | | 8. |  | |  | |  |  | | --- | --- | | Which of the following does NOT influence a volcano’s explosivity? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | gas content |  |  | | B. | silica composition |  |  | | C. | temperature of the molten material |  |  | | D. | viscosity |  |  | | Student Response E. | ash content | 100% | Student Response | | | | Score: | 1/1 | |  | | | | 9. |  | |  | |  |  | | --- | --- | | The explosivity of hot spot volcanism is dictated by which of the following? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | the composition of the overlying plate |  | Student Response | | B. | the rate of plate movement |  |  | | Student Response C. | the silica composition of the mantle | 0% |  | | D. | the temperature of the overlying plate |  |  | | E. | the type of plate boundary at the hot spot |  |  | | | | Score: | 0/1 | |  | | | | 10. |  | |  | |  |  | | --- | --- | | Which statement is TRUE? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Scientists are confident in their ability to predict volcanic eruptions hours in advance. |  |  | | B. | The Alaskan Volcano Observatory uses a numeric (levels 1-4) eruption warning system. |  |  | | C. | Predicting eruptions can be very costly because many times equipment is completely destroyed. |  | Student Response | | D. | The Volcanic Explosivity Index ranks eruptions based ONLY on the height of the eruption column and the volume of material erupted. |  |  | | Student Response E. | The number of eruption-related fatalities has decreased in the past 50 years due to better eruption prediction techniques. | 0% |  | | | | Score: | 0/1 | |  | | | | 11. |  | |  | |  |  | | --- | --- | | When considering all the predictive tools you could use to predict an impending eruption, which is considered to be the SINGLE MOST USEFUL? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | LIDAR volume analysis |  |  | | B. | COSPEC gas analysis |  |  | | C. | InSAR inflation monitoring |  |  | | D. | GPS inflation monitoring |  |  | | Student Response E. | seismic monitoring | 100% | Student Response | | | | Score: | 1/1 | |  | | | | 12. |  | |  | |  |  | | --- | --- | | All of the following influence volcano explosivity EXCEPT \_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | temperature |  |  | | B. | gas content |  |  | | C. | viscosity |  |  | | D. | amount of silica |  |  | | Student Response E. | magma/lava color | 100% | Student Response | | | | Score: | 1/1 | |  | | | | 13. |  | |  | |  |  | | --- | --- | | Molten material beneath the Earth's surface is called \_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | lava |  |  | | Student Response B. | magma | 100% | Student Response | | C. | pluton |  |  | | D. | pumice |  |  | | E. | basalt |  |  | | | | Score: | 1/1 | |  | | | | 14. |  | |  | |  |  | | --- | --- | | The Cascade arc sits adjacent to a plate boundary where the \_\_\_\_\_\_ plate is \_\_\_\_\_\_ the \_\_\_\_\_\_ | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | Juan de Fuca; subducting beneath; North American plate | 100% | Student Response | | B. | Juan de Fuca; spreading away from; Pacific plate |  |  | | C. | Juan de Fuca; sliding northward past; North American plate |  |  | | D. | Pacific Plate; subducting beneath; North American plate |  |  | | E. | Pacific Plate; sliding northward past; North American plate |  |  | | | | Score: | 1/1 | |  | | | | 15. |  | |  | |  |  | | --- | --- | | What type of volcanic landform is MOST commonly associated with Hawaiian mafic volcanism? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | shield volcano | 100% | Student Response | | B. | stratovolcano |  |  | | C. | lava dome |  |  | | D. | caldera |  |  | | E. | composite volcano |  |  | | | | Score: | 1/1 | |  | | | | 16. |  | |  | |  |  | | --- | --- | | Magma is molten rock material \_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | beneath the surface of the Earth | 100% | Student Response | | B. | on the surface of the Earth |  |  | | C. | at the interface between the surface and a volcano |  |  | | D. | formed of mostly iron and magnesium |  |  | | E. | formed mostly of silica and feldspar |  |  | | | | Score: | 1/1 | |  | | | | 17. |  | |  | |  |  | | --- | --- | | Mafic lavas have \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | intermediate silica content and temperature between 1000-1200 °C |  |  | | B. | low silica content and temperature between 600-1000 °C |  |  | | C. | intermediate silica content and temperature between 600-1000 °C |  |  | | D. | high silica content and temperature between 1200-1400 °C |  |  | | Student Response E. | low silica content and temperature between 1200-1400 °C | 100% | Student Response | | | | Score: | 1/1 | |  | | | | 18. |  | |  | |  |  | | --- | --- | | The high viscosity of some lavas results from: | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | high SiO2 content | 100% | Student Response | | B. | high temperatures |  |  | | C. | low density |  |  | | D. | low gas content |  |  | | E. | high temperatures and high SiO2 content |  |  | | | | Score: | 1/1 | |  | | | | 19. |  | |  | |  |  | | --- | --- | | The photo below shows a stratovolcano. What is most likely marked by the letter X? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | pyroclastic flow deposit |  |  | | Student Response B. | lahar deposit | 100% | Student Response | | C. | snow |  |  | | D. | ash cloud deposit |  |  | | E. | lava flow deposit |  |  | | | | Score: | 1/1 | |  | | | | 20. |  | |  | |  |  | | --- | --- | | Compared to pyroclastic flow deposits, air-fall deposits are recognized by \_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Student Response A. | their chaotic mixture of pyroclasts of all sizes | 0% |  | | B. | the fact that they are restricted to the flanks of a volcano |  |  | | C. | the presence of layers, each of a specific grain size |  | Student Response | | D. | their close similarity to lahars |  |  | | E. | their hummocky surface appearance |  |  | | | | Score: | 0/1 | |  | | | | | |
| . |  |
|  | |  |  | | --- | --- | | Highly viscous lavas (m = 7) with high gas content will generally yield \_\_\_\_\_\_ volcanism. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | andesitic |  | | B. | non-explosive |  | | Student Response C. | explosive | Student Response | | D. | effusive |  | | E. | basaltic |  | | | | Score: | 1/1 | |  | | |
| 2. |  |
|  | |  |  | | --- | --- | | Which of the following does NOT influence a volcano’s explosivity? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | gas content |  | | B. | silica composition |  | | C. | temperature of the molten material |  | | D. | viscosity |  | | Student Response E. | ash content | Student Response | | | | Score: | 1/1 | |  | | |
| 3. |  |
|  | |  |  | | --- | --- | | An igneous rock with a coarse-grained interlocking texture of crystals is called \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | pyroclastic |  | | Student Response B. | obsidian |  | | C. | intrusive | Student Response | | D. | volcanic |  | | E. | extrusive |  | | | | Score: | 0/1 | |  | | |
| 4. |  |
|  | |  |  | | --- | --- | | Which of the following Cascade Arc volcanoes have had a recent (in the last 500 years) eruption history? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Mount Mazama (Crater Lake) |  | | B. | Meager Mountain |  | | Student Response C. | Mount St. Helens | Student Response | | D. | Mount Garibaldi |  | | E. | Mount Everest |  | | | | Score: | 1/1 | |  | | |
| 5. |  |
|  | |  |  | | --- | --- | | Acoustic Flow Monitors \_\_\_\_\_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | are used to detect pyroclastic flows |  | | B. | respond to higher frequency vibrations than those produced by earthquakes | Student Response | | C. | are tuned to respond to vibrations in the 0.5 – 1.5 Hz range |  | | D. | are able to record the sound of magma moving up through a volcanic neck |  | | Student Response E. | are used extensively on Hawaii to monitor lava flow activity |  | | | | Score: | 0/1 | |

|  |  |
| --- | --- |
| 1. |  |
|  | |  |  | | --- | --- | | Pyroclastic flows originate in all of the following ways EXCEPT \_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | dome collapse |  | | B. | eruption column collapse |  | | C. | directed blast |  | | D. | over-spilling of the crater rim |  | | Student Response E. | fall of ballistic debris | Student Response | | | | Score: | 1/1 | |  | | |
| 2. |  |
|  | |  |  | | --- | --- | | Which of the following is NOT used to predict volcanic eruptions? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | the growth of a lava dome |  | | B. | gas emissions |  | | Student Response C. | air density | Student Response | | D. | seismic activity |  | | E. | heat flow |  | | | | Score: | 1/1 | |  | | |
| 3. |  |
|  | |  |  | | --- | --- | | Carbon dioxide CO2 gas is a MAJOR hazard at active volcanoes because it \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | causes acid rain |  | | B. | produces toxic gas carbon monoxide CO |  | | C. | forms carbonic acid which is highly toxic |  | | D. | is the most common gas emitted during eruptions |  | | Student Response E. | causes death by asphyxiation | Student Response | | | | Score: | 1/1 | |  | | |
| 4. |  |
|  | |  |  | | --- | --- | | Take 3 pieces of uncooked spaghetti of different lengths and put raisins on each end. Now, hold the sticks (make sure the ends with the raisins are on top) and shake the sticks vigorously back and forth. WHICH ONE will break first and WHY? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | The shortest one because short objects are more at risk during shaking (earthquakes). |  | | B. | The middle length one because the weight on top (raisin) is not proportional to the length of the spaghetti. |  | | C. | The shortest one because short objects resonate more during high frequency shaking. | Student Response | | Student Response D. | The longest one because it resonates at a different frequency than the other 2. |  | | E. | The longest one because long objects break easier during low frequency shaking. |  | | | | Score: | 0/1 | |  | | |
| 5. |  |
|  | |  |  | | --- | --- | | Which of the following statements is TRUE? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Low frequency earthquake waves outline the partially molten magma chamber. |  | | B. | High frequency earthquake waves define the magma conduit. |  | | C. | The absence of seismic activity is characteristic of the magma chamber. | Student Response | | D. | Low frequency earthquake waves reflect the ductile deformation of rocks being intruded by the magma. |  | | Student Response E. | High frequency earthquake waves reflect the brittle deformation occurring in the magma conduit. |  | | | | Score: | 0/1 | |
| 1. |  |
|  | |  |  | | --- | --- | | Immediately after an eruption at Kilauea in Hawaii, the surface of the volcano \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | cracks open in many places surrounding the summit |  | | B. | inflates, making the slopes of the volcano slightly steeper |  | | Student Response C. | subsides, making the slopes of the volcano less steep | Student Response | | D. | shows higher tilt in the north-south direction |  | | E. | shows higher tilt in the east-west direction |  | | | | Score: | 1/1 | |  | | |
| 2. |  |
|  | |  |  | | --- | --- | | Which of the following volcanic hazards is typically the DEADLIEST for people? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | ash falls from maars |  | | Student Response B. | ash falls from stratovolcanoes |  | | C. | ash falls from Hawaiian eruptions |  | | D. | pyroclastic flows from stratovolcanoes | Student Response | | E. | pyroclastic flows from Hawaiian eruptions |  | | | | Score: | 0/1 | |  | | |
| 3. |  |
|  | |  |  | | --- | --- | | Which of the following eruptions had the highest Volcanic Explosivity Index (VEI)? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Student Response A. | Yellowstone caldera, 600,000 years ago | Student Response | | B. | Kilauea, on-going |  | | C. | Mt. Unzen, 1991 |  | | D. | Mount St. Helens, 1980 |  | | E. | Mount Garibaldi, 12,000 years ago |  | | | | Score: | 1/1 | |  | | |
| 4. |  |
|  | |  |  | | --- | --- | | Which volcano poses the GREATEST risk to life and property in Vancouver and southern British Columbia? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Mount Rainier |  | | B. | Mount Garibaldi |  | | C. | Mount Meager |  | | Student Response D. | Mount Baker | Student Response | | E. | Mount Cayley |  | | | | Score: | 1/1 | |  | | |
| 5. |  |
|  | |  |  | | --- | --- | | Which magma composition will produce the most explosive volcanoes? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | dacite |  | | B. | andesite |  | | Student Response C. | rhyolite | Student Response | | D. | basalt |  | | E. | gabbro |  | | | | Score: | 1/1 | |  | | |
| 6. |  |
|  | |  |  | | --- | --- | | Why did you choose your answer for Question 5? That magma composition \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | is rich in crystals |  | | B. | is typical of Hawaiian-type eruptions |  | | C. | flows very fast |  | | Student Response D. | has the highest viscosity | Student Response | | E. | is the most common in volcanoes |  | | | | Score: | 1/1 | |  | | |
| 7. |  |
|  | |  |  | | --- | --- | | Which of the following poses the GREATEST hazard to the Metro Vancouver area from a nearby volcanic eruption? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Student Response A. | ash fall | Student Response | | B. | lateral blast |  | | C. | lahar |  | | D. | poisonous gases |  | | E. | pyroclastic flow |  | | | | Score: | 1/1 | |  | | |
| 8. |  |
|  | |  |  | | --- | --- | | Large eruptions from stratovolcanoes typically affect climate by \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | ejecting ash particles that block sunlight and cause global cooling | Student Response | | B. | heating ocean water with lava flows |  | | Student Response C. | heating the atmosphere, causing global warming |  | | D. | reducing alpine ice cover, contributing to global warming |  | | E. | melting large quantities of ice causing sea level to rise |  | | | | Score: | 0/1 | |  | | |
| 9. |  |
|  | |  |  | | --- | --- | | How did the residents of Vestmannaeyjar, Iceland, save their harbor from a lava flow? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | They constructed high cement walls around the harbor and the lava solidified against the walls. |  | | B. | They extracted more geothermal energy that was being produced by the volcano, decreasing the volume of lava erupted. |  | | C. | They dug channels that diverted the lava flow away from the harbor. |  | | Student Response D. | They chilled the lava flow with water, making the flow solidify before it blocked the harbor. | Student Response | | E. | As the lava cooled, they blasted the new rock away and dumped it offshore. |  | | | | Score: | 1/1 | |  | | |
| 10. |  |
|  | |  |  | | --- | --- | | Which of the following is the most common volcanic rock on Earth? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Student Response A. | basalt | Student Response | | B. | dacite |  | | C. | granite |  | | D. | andesite |  | | E. | rhyolite |  | | | | Score: | 1/1 | |  | | |
| 11. |  |
|  | |  |  | | --- | --- | | Aircraft flying at high altitudes between North America and Asia can be very susceptible to \_\_\_\_\_\_ erupted from volcanoes in Cascadia and Alaska. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | pyroclastic flows |  | | B. | lava flows |  | | C. | volcanic bombs |  | | D. | lahars |  | | Student Response E. | volcanic ash | Student Response | | | | Score: | 1/1 | |  | | |
| 12. |  |
|  | |  |  | | --- | --- | | Which of the following volcanic hazards can occur without an accompanying eruption? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Student Response A. | sector collapse / volcanic landslide | Student Response | | B. | volcanic ash cloud |  | | C. | pyroclastic flow |  | | D. | lava flow |  | | E. | volcanic bombs |  | | | | Score: | 1/1 | |  | | |
| 13. |  |
|  | |  |  | | --- | --- | | If you are hiking in Garibaldi Provincial Park and your map identifies a feature near your trail as "The Cinder Cone", what rock type would you be most likely to encounter as you walk near this feature? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Student Response A. | basalt | Student Response | | B. | andesite |  | | C. | rhyolite |  | | D. | dacite |  | | E. | granite |  | | | | Score: | 1/1 | |  | | |
| 14. |  |
|  | |  |  | | --- | --- | | Why are stratovolcanoes the most common type of volcano around the Pacific Rim? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | they are typical of continental rifting |  | | B. | they are found nowhere else |  | | C. | they are typical of hot spots |  | | Student Response D. | they are typical of continent-ocean subduction zones | Student Response | | E. | they are typical of mid-ocean ridges |  | | | | Score: | 1/1 | |  | | |
| 15. |  |
|  | |  |  | | --- | --- | | Two volcanic gas products are \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | sulphur and vog |  | | B. | carbon monoxide and carbon |  | | C. | hydrogen sulfide and oxygen |  | | Student Response D. | carbon dioxide and water vapour | Student Response | | E. | nitrogen gas and carbon monoxide |  | | | | Score: | 1/1 | |  | | |
| 16. |  |
|  | |  |  | | --- | --- | | The Hawaiian volcanic chain extends from southeast to northwest, growing progressively older to the northwest. This age progression implies that movement of the Pacific Plate in this region has been towards the \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | northwest | Student Response | | Student Response B. | north |  | | C. | southeast |  | | D. | east |  | | E. | west |  | | | | Score: | 0/1 | |  | | |
| 17. |  |
|  | |  |  | | --- | --- | | How can studying the geologic history of a volcano help most in eruption forecasting? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Student Response A. | Mapping previous volcanic deposits from a volcano is helpful for developing hazard maps for land-use planning and disaster preparedness. | Student Response | | B. | Mapping the extent of lahars from previous eruptions will show exactly where the lahars will go in the next eruption. |  | | C. | Information from geologic records allows scientists to pinpoint how big the next eruption will be from a certain volcano. |  | | D. | Mapping pyroclastic flows from previous eruptions will show exactly where the pyroclastic flows will go in the next eruption. |  | | E. | Most volcanoes erupt with a regular periodicity, so knowing the time period between eruptive cycles allows accurate predictions of when the next eruption will occur. |  | | | | Score: | 1/1 | |  | | |
| 18. |  |
|  | |  |  | | --- | --- | | Good news! You have just been informed that your annual charity bicycle-ride is up to the top of a volcano. But it is next week and you have an injured knee. If you could choose the EASIEST ride up, which type of volcano would it be? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | a tuya |  | | B. | a composite volcano |  | | C. | a stratovolcano |  | | Student Response D. | a shield volcano | Student Response | | E. | a cinder cone |  | | | | Score: | 1/1 | |  | | |
| 19. |  |
|  | |  |  | | --- | --- | | Jokulhlaups are \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | floods induced by volcanic eruptions underneath glaciers | Student Response | | B. | plants that tolerate highly acidic soils that are the first to recolonize a lava flow |  | | C. | low viscosity basaltic lava flows at hotspots like Iceland |  | | Student Response D. | rubbly, slow moving lava flows in Iceland, similar to a'a in Hawaii |  | | E. | earthquake-triggering collapses of basaltic rock off of Iceland |  | | | | Score: | 0/1 | |  | | |
| 20. |  |
|  | |  |  | | --- | --- | | Maars are \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | cinder cones on the flanks of larger volcanoes |  | | Student Response B. | craters formed by the interaction of magma with groundwater | Student Response | | C. | basaltic lava flows with low explosivity |  | | D. | lava flows in Hawaii that flow all the way to the ocean and are quenched by seawater |  | | E. | lava flows on Earth's Moon |  | | | | Score: | 1/1 | |  | | |

**VOLCANOES**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | |  |  | | --- | --- | | Which statement is TRUE? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Description: Student ResponseA. | Scientists are confident in their ability to predict volcanic eruptions hours in advance. |  | | B. | The Alaskan Volcano Observatory uses a numeric (levels 1-4) eruption warning system. |  | | C. | Predicting eruptions can be very costly because many times equipment is completely destroyed. | Description: Student Response | | D. | The Volcanic Explosivity Index ranks eruptions based ONLY on the height of the eruption column and the volume of material erupted. |  | | E. | The number of eruption-related fatalities has decreased in the past 50 years due to better eruption prediction techniques. |  | | | | Score: | 0/1 | |  | | |
| **2.** |  |
|  | |  |  | | --- | --- | | Igneous rock textures are dictated by a magma/lava’s \_\_\_\_\_\_\_\_ | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | silica composition |  | | B. | CO2 gas content |  | | C. | temperature |  | | D. | cooling rate | Description: Student Response | | Description: Student ResponseE. | mineralogy |  | | | | Score: | 0/1 | |  | | |
| **3.** |  |
|  | |  |  | | --- | --- | | By volume, the largest type of volcanic landform is a \_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | cinder cone |  | | B. | stratovolcano |  | | Description: Student ResponseC. | shield volcano | Description: Student Response | | D. | composite cone |  | | E. | lava dome |  | | | | Score: | 1/1 | |  | | |
| **4.** |  |
|  | |  |  | | --- | --- | | What event started the sequence of events recorded during the May 18, 1980 eruption of Mount St. Helens? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | eruption of a crypto-dome |  | | B. | a large landslide |  | | C. | melting of snow and ice in the summit crater |  | | D. | a blast eruption |  | | Description: Student ResponseE. | a magnitude 5.1 earthquake | Description: Student Response | | | | Score: | 1/1 | |  | | |
| **5.** |  |
|  | |  |  | | --- | --- | | Which of the following is a volcanic HAZARD to passenger aircraft flying overhead? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Description: Student ResponseA. | ash in VEI 6 Plinian eruption columns | Description: Student Response | | B. | radiation from lahars |  | | C. | ash in VEI 1 Hawaiian eruption plumes |  | | D. | volcanic bombs hitting the aircraft |  | | E. | heat rising from volcanoes |  | | | | Score: | 1/1 | |

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| --- | --- |
|  |  |
|  | |  |  | | --- | --- | | The high viscosity of some lavas results from: | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Description: Student ResponseA. | high SiO2 content | Description: Student Response | | B. | high temperatures |  | | C. | low density |  | | D. | low gas content |  | | E. | high temperatures and high SiO2 content |  | | | | Score: | 1/1 | |  | | |
| **2.** |  |
|  | |  |  | | --- | --- | | Which of these Cascade Range volcanoes do geologists believe has the ability to greatly affect (i.e. be very hazardous) the largest area around it? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Mount Rainier | Description: Student Response | | Description: Student ResponseB. | Mount St. Helens |  | | C. | Crater Lake/Mount Mazama |  | | D. | Mount Garibaldi |  | | E. | Mount Baker |  | | | | Score: | 0/1 | |  | | |
| **3.** |  |
|  | |  |  | | --- | --- | | When considering all the predictive tools you could use to predict an impending eruption, which is considered to be the SINGLE MOST USEFUL? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | LIDAR volume analysis |  | | B. | COSPEC gas analysis |  | | C. | InSAR inflation monitoring |  | | D. | GPS inflation monitoring |  | | Description: Student ResponseE. | seismic monitoring | Description: Student Response | | | | Score: | 1/1 | |  | | |
| **4.** |  |
|  | |  |  | | --- | --- | | What was the volcanic hazard that caused the tragedy at Lake Nyos in Cameroon? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | fast flowing basaltic lava flows |  | | B. | a lahar |  | | C. | volcanic landslide |  | | D. | abundant acid rain from volcanic gasses |  | | Description: Student ResponseE. | CO2 gas | Description: Student Response | | | | Score: | 1/1 | |  | | |
| **5.** |  |
|  | |  |  | | --- | --- | | What type of volcano is shown in the image? NOTE: it is about 200 metres wide | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | composite cone |  | | B. | shield |  | | Description: Student ResponseC. | cinder cone | Description: Student Response | | D. | caldera |  | | E. | volcanic dome |  | | | | Score: | 1/1 | |

|  |  |
| --- | --- |
| **1.** |  |
|  | |  |  | | --- | --- | | Immediately after an eruption at Kilauea in Hawaii, the surface of the volcano \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | shows higher tilt in the east-west direction |  | | B. | subsides, making the slopes of the volcano less steep | Description: Student Response | | C. | shows higher tilt in the north-south direction |  | | D. | cracks open in many places surrounding the summit |  | | E. | inflates, making the slopes of the volcano slightly steeper |  | | | | Score: | 0/1 | |  | | |
| **2.** |  |
|  | |  |  | | --- | --- | | Which of the following volcanic hazards is typically the DEADLIEST for people? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Description: Student ResponseA. | pyroclastic flows from stratovolcanoes | Description: Student Response | | B. | ash falls from Hawaiian eruptions |  | | C. | ash falls from stratovolcanoes |  | | D. | ash falls from maars |  | | E. | pyroclastic flows from Hawaiian eruptions |  | | | | Score: | 1/1 | |  | | |
| **3.** |  |
|  | |  |  | | --- | --- | | Which of the following eruptions had the highest Volcanic Explosivity Index (VEI)? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Kilauea, on-going |  | | B. | Mount St. Helens, 1980 |  | | Description: Student ResponseC. | Yellowstone caldera, 600,000 years ago | Description: Student Response | | D. | Mt. Unzen, 1991 |  | | E. | Mount Garibaldi, 12,000 years ago |  | | | | Score: | 1/1 | |  | | |
| **4.** |  |
|  | |  |  | | --- | --- | | Which volcano poses the GREATEST risk to life and property in Vancouver and southern British Columbia? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Description: Student ResponseA. | Mount Rainier |  | | B. | Mount Cayley |  | | C. | Mount Baker | Description: Student Response | | D. | Mount Meager |  | | E. | Mount Garibaldi |  | | | | Score: | 0/1 | |  | | |
| **5.** |  |
|  | |  |  | | --- | --- | | Which magma composition will produce the most explosive volcanoes? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | dacite |  | | B. | basalt |  | | Description: Student ResponseC. | rhyolite | Description: Student Response | | D. | gabbro |  | | E. | andesite |  | | | | Score: | 1/1 | |  | | |
| **6.** |  |
|  | |  |  | | --- | --- | | Why did you choose your answer for Question 5? That magma composition \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | is rich in crystals |  | | B. | flows very fast |  | | C. | is the most common in volcanoes |  | | D. | is typical of Hawaiian-type eruptions |  | | Description: Student ResponseE. | has the highest viscosity | Description: Student Response | | | | Score: | 1/1 | |  | | |
| **7.** |  |
|  | |  |  | | --- | --- | | Which of the following poses the GREATEST hazard to the Metro Vancouver area from a nearby volcanic eruption? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | lahar |  | | B. | poisonous gases |  | | C. | lateral blast |  | | D. | pyroclastic flow |  | | Description: Student ResponseE. | ash fall | Description: Student Response | | | | Score: | 1/1 | |  | | |
| **8.** |  |
|  | |  |  | | --- | --- | | Large eruptions from stratovolcanoes typically affect climate by \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | heating the atmosphere, causing global warming |  | | B. | heating ocean water with lava flows |  | | Description: Student ResponseC. | ejecting ash particles that block sunlight and cause global cooling | Description: Student Response | | D. | melting large quantities of ice causing sea level to rise |  | | E. | reducing alpine ice cover, contributing to global warming |  | | | | Score: | 1/1 | |  | | |
| **9.** |  |
|  | |  |  | | --- | --- | | How did the residents of Vestmannaeyjar, Iceland, save their harbor from a lava flow? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | They chilled the lava flow with water, making the flow solidify before it blocked the harbor. | Description: Student Response | | B. | They dug channels that diverted the lava flow away from the harbor. |  | | C. | They extracted more geothermal energy that was being produced by the volcano, decreasing the volume of lava erupted. |  | | D. | As the lava cooled, they blasted the new rock away and dumped it offshore. |  | | E. | They constructed high cement walls around the harbor and the lava solidified against the walls. |  | | | | Score: | 0/1 | |  | | |
| **10.** |  |
|  | |  |  | | --- | --- | | Which of the following is the most common volcanic rock on Earth? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | Description: Student ResponseA. | andesite |  | | B. | granite |  | | C. | rhyolite |  | | D. | basalt | Description: Student Response | | E. | dacite |  | | | | Score: | 0/1 | |  | | |
| **11.** |  |
|  | |  |  | | --- | --- | | Aircraft flying at high altitudes between North America and Asia can be very susceptible to \_\_\_\_\_\_ erupted from volcanoes in Cascadia and Alaska. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | lava flows |  | | B. | lahars |  | | C. | volcanic bombs |  | | Description: Student ResponseD. | volcanic ash | Description: Student Response | | E. | pyroclastic flows |  | | | | Score: | 1/1 | |  | | |
| **12.** |  |
|  | |  |  | | --- | --- | | Which of the following volcanic hazards can occur without an accompanying eruption? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | sector collapse / volcanic landslide | Description: Student Response | | Description: Student ResponseB. | lava flow |  | | C. | volcanic bombs |  | | D. | pyroclastic flow |  | | E. | volcanic ash cloud |  | | | | Score: | 0/1 | |  | | |
| **13.** |  |
|  | |  |  | | --- | --- | | If you are hiking in Garibaldi Provincial Park and your map identifies a feature near your trail as "The Cinder Cone", what rock type would you be most likely to encounter as you walk near this feature? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | dacite |  | | B. | andesite |  | | C. | rhyolite |  | | D. | granite |  | | Description: Student ResponseE. | basalt | Description: Student Response | | | | Score: | 1/1 | |  | | |
| **14.** |  |
|  | |  |  | | --- | --- | | Why are stratovolcanoes the most common type of volcano around the Pacific Rim? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | they are typical of continental rifting |  | | Description: Student ResponseB. | they are typical of continent-ocean subduction zones | Description: Student Response | | C. | they are typical of mid-ocean ridges |  | | D. | they are typical of hot spots |  | | E. | they are found nowhere else |  | | | | Score: | 1/1 | |  | | |
| **15.** |  |
|  | |  |  | | --- | --- | | Two volcanic gas products are \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | hydrogen sulfide and oxygen |  | | B. | carbon monoxide and carbon |  | | C. | nitrogen gas and carbon monoxide |  | | Description: Student ResponseD. | carbon dioxide and water vapour | Description: Student Response | | E. | sulphur and vog |  | | | | Score: | 1/1 | |  | | |
| **16.** |  |
|  | |  |  | | --- | --- | | The Hawaiian volcanic chain extends from southeast to northwest, growing progressively older to the northwest. This age progression implies that movement of the Pacific Plate in this region has been towards the \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | east |  | | B. | west |  | | C. | north |  | | Description: Student ResponseD. | southeast |  | | E. | northwest | Description: Student Response | | | | Score: | 0/1 | |  | | |
| **17.** |  |
|  | |  |  | | --- | --- | | How can studying the geologic history of a volcano help most in eruption forecasting? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | Mapping the extent of lahars from previous eruptions will show exactly where the lahars will go in the next eruption. |  | | B. | Most volcanoes erupt with a regular periodicity, so knowing the time period between eruptive cycles allows accurate predictions of when the next eruption will occur. |  | | C. | Mapping previous volcanic deposits from a volcano is helpful for developing hazard maps for land-use planning and disaster preparedness. | Description: Student Response | | D. | Information from geologic records allows scientists to pinpoint how big the next eruption will be from a certain volcano. |  | | E. | Mapping pyroclastic flows from previous eruptions will show exactly where the pyroclastic flows will go in the next eruption. |  | | | | Score: | 0/1 | |  | | |
| **18.** |  |
|  | |  |  | | --- | --- | | Good news! You have just been informed that your annual charity bicycle-ride is up to the top of a volcano. But it is next week and you have an injured knee. If you could choose the EASIEST ride up, which type of volcano would it be? | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | a composite volcano |  | | B. | a cinder cone |  | | C. | a stratovolcano |  | | Description: Student ResponseD. | a shield volcano | Description: Student Response | | E. | a tuya |  | | | | Score: | 1/1 | |  | | |
| **19.** |  |
|  | |  |  | | --- | --- | | Jokulhlaups are \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | floods induced by volcanic eruptions underneath glaciers | Description: Student Response | | B. | rubbly, slow moving lava flows in Iceland, similar to a'a in Hawaii |  | | C. | low viscosity basaltic lava flows at hotspots like Iceland |  | | D. | plants that tolerate highly acidic soils that are the first to recolonize a lava flow |  | | E. | earthquake-triggering collapses of basaltic rock off of Iceland |  | | | | Score: | 0/1 | |  | | |
| **20.** |  |
|  | |  |  | | --- | --- | | Maars are \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Correct Answer** | | --- | --- | --- | | A. | cinder cones on the flanks of larger volcanoes |  | | B. | lava flows on Earth's Moon |  | | C. | craters formed by the interaction of magma with groundwater | Description: Student Response | | D. | basaltic lava flows with low explosivity |  | | E. | lava flows in Hawaii that flow all the way to the ocean and are quenched by seawater |  | | | | Score: | 0/1 | |  | | |

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|  | |  |  | | --- | --- | | What does satellite radar interferometry (InSAR) measure? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | instantaneous emplacement of lava at the surface |  |  | | B. | the frequency of earthquake waves emitted by magma |  |  | | C. | location of anomalous heat flow in an active volcanic area |  |  | | D. | precise pinpointing of earthquake epicenters near an active volcano |  |  | | Description: Student ResponseE. | ground deformation of a volcano or volcanic area over time | 100% | Description: Student Response | | | | Score: | 1/1 | |  | | |
| **2.** |  |
|  | |  |  | | --- | --- | | Igneous rock textures are dictated by a magma/lava’s \_\_\_\_\_\_\_\_ | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | silica composition |  |  | | B. | CO2 gas content |  |  | | C. | temperature |  |  | | Description: Student ResponseD. | cooling rate | 100% | Description: Student Response | | E. | mineralogy |  |  | | | | Score: | 1/1 | |  | | |
| **3.** |  |
|  | |  |  | | --- | --- | | Which of the following will produce the MOST explosive eruption? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | 1200 to 1400º C magma with high silica and low gas content |  |  | | B. | 1200 to 1400º C magma with low silica and low gas content |  |  | | C. | 600 to 1000º C magma with low silica and high gas content |  |  | | Description: Student ResponseD. | 600 to 1000º C magma with high silica and high gas content | 100% | Description: Student Response | | E. | 1000 to 1200º C magma with low silica and low gas content |  |  | | | | Score: | 1/1 | |  | | |
| **4.** |  |
|  | |  |  | | --- | --- | | What is the effect of hydrothermal alteration on a volcano? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Hot springs increase toxic gas emissions. |  |  | | Description: Student ResponseB. | Alteration to clay minerals weakens the volcanic edifice. | 100% | Description: Student Response | | C. | Mudflows form after dome eruptions. |  |  | | D. | Gas seepage increases. |  |  | | E. | Pyroclastic material becomes welded together and strengthens with time. |  |  | | | | Score: | 1/1 | |  | | |
| **5.** |  |
|  | |  |  | | --- | --- | | Which statement is TRUE? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Only shield volcanoes have a volcanic cone, vent, and crater. |  |  | | B. | Lava domes form on the flanks of a volcano after extremely explosive eruptions. |  |  | | Description: Student ResponseC. | Shield volcanoes are the largest type of volcano by volume. | 100% | Description: Student Response | | D. | Composite volcanoes are made only of pyroclastic material. |  |  | | E. | Large calderas always form from the collapse of a shield volcano. |  |  | | | | Score: | 1/1 | |  | | |
| **6.** |  |
|  | |  |  | | --- | --- | | The main factor leading to an increase in volcano-related fatalities over the past 50 years is an INCREASE in \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Description: Student ResponseA. | population | 100% | Description: Student Response | | B. | the rate of volcanic eruptions |  |  | | C. | caldera-type eruption |  |  | | D. | urbanization |  |  | | E. | the rate of sea floor spreading |  |  | | | | Score: | 1/1 | |  | | |
| **7.** |  |
|  | |  |  | | --- | --- | | Which would be the LEAST likely volcanic hazard at Mount Baker (part of the Cascade Range)? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | lava flows |  | Description: Student Response | | B. | lahars |  |  | | C. | tephra |  |  | | D. | volcanic landslides |  |  | | Description: Student ResponseE. | pyroclastic flows | 0% |  | | | | Score: | 0/1 | |  | | |
| **8.** |  |
|  | |  |  | | --- | --- | | Compared to shield volcanoes, composite volcanoes are \_\_\_\_\_\_ | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | more common at divergent plate margins |  |  | | B. | larger (in general), with shallower slopes and more mafic flows |  |  | | Description: Student ResponseC. | smaller, with steeper slopes and more felsic lavas | 100% | Description: Student Response | | D. | not as explosive |  |  | | E. | more common at continental intraplate settings |  |  | | | | Score: | 1/1 | |  | | |
| **9.** |  |
|  | |  |  | | --- | --- | | \_\_\_\_\_\_\_\_\_ is a volcanic landform composed of unconsolidated pyroclastic material with small amounts of lava and usually no more than 10-100’s of meters high. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | stratovolcano |  |  | | B. | shield volcano |  |  | | C. | lava dome |  |  | | Description: Student ResponseD. | cinder cone | 100% | Description: Student Response | | E. | caldera |  |  | | | | Score: | 1/1 | |  | | |
| **10.** |  |
|  | |  |  | | --- | --- | | \_\_\_\_\_\_ is another name for extrusive igneous rocks and \_\_\_\_\_\_\_ is another name for intrusive igneous rocks. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | explosive; non-explosive |  |  | | B. | plutonic; volcanic |  |  | | C. | volcanic; plutonic |  | Description: Student Response | | Description: Student ResponseD. | granite; basalt | 0% |  | | E. | silica-rich; silica-poor |  |  | | | | Score: | 0/1 | |  | | |
| **11.** |  |
|  | |  |  | | --- | --- | | The most active Cascade arc volcano over the past 4,000 years is \_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | Mount Shasta |  |  | | B. | Mount Rainier |  |  | | C. | Mount Hood |  |  | | D. | Mount Baker |  |  | | Description: Student ResponseE. | Mount St. Helens | 100% | Description: Student Response | | | | Score: | 1/1 | |  | | |
| **12.** |  |
|  | |  |  | | --- | --- | | Which volcanic hazard does hydrothermal alteration promote? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Description: Student ResponseA. | landslides | 100% | Description: Student Response | | B. | lava flows |  |  | | C. | pyroclastic flows |  |  | | D. | tephra/ash |  |  | | E. | lateral blasts |  |  | | | | Score: | 1/1 | |  | | |
| **13.** |  |
|  | |  |  | | --- | --- | | What is the primary volcanic hazard to communities built along rivers near Mount Rainier? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | pyroclastic flows |  |  | | B. | lava |  |  | | Description: Student ResponseC. | lahars | 100% | Description: Student Response | | D. | ash flow |  |  | | E. | toxic volcanic gases |  |  | | | | Score: | 1/1 | |  | | |
| **14.** |  |
|  | |  |  | | --- | --- | | Hot spot volcanoes form because \_\_\_\_\_ . | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | friction at a transform boundary melts the crust |  |  | | B. | subducted water interacts with lithosphere to produce magma |  |  | | Description: Student ResponseC. | material from the core-mantle boundary rises to form magma and melts the overlying crust | 100% | Description: Student Response | | D. | the underlying mantle moves beneath the crust over time, forming a chain of volcanoes |  |  | | E. | anomalously hot areas in the plate melt near faults, producing a chain of volcanoes |  |  | | | | Score: | 1/1 | |  | | |
| **15.** |  |
|  | |  |  | | --- | --- | | Which of the following is NOT used to predict volcanic eruptions? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | the growth of a lava dome |  |  | | B. | gas emissions |  |  | | Description: Student ResponseC. | air density | 100% | Description: Student Response | | D. | seismic activity |  |  | | E. | heat flow |  |  | | | | Score: | 1/1 | |  | | |
| **16.** |  |
|  | |  |  | | --- | --- | | Which lists the volcanic landforms from LARGEST to SMALLEST? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Description: Student ResponseA. | composite cone, cinder cone, shield volcano | 0% |  | | B. | shield volcano, cinder cone, composite cone |  |  | | C. | cinder cone, composite cone, shield volcano |  |  | | D. | composite cone, shield volcano, cinder cone |  |  | | E. | shield volcano, composite cone, cinder cone |  | Description: Student Response | | | | Score: | 0/1 | |  | | |
| **17.** |  |
|  | |  |  | | --- | --- | | Compared to mafic magma, silicic magma is \_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | hotter, more viscous, and more gas-rich |  |  | | B. | cooler, more viscous, and more gas-rich |  | Description: Student Response | | C. | cooler, less viscous, and less gas-rich |  |  | | Description: Student ResponseD. | hotter, less viscous, and more gas-rich | 0% |  | | E. | hotter, more viscous, and less gas-rich |  |  | | | | Score: | 0/1 | |  | | |
| **18.** |  |
|  | |  |  | | --- | --- | | Mount Rainier is dangerous for all of the following reasons EXCEPT \_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | A. | It is the largest of the Cascade volcanoes. |  |  | | B. | It is covered with a large volume of ice and snow. |  |  | | C. | It has a history of producing large lahars. |  |  | | D. | It has a history of erupting pyroclastic flows and lava flows. |  |  | | Description: Student ResponseE. | It has been more active than Mount St. Helens over the past 2000 years. | 100% | Description: Student Response | | | | Score: | 1/1 | |  | | |
| **19.** |  |
|  | |  |  | | --- | --- | | The photo below shows a stratovolcano. What is most likely marked by the letter X? | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Description: Student ResponseA. | lahar deposit | 100% | Description: Student Response | | B. | snow |  |  | | C. | lava flow deposit |  |  | | D. | pyroclastic flow deposit |  |  | | E. | ash cloud deposit |  |  | | | | Score: | 1/1 | |  | | |
| **20.** |  |
|  | |  |  | | --- | --- | | Continental volcanic arcs \_\_\_\_\_\_\_\_\_. | | |  | | | |  | **Student Response** | **Value** | **Correct Answer** | | --- | --- | --- | --- | | Description: Student ResponseA. | form from the subduction of continental crust. | 0% |  | | B. | are a result of strike-slip or lateral plate motions. |  |  | | C. | are only found on continental crust. |  | Description: Student Response | | D. | are composed primarily of shield volcanoes and cinder cones. |  |  | | E. | make up the Aleutian Islands in Alaska. |  |  | | | | Score: | 0/1 | |