**Questions to accompany The Science Channel’s “Faces of Earth”**

**Episode One “Building the Planet”**

1.

\_\_\_\_\_\_\_\_\_\_

True or False:

Planes flying a “mass-spec” (infrared imaging mass spectrometer) can

detect the molecular composition of the Earth’s surface.

2.

\_\_\_\_\_\_\_\_\_\_ The imaging equipment is chilled to 77 degrees Kelvin with the use of liquid

nitrogen... this is equal to \_\_\_ degrees below zero Fahrenheit.

3.

\_\_\_\_\_\_\_\_\_\_ When the first data set is generated, desert vegetation shows up as green and red...

surface mineral compositions are revealed in the color \_\_\_.

4.

\_\_\_\_\_\_\_\_\_\_ As the process of accretion began (with the collisions of dust grains and rocks to

form the early planet Earth), the (lighter / heavier ) elements sank to the interior of the molten orb.

5.

\_\_\_\_\_\_\_\_\_\_

True or False:

The Earth’s magnetic field protects the Earth by deflecting charged particles from the sun... most of these particles pass around the Earth while others are channeled along the magnetic field lines to the poles generating the Northern and Southern Lights.

6.

\_\_\_\_\_\_\_\_\_\_ It is thought that the Earth’s magnetic field is generated from the molten fluids

moving within the Earth’s (a) Solid Iron Inner-core or (b) Fluid Outer Core

7.

\_\_\_\_\_\_\_\_\_\_ True or False: Water has been present since the start of the Earth some was locked

up within the rocky pieces that coalesced to form the proto-planet and other amounts came from

comets that struck the Earth.

8.

\_\_\_\_\_\_\_\_\_\_ True or False: Cyanobacteria are multiple-celled organisms that absorbed CO2

and released O2 as a waste product.

9.

\_\_\_\_\_\_\_\_\_\_ Undersea volcanoes called “black smokers” expelled ferrous iron into the water

which combined with the oxygen- rich water and generated world-wide iron deposits called \_\_ iron

formations.

10.

\_\_\_\_\_\_\_\_\_\_ Extinction events come in different sizes and have different causes... 250 million

years ago the greatest extinction of Earthly life occurred... this is called the P-T or \_\_\_ extinction

or “ the great death”. During this event more than 95% of life forms ceased to exist.

11.

\_\_\_\_\_\_\_\_\_\_ The K-T (Cretaceous-Tertiary) extinction ended the dominance of the \_\_ over the

planet Earth.

12. \_\_\_\_\_\_\_\_\_\_ 310 million years ago the Appalachian regions of the United States were broad,

flatland tropical swamps which led to the formation of what important economic resource?

13.

\_\_\_\_\_\_\_\_\_\_ The Permian Reef complexes of the Guadalupe Mountains are studied because they

are exposed sections of reservoir rock similar to those exploited today for oil and natural gas.

(a) Carboniferous

(b) Triassic

(c) Permian

(d) Jurassic

14.

\_\_\_\_\_\_\_\_\_\_ No matter if the seismic profile is two dimensional or three dimensional, a good

indicator of the possibility of trapped oil and natural gas is a \_\_ dome.

15.

\_\_\_\_\_\_\_\_\_\_ True or False: Salt deposits often behave more like solids than fluids over geologic time.

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Episode One

–

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321

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time.

False

Questions to accompany The Science Channel’s “Faces of Earth”

Episode T

wo

–

“Shaping the Planet”

1. \_\_\_\_\_\_\_\_\_\_

True or False: The Afar Depression in Ethiopia is the lowest point on the African

Continent.

True

2. \_\_\_\_\_\_\_\_\_\_ Earthquake swarms in 2005 marked the birth of a rifting zone within Ethiopia where

the Africa

n continent was splitting apart.... Geologists believe some 10 million years into the future

that this void will eventually be filled with an \_\_ as the continent continues to split and rift apart.

Ocean

3. \_\_\_\_\_\_\_\_\_\_ Some 200 million years ago th

e continents were combined into a super

-

continent called

Pangea...

Pangea began to rift apart separating what would become North America, Africa and Europe

giving birth to the Atlantic Ocean. This rifting process is still active... over your life span North

A

merica and Africa will be about \_\_ feet farther from one another than when you were born.

6

4. \_\_\_\_\_\_\_\_\_\_ The “Messinian Salinity Crisis” occurred when the Mediterranean began to

evaporate... this crisis has resulted in oceans that are ( richer

/ poorer ) in salt.

Poorer

5. \_\_\_\_\_\_\_\_\_\_

True or False: The African plate rotated northward into the Mediterranean Basin and

caused the formation of the Apennines and the Alps in the process of convergent mountain building.

True

6. \_\_\_\_\_\_\_\_\_\_

When an Oceanic plate slides beneath a Continental plate the process of

( subduction / transgression / convergence / transmogrification ) takes place.

Subduction

7. \_\_\_\_\_\_\_\_\_\_ The 1640 B.C. eruption of a volcano on Santorini is believe

d to have ended the Minoan

Civilization of Crete and the disappearance of the mythical city of \_\_.

Atlantis

8. \_\_\_\_\_\_\_\_\_

\_ faults result when the crust is under tension and is being pulled apart... one faulted

block slips downward while the other appears

to be thrust upwards... such a process is stretching and

thinning Greece. (a) Reverse

(b) Thrust

(c) Normal

(d) Reverse

c

9. \_\_\_\_\_\_\_\_\_\_

In the past 400 years volcanic eruptions have killed over \_\_\_ people.

300,000

10. \_\_\_\_\_\_\_\_\_\_

True or False: The

Himalayan Mountains stretch 1,800 miles along the border of India

and Tibet... the Indian Plate crashed into the Eurasian Plate and continues to do at the rate of about

two inches a year... as a result the Himalayans are still under construction and rising.

True

11. \_\_\_\_\_\_\_\_\_\_ The San Andreas Fault is one of countless faults marking the shear plane between the

\_\_ and North American Plates... at this boundary the plates simply slide past one another.

Pacific

12. \_\_\_\_\_\_\_\_\_\_

When the eart

h faults, several wave types are generated... there are two types of body

waves: P

-

waves or Pressure or Primary waves and S

-

waves or Shear waves or Secondary waves.

Which type of body wave travels the fastest?

P/pressure/primary

Question

s to accompany The Science Channel’s “Faces of Earth”

Episode Three

–

“Assembling America”

1.

\_\_\_\_\_\_\_\_\_\_

The Washington Coast is part of a subduction zone where the oceanic Pacific Plate is

heading towards (converging on) the continental North American plate

. The \_\_\_\_\_\_\_ plate is

caught in between these larger plates and is being squished downwards underneath the North

American Plate.

Juan De Fuca

2.

\_\_\_\_\_\_\_\_\_\_ The Pacific Northwest is also home to earthquakes... some of which you would feel

and some yo

u wouldn’t

-

Episodic Tremor and Slip (“ETS”) describes earthquakes that happen

\_\_\_.

Slowly

3.

\_\_\_\_\_\_\_\_\_\_

True or False:

The 13 thousand square mile Scablands of Eastern Washington State

were created when post

-

glacial Lake Missoula broke through a

glacial ice dam and rushed across

the land’s surface at speeds of fifty miles an hour carrying ice chunks, boulders and trees

to scour

the landscape.

True

4.

\_\_\_\_\_\_\_\_\_\_ What is the name given to the modern day

smaller and saltier

remnant

of Lake

Bonn

eville?

Great Salt Lake

5.

\_\_\_\_\_\_\_\_\_\_ The Great Basin is bounded by two mountain ranges to the east and west that are

moving away from each other rather rapidly... they have doubled their distance apart over the last

40 million years... this has stretched and thi

nned the crust of the basin in between the

mountains... superheated waters moved minerals and metals upward in the crust to make deposits

of silver, lead, copper and \_\_\_.

Gold

6.

\_\_\_\_\_\_\_\_\_\_ Yellowstone National Park contains \_\_\_ percent of the Earth’s ge

ysers lie within the

park boundaries. The current park is the result of thre

e very large volcanic eruptions. Heat to

drive the thermal features comes from the Yellowstone Hot Spot... this heat source is only two

miles below the surface of the park... between

1923 to 1985 the floor of the caldera rose about

three feet... today the land is slowly subsiding.

80

7.

\_\_\_\_\_\_\_\_\_\_ A Cretaceous inland sea flooded the interior of the United States and split North

America in half... the land underneath the sea began to ris

e causing the layered sediments making

up the sea floor to tilt at angles of \_\_\_degrees and the seaway drained.

50

8.

\_\_\_\_\_\_\_\_\_\_ The Great Plains are built upon the remnants of the sediments deposited out of this

inland sea... this area is very agriculturall

y productive growing

about \_\_\_ of the world’s total

production of wheat, rye, corn, oats and barley.

25% /a quarter

9.

\_\_\_\_\_\_\_\_\_\_ The Appalachians are mere shadows of their former glory during the time of the great

super

-

continent Pangea

25 million years

ago

...

these former Himalayan

-

sized mountains marked

the point where the

North American, \_\_\_\_

and European Plates had collided

.

African

10.

\_\_\_\_\_\_\_\_\_\_ True or False: 65 million years ago, at the end of the existence of the dinosaurs, the

Appalachians had large

ly been worn down and eroded with sediments being dumped into the

Pacific Ocean.

F

11.

\_\_\_\_\_\_\_\_\_\_

35 million years ago a comet or asteroid struck the Earth in the Southern Chesapeake

Bay area causing a massive crater in the crust that was hidde

n underneath the water for years and

years... Seismic profiles obtained for oil exploration led to the drilling of a core sample more

than

\_\_\_

long into the seventh largest impact crater on the present Earth

...

a mile/ one mile