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Science Bowl Questions 10/25/10

9th Grade

**Toss-Up**

1) EARTH SCIENCE *Multiple Choice* A divergent plate boundary in the ocean is also known as

W) a mid-oceanic wall

X) a mid-oceanic mountain

Y) a mid-oceanic ridge

Z) a hot spot

ANSWER: Y) a mid-oceanic ridge

**Bonus**

1) EARTH SCIENCE *Short Answer* What usually forms at a mid-oceanic ridge?

ANSWER: (an underwater) mountain chain

**Toss-Up**

2) EARTH SCIENCE *Multiple Choice* A shield volcano usually has

W) a steep slope

X) a small base

Y) a gentle slope

Z) water

ANSWER: Y) a gentle slope

**Bonus**

2) EARTH SCIENCE *Short Answer* What kind of volcanoes are usually found in the Hawaiian island chain?

ANSWER: shield (volcano)

**Toss-Up**

3) EARTH SCIENCE *Multiple Choice* At hotspots

W) cinder cone volcanoes are usually formed

X) island chains are usually formed

Y) mid-oceanic ridges are formed

Z) magma is not released

ANSWER: X) island chains are usually formed

**Bonus**

3) EARTH SCIENCE *Short Answer* Why are island chains formed over hot spots?

ANSWER: magma continues to rise out of the Earth’s crust while a plate moves over the hot spot

**Toss-Up**

4) EARTH SCIENCE *Multiple Choice* If lava is more than 63% silica, then it is called

W) felsic

X) silicous

Y) very silicous

Z) falsic

ANSWER: W) felsic

**Bonus**

4) EARTH SCIENCE *Short Answer* Felsic lava is usually found in what type of volcanoes?

ANSWER: cinder cones and/or stratovolcanoes/composite volcanoes

**Toss-Up**

5) EARTH SCIENCE *Multiple Choice* If lava is between 52% and 45% silica, then it is called

W) mefic

X) falsic

Y) melsic

Z) mafic

ANSWER: Z) mafic

**Bonus**

5) EARTH SCIENCE *Short Answer* Mafic lava is usually found in what type of volcanoes?

ANSWER: shield volcanoes

**Toss-Up**

6) EARTH SCIENCE *Multiple Choice* Volcanoes are considered extinct only if

W) they are not erupting

X) they have not erupted

Y) they are expected to erupt

Z) they are not erupting and are not considered likely to erupt in the future

ANSWER: Z) they are not erupting and are not considered likely to erupt in the future

**Bonus**

6) EARTH SCIENCE *Short Answer* If a volcano is currently erupting then it is considered

ANSWER: active

**Toss-Up**

7) EARTH SCIENCE *Multiple Choice* What type of volcanoes can rise 8 000 feet above their bases?

W) none of them

X) shield volcanoes

Y) stratovolcanoes

Z) cinder cones

ANSWER: Y) stratovolcanoes

**Bonus**

7) EARTH SCIENCE *Short Answer* Stratovolcanoes are also called

ANSWER: composite volcanoes

**Toss-Up**

8) EARTH SCIENCE *Multiple Choice* The main “pipe” through which magma flows out of a volcano is called the

W) conduit

X) chamber

Y) crater

Z) branch

ANSWER: W) conduit

**Bonus**

8) EARTH SCIENCE *Short Answer* The circular depression at the top of a volcano is called the

ANSWER: Crater

**Toss-Up**

9) EARTH SCIENCE *Multiple Choice* Seismographs measure

W) seismos

X) the difference in arrival times between the 2 P-waves

Y) the difference in arrival times between the P-waves and S-waves

Z) only S-waves

ANSWER: Y) the difference in arrival times between the P-waves and S-waves

**Bonus**

9) EARTH SCIENCE *Short Answer* Do S-waves travel faster than P-waves

ANSWER: No

**Toss-Up**

10) EARTH SCIENCE *Short Answer* Using either numbers or words, denote which of the following are true of tephra

1: Tephra is anything, other than lava, ejected from a volcano during an eruption

2: Tephra is another word for lava

3: Tephra is always similar in appearance to a rock

ANSWER: 1

**Bonus**

10) EARTH SCIENCE *Short Answer* Tephra smaller than 2 mm in diameter is called

ANSWER: ash

**Toss-Up**

11) EARTH SCIENCE *Multiple Choice* Earth quakes usually occur

W) at plate boundaries

X) in the middle of plates

Y) on land

Z) in the ocean

ANSWER: W) at plate boundaries

**Bonus**

11) EARTH SCIENCE *Short Answer* Earthquakes occur as a result of sudden releases of

ANSWER: energy

**Toss-Up**

12) EARTH SCIENCE *Multiple Choice* At what magnitude are earthquakes considered to cause serious damage?

W) magnitude 2

X) magnitude 4

Y) magnitude 6

Z) magnitude 7

ANSWER: Z) magnitude 7

**Bonus**

12) EARTH SCIENCE *Short Answer* Under what magnitude are earthquakes usually imperceptible?

ANSWER: magnitude 3

**Toss-Up**

13) EARTH SCIENCE *Multiple Choice* The most common type of fault is

W) an abnormal fault

X) a thrust fault

Y) a normal fault

Z) a strike-slip fault

ANSWER: Y) a normal fault

**Bonus**

13) EARTH SCIENCE *Short Answer* Both normal and reverse faults are considered to be what type of faults?

ANSWER: dip-slip faults

**Toss-Up**

14) EARTH SCIENCE *Multiple Choice* When both dip-slip and strike-slip faults are part of an earthquake, it is called

W) a regular fault

X) a multi-part fault

Y) an oblique-slip fault

Z) a common fault

ANSWER: Y) an oblique-slip fault

**Bonus**

14) EARTH SCIENCE *Short Answer* Are oblique-slip faults common?

ANSWER: Yes

**Toss-Up**

15) EARTH SCIENCE *Multiple Choice* Earthquakes occurring within plates

W) never happen

X) happen very often

Y) are always harmless

Z) can be devastating

ANSWER: Z) can be devastating

**Bonus**

15) EARTH SCIENCE *Short Answer* What are earthquakes occurring within plates called?

ANSWER: intraplate (earthquakes)

**Toss-Up**

16) EARTH SCIENCE *Multiple Choice* Aftershocks are always

W) of a greater magnitude than the main shock

X) of a lesser magnitude than the main shock

Y) of the same magnitude as the main shock

Z) devastating

ANSWER: X) of a lesser magnitude than the main shock

**Bonus**

16) EARTH SCIENCE *Short Answer* If the aftershock is of a greater magnitude than the main shock, then the aftershock is redesignated as the

ANSWER: Main shock

**Toss-Up**

17) EARTH SCIENCE *Multiple Choice* In an earthquake swarm, each consecutive earthquake

W) has an increasingly greater magnitude

X) has an increasingly lesser magnitude

Y) has a high magnitude

Z) has a relatively similar magnitude to the rest

ANSWER: Z) has a relatively similar magnitude to the rest

**Bonus**

17) EARTH SCIENCE *Short Answer* Earthquake swarms strike a specific area in what kind of a period of time?

ANSWER: A short period of time

**Toss-Up**

18) EARTH SCIENCE *Multiple Choice* How many earthquakes occur per year, on average?

W) 10 000

X) 500 000

Y) 65 000

Z) 1 000 000

ANSWER: X) 500 000

**Bonus**

18) EARTH SCIENCE *Short Answer* What percentage of earthquakes can be felt?

ANSWER: 20%

**Toss-Up**

19) EARTH SCIENCE *Multiple Choice* What was the magnitude of the largest recorded earthquake in the world?

W) 10.0

X) 9.0

Y) 9.3

Z) 9.5

ANSWER: Z) 9.5

**Bonus**

19) EARTH SCIENCE *Short Answer* In what country was the largest earthquake in the world recorded?

ANSWER: Chile

**Toss-Up**

20) EARTH SCIENCE *Multiple Choice* What was the magnitude of the largest recorded earthquake in the United States?

W) 9.0

X) 8.7

Y) 9.2

Z) 9.4

ANSWER: Y) 9.2

**Bonus**

20) EARTH SCIENCE *Short Answer* In what state was the largest earthquake in the United States recorded?

ANSWER: Alaska

**Toss-Up**

21) EARTH SCIENCE *Multiple Choice* What is the average rate of motion of the San Andreas Fault, in cm/yr?

W) 10 cm/yr

X) 4.5 cm/year

Y) 7.2 cm/year

Z) 5.6 cm/year

ANSWER: Z) 5.6 cm/year

**Bonus**

21) EARTH SCIENCE *Short Answer* At the rate of 5.6 cm/year, how many years do scientists predict it will take before San Francisco and Los Angeles will be adjacent to each other?

ANSWER: 15 million (years)

**Toss-Up**

22) EARTH SCIENCE *Multiple Choice* Using either number or words, denote which of the following is caused by an earthquake

1: a tidal wave

2: a tsunami

ANSWER: 2

**Bonus**

22) EARTH SCIENCE *Short Answer* What causes a tidal wave?

ANSWER: interactions between the Earth and the Sun and /or Moon

**Toss-Up**

23) EARTH SCIENCE *Multiple Choice* The epicenter of an earthquake is located

W) 100 m below the surface of the Earth

X) on the surface of the Earth

Y) 10 m below the surface of the Earth

Z) 25 m below the surface of the Earth

ANSWER: X) on the surface of the Earth

**Bonus**

23) EARTH SCIENCE *Short Answer* The point directly below the epicenter of an earthquake, underneath the Earth’s surface, where the rupture of the fault begins is called

ANSWER: the hypocenter (of an earthquake)

**Toss-Up**

24) EARTH SCIENCE *Multiple Choice* How many earthquakes occur in Southern California per year?

W) 100

X) 1 000

Y) 5 000

Z) 10 000

ANSWER: Z) 10 000

**Bonus**

24) EARTH SCIENCE *Short Answer* How many of the earthquakes occurring in Southern California each year are greater than magnitude 4.0

ANSWER: ‘15’ OR ‘20’ OR ’15 to 20’

**Toss-Up**

25) EARTH SCIENCE *Multiple Choice* The magnitude of an earthquake

W) varies by location

X) can be the same in two locations

Y) is never the same in two locations

Z) is always the same in all locations

ANSWER: Z) is always the same in all locations

**Bonus**

25) EARTH SCIENCE *Short Answer* What is the property of an earthquake that does vary by location?

ANSWER: the intensity (of an earthquake)