## For everyone with their last name beginning with A-J

**Natural Science 100** **Name _____**
**The Evolution of the Earth – Test II**

Use the Index to find your answers

1. How did Aristarchus measure the moon's diameter and distance from the earth?
    a. He compared the diameters of the moon and the earth.
    b. He compared the shadows projected by the earth and the moon.
    c. He compared the distances of the moon and earth from the sun.
    d. He compared lunar eclipses with solar eclipses.

2. The sun spins slowly on its axis. Equatorial regions spin once in 25 days, but higher latitudes take up to 36 days to make a complete rotation. Why?
    a. Because the photosphere is so hot that gases spin faster than liquids
    b. The solar wind is more prevalent in the equatorial latitudes.
    c. This differential spin means the sun's equator spins around faster than the surface farther north or south.
    d. The sun is a fluid.

3. Gravitational potential energy becomes thermal energy,
    a. explains the formation and origin of the heat from the sun.
    b. explains the formation of the earth and solidification of the surface of the earth.
    c. explains the formation and expansion of the universe.
    d. explains the formation of the solar system.

4. The Hertzsprung-Russel diagram demonstrates
    a. how temperature varies with brightness of the planets and stars
    b. categorizes different stars by mass and energy
    c. the life cycle of stars
    d. the movement of stars in the universe.

5. Impulse = change in momentum. To catch a thrown egg from 30 feet, one can
    a. extend the time of the catch.
    b. reduce the force of the catch.
    c. reduce the mass of the egg.
    d. throw the egg slower.

6. Tides are caused by
    a. the moon because it is so close.
    b. the differential gravitational attraction of the moon with the near side of earth and with the farside of the earth.
    c. The alignment of the moon and the sun.
    d. When the sun and moon are at right angles with each other with respect to the earth.

7. Weight is not directly a manifestation of gravity.
    a. Is an intrinsic quality of all objects.
    b. Weight is when gravity acts on you.
    c. Is sensed when falling toward earth.
    d. It results in when some force other than gravity acts (such as a floor supporting you, or a rocket engine accelerates you).

8. The higher the orbit of a satellite,
    a. the faster its speed, the shorter its path and the shorter its period.
    b. the faster it circles the earth.
    c. the faster it falls toward earth.
    d. the slower its speed, the longer its path and the longer its period.

9. We measure atmospheric pressure many different ways. Why do we use a barometer filled with mercury?
    a. A barometer filled with mercury does not have to be as tall as one filled with water because the density of mercury is 13.7 times as high as water.
    b. A barometer filled with water does not work as well because water evaporates to quickly and it's hard to see.
    c. Because we cannot make barometers filled with water taller than 10.3 meters tall.
    d. Mercury is easier to handle and less toxic than water.

10. What effect does the earth's magnetic field have on the intensity cosmic rays striking the earth's surface?
    a. The intensity of cosmic rays is influenced by earth's magnetic field equally around the globe.
    b. Cosmic rays are magnetic in origin and are influence by earth's magnetic field. These rays are deflected away from the earth.
    c. The cosmic rays are charged particles. Earth's magnetic field deflects these particles toward the poles. So, the intensity of these particles hitting elsewhere on the earth is reduced.
    d. The magnetic field of the earth blocks incoming cosmic rays. These rays will bounce off the magnetic shield produced inside the earth.

11. Sound waves are similar to light waves and different from light waves. How?
    a. Sound and Light waves are both transverse. Light waves are much much faster than sound waves.
    b. Light waves are longitudinal and sound waves are transverse waves. Sound and light travel very fast. Light and sound can travel in a vacuum.
    c. Light can travel in empty space. Sound needs a medium to travel. Sound and Light are both longitudinal waves. Sound is slower than Light.
    d. Sound waves are longitudinal waves and Light waves are transverse waves. Light waves are much much faster than light waves. Sound and light travel in waves.

12. What does the proportion of lead and uranium in a rock tell us about the age of the rock?
    a. The amount of lead determines the age of the rock due to the half-life of uranium.
    b. Uranium decays slowly over time into lead. If we can obtain the proportion of Uranium to lead we can calculate the age of the rock specimen.
    c. Lead is radioactive as is Uranium. The two have different half lives and we can determine the age of the rock if we can find the proportion of Lead to Uranium.
    d. Lead is a heavy isotope. Uranium is chemically reactive with lead. So, after a certain amount of time there is less Uranium due to radioactivity. The Lead is left with less chemically reactive Uranium, so there is a larger proportion of lead to uranium.

13. How do can we make water free pathogens?
    a. we can distill it
    b. we can treat it with chemicals react with unwanted substances that settle to the bottom
    c. we can blast it with ultraviolet light
    d. we can run it through air columns to aerate it.

14. What is the strongest evidence for the Continental Drift Theory?
    a. biological evidence
    b. paleomagnetism
    c. paleoclimatology
    d. geological evidence

15. Which of the phenomena below can be explained by Plate Tectonics?
    a. the water cycle, atmospheric mixing and the rock cycle
    b. Mountain chains, volcanoes and earthquakes.
    c. mountain building, thermalhaline conveyor belt and weather changes
    d. volcanoes, ocean currents and ice ages.

16. When glacier accumulation equals glacier abaltion
    a. the glacier is melting and receding
    b. the glacier is growing and extending
    c. the size of the glacier remains constant
    d. the glacier is getting thicker and higher.

17. How is it possible that scientists are able to use U-238 to date rocks?
    a. Most rocks contain trace amounts of uranium and we know the half-life of uranium. The daughter products of radioactive uranium decay are lead-206 and lead-207. Scientists find out how much lead 206 and 207 is present in the rocks and calculate backwards..
    b. Since uranium is radioactive we can detect the amount of uranium present in the rocks with a Geiger counter. We use the activity and calculate backwards to find the age of the rock.
    c. Most rocks contain both uranium and lead elements and we know the half-life of both lead and uranium. Scientists find out how much lead and uranium is present in the rocks and calculate backwards
    d. Lead is not present in rocks. Lead comes from decaying uranium. So we can use a Geiger counter to detect the lead and the uranium and calculate backwards to find the age of the rocks.

18. Of all the greenhouse gases, which plays a more pivotal role?
    a. CFC's
    b. methane
    c. carbon dioxide
    d. water vapor

19. What was the missing piece of evidence for Continental Drift?
    a. Ice core data from Greenland
    b. The mechanism for fossils to get across the Atlantic Ocean
    c. Paleomagnetic data about the movement of the poles.
    d. A mechanism to explain how the movement of the continents occurred.

20. How do can we make water smell and taste better?
    a. we can distill it
    b. we can treat it with chemicals react with unwanted substances that settle to the bottom
    c. we can blast it with ultraviolet light
    d. we can run it through air columns to aerate it.