2020-2021 EARTH SCIENCE BASELINE – MS. WINKLE

Directions: This Baseline Exam serves to assess current content knowledge related to 6th Grade Science. This will not count as a grade in gradebook, but you should try your best because it will determine what content we spend time on in class.

1. What is a hypothesis?
    a. The operational definition
    b. The manipulated variable
    c. The experimental results
    d. A testable explanation to a question

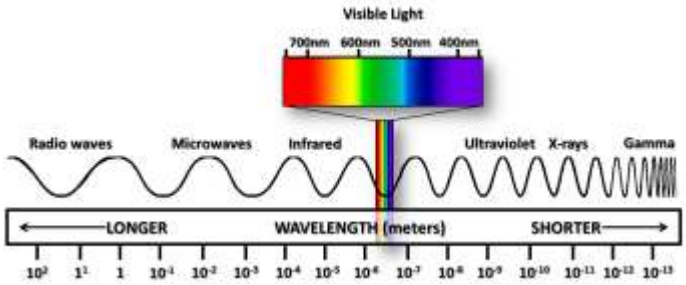
2. Data Table

Temperature (°C)	Fresh Water Oxygen Content (ppm)
1	14.24
10	11.29
15	10.10
20	9.11
25	8.27
30	7.56

Jose studies the effect of temperature on the amount of oxygen in fresh water. The table above contains the data he collected in a recent experiment. What should be the next step in Jose's experiment?
    a. Repeat the measurements for more trials
    b. Form a conclusion
    c. Graph the data and publish the results
    d. Re-do the experiment because he doesn't like the results
3. Which of these scientists is performing an experiment?
    a. A biologist who is testing how plants react to different chemicals
    b. A paleontologist finding and identifying fossils
    c. An astronomer observing the path of a comet
    d. An environmentalist measuring what chemicals are in the Everglades waters
4. Dionne wanted to obtain information about the negative effects of cigarette smoking. He decided to send a survey to two of the leading cigarette manufacturers. What is a problem with Dionne's approach?
    a. The questions should be asked in person, not through a survey
    b. The manufacturers will take too long to answer
    c. The results will be biased because the manufacturers want to make money by selling cigarettes
    d. The manufacturers will be too busy
5. Which describes the relationship between opinion and evidence in science?
    a. An opinion is an idea that may be taught if it is formed from evidence
    b. Opinions should not be taught in science
    c. Evidence is an idea that may be taught if it is formed from an opinion
    d. Evidence is supported by opinions
6. Which of the following is most likely to change scientific knowledge?
    a. More TV commercials
    b. More internet pages/links
    c. Better opinion polls
    d. New data and better education

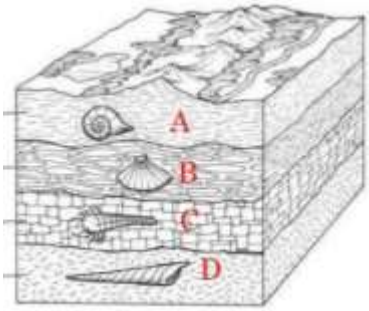
7. How do graphs help you interpret data?
    a. Graphs can help decide on the problem statement
    b. Graphs can help develop a hypothesis
    c. Graphs can reveal patterns or trends in data
    d. Graphs can help show the list of materials used
8. Which of the following statements about the hypothesis is true?
    a. A hypothesis can be proven by experiments, and then never changed once proven
    b. Even if the results of an experiment do not support the hypothesis, the hypothesis cannot be disproved.
    c. Science is always discovering new information, which may change a hypothesis
    d. One hypothesis alone can be used to develop a theory
9. A scientific law:
    a. Explains general patterns in nature
    b. Describes what will happen under specific conditions
    c. Changes patterns in nature
    d. Sets rules for nature to follow
10. Newton's laws of motion are scientific laws because:
    a. Objects are always moving
    b. They are accepted explanations of general phenomenon
    c. They describe how objects are expected to behave under given conditions
    d. Newton was well-liked by the scientific community
11. A glass is filled with ice and water at room temperature. In which direction will the heat flow through this system?
    a. Air → glass → liquid → ice
    b. Ice → liquid → glass → air
    c. Glass → liquid → ice → air
    d. Liquid → air → glass → ice
12. The motion that stars seem to move in because the Earth is rotating is called:
    a. A light-year
    b. Apparent motion
    c. Actual motion
    d. Apparent brightness
13. The universe contains billions of galaxies. The largest galaxies contain a trillion stars. What holds galaxies together?
    a. Gravity
    b. Our sun
    c. Star clusters
    d. Infrared radiation
14. A group of two or more stars is called a:
    a. Solar system
    b. Neutron star
    c. Protostar
    d. Star system

15. Which factors affect the force of gravity between two objects?
    a. Location on Earth and weight of the two objects
    b. Weight and distance between the two objects
    c. Mass and distance between the two objects
    d. Weight and mass of the two objects
16. When stars are first born, they become main sequence stars that fuse hydrogen. Once hydrogen runs out, they become:
    a. Red giants or supergiants
    b. Supernovas
    c. White dwarfs
    d. Neutron stars
17. Which of the sun's layers is the hottest?
    a. The corona
    b. The photosphere
    c. The core
    d. The convective zone
18. Small asteroid-like bodies that became the building blocks for the planets are called:
    a. Planetesimals
    b. Comets
    c. Meteoroids
    d. Moons
19. What is the geocentric model of stars and planets?
    a. The belief that stars and planets revolve around Earth
    b. The belief that planets revolve around the stars
    c. The belief that planets and the Earth revolve around the moon
    d. The belief that stars and planets revolve around the sun
20. Day and night are caused by:
    a. The tilt of Earth's axis
    b. Earth's revolution around the sun
    c. Eclipses
    d. Earth's rotation on its axis
21. What are space probes?
    a. Technology that can fly by objects in space to collect data
    b. Technology that transports astronauts to space
    c. Technology used to takeoff from Earth
    d. Technology designed to land on planets and collect soil samples

22. 

According to the diagram, which type of electromagnetic radiation has the longest wavelength?

a. Radio
b. Gamma
c. Infrared
d. Ultraviolet

23. Which is one way that space exploration has affected Florida?
    a. Florida's culture has become well known in space
    b. The economy has benefited from tourism at the Kennedy Space Center
    c. Most astronauts are from Florida
    d. Florida owns NASA
24. The movement of Earth's tectonic plates are caused by:
    a. Convection currents in the asthenosphere
    b. Convection currents in the lithosphere
    c. Earthquakes
    d. Weathering, Erosion, Deposition
25. Where is metamorphic rock made?
    a. At Earth's surface
    b. In volcanoes
    c. In ocean waters
    d. Deep underground
26. 

Which of the following statements are true about the diagram above:

    a. The fossil in B is older than the fossil in A.
    b. The fossil in B is older than the fossil in C.
    c. The fossil in A is older than both the fossils in B and C.
    d. The fossil in C is the youngest.

27. Which part of an organism is most likely to become a fossil?
    a. Bones
    b. Skin
    c. Organs
    d. Brain cells
28. Alfred Wegener first published his theory of continental drift in 1915. Which of the following provides evidence for continental drift?
    a. Movement of the Australian continent was observed
    b. Africa and South America currently have the same climate
    c. Plants and animals found in Africa are different than those found in Australia
    d. The shorelines of continents fit together like puzzle pieces.
29. Which of the following is a benefit of the ozone layer?
    a. It reflects radio signals back to Earth
    b. It burns up meteoroids before they strike land
    c. It shields Earth from harmful ultraviolet radiation
    d. It relays telephone and TV signals
30. The transfer of heat by the movement of a fluid is called:
    a. Convection
    b. Thermal transfer
    c. Conduction
    d. Radiation
31. 

    At which point in the diagram is the amount of deposition more than the amount of erosion?
    a. A
    b. B
    c. C
    d. D
32. When a river empties into an ocean, what landform is likely to form?
    a. Delta
    b. Beach
    c. Island
    d. Volcano
33. The transfer of thermal energy from the Sun to Earth is an example of:
    a. Conduction
    b. Convection
    c. Radiation
    d. Transpiration

34. What causes clouds to form?
    a. Warm, moist air evaporating
    b. Warm, moist air condensing
    c. Cold air is rising and expanding
    d. Water vapor condensing
35. As Earth rotates, the winds on Earth curve instead of moving in a straight path. What is this called?
    a. Doldrums
    b. El Nino
    c. La Nina
    d. The Coriolis effect
36. Identify the example that shows how the biosphere and atmosphere can interact:
    a. People breathing in oxygen
    b. Plants obtaining nutrients from the soil
    c. Ocean waves breaking down rocks
    d. Fish eating algae
37. What percentage of solar energy is reflected back to space by the atmosphere?
    a. 1%
    b. 25%
    c. 75%
    d. 100%
38. Which of the following contributes to climate change?
    a. Hurricanes
    b. Rapid movement of the continents
    c. Trees releasing too much CO2
    d. Accumulation of CO2 in the atmosphere
39. In Florida, why are areas along the Gulf of Mexico prone to storm surges?
    a. The land beneath the ocean is very rocky
    b. The land beneath the ocean slopes gently to shore
    c. The land beneath the ocean is perfectly flat
    d. The land beneath the ocean slopes steeply to shore
40. Two ways to protect yourself from the harmful rays of the sun are to:
    a. Wear a hat and boots
    b. Use sunscreen and wear a hat
    c. Go outside on cloudy days only
    d. Use sunscreen and bug spray
41. What is one benefit of the mesosphere?
    a. It relays cell phone signals
    b. It absorbs some energy from the sun
    c. It burns up meteoroids before they strike Earth
    d. It reflects radio waves back to space
42. After completing an experiment, your lab group discusses your results with other lab groups. From a scientific point of view, you are:
    a. Troubleshooting
    b. Identifying a hypothesis
    c. Designing an experiment
    d. Communicating your findings