TEST NAME: **HMS_6th Grade_Nature Of Science Unit Test**
TEST ID: **47431**
GRADE: **Grade 6**
SUBJECT: **Life and Physical Sciences**
TEST CATEGORY: **Classroom**

Student: _____

Class: _____

Date: _____

1. **How can investigation records be most helpful?**

   A. Records provide clues to mistakes made in the investigation.
   B. Records prove the investigation was conducted many times.
   C. Records rule out the need to repeat the investigation.
   D. Records make the results from the investigation accurate.

2. **A student doing an investigation with fruit flies predicts that the ratio of males to females in newly hatched flies will be 1:1. The results of the investigation are shown below.**

Fruit Fly Investigation

| Fruit Flies | Number of Females | Number of Males |
|---|---|---|
| Predicted | 200 | 200 |
| Observed | 195 | 205 |
| Difference | 5 | 5 |

**How should the student use the data?**

   A. The student should include the actual data in a report.
   B. The student should correct the data to match the prediction.
   C. The student should conclude that there is an error in the data.
   D. The student should conclude that there are always more male flies.

3. **Which statement about scientific hypotheses is true?**

   A. Hypotheses are guesses that are not based on knowledge.
   B. Hypotheses should be made after the investigation is completed.
   C. If hypotheses are not supported, the experimental results are still useful.
   D. If hypotheses fail, the experiment should be repeated to get a different result.

4. **Students conducted an investigation that required measuring the pH of water samples. They repeated the investigation three times. The students decided that one pH measurement was incorrect. After analyzing the data, what most likely helped the students figure out there was an incorrect measurement?**

   A. One member of the group used new litmus paper.
   B. One student remembered taking a wrong measurement.
   C. The students kept good records of their investigations.
   D. The teacher told the students that one measurement had an error.

5. **Which picture shows the safest way to detect an odor produced during an investigation?**

A.

B.

C.

D.

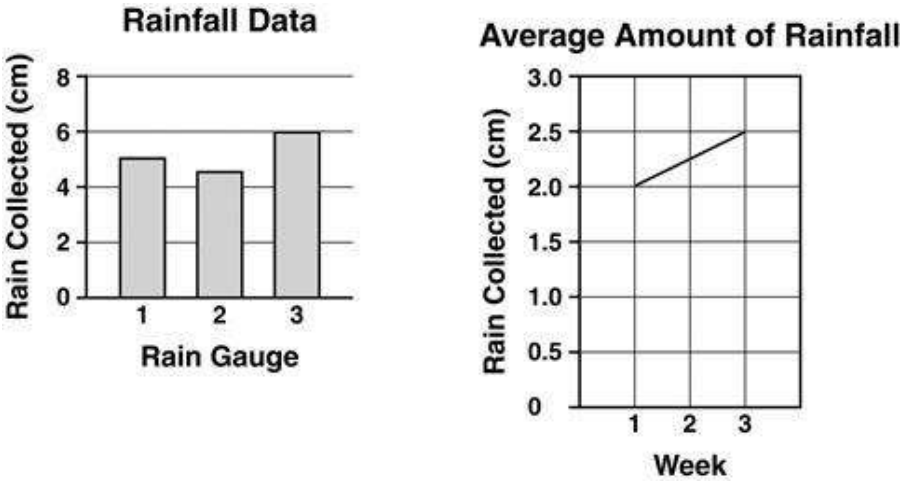
6. **What safety equipment should be taken on all field trips?**

A. gloves
B. fire extinguisher
C. first-aid kit
D. goggles

7. **What safety procedure should a student follow when a thermometer is broken during a lab experiment?**

A. tell the teacher immediately
B. stop the experiment immediately
C. sweep the glass into a biohazard container
D. use a paper towel to pick up the pieces

8. **The graphs below show rainfall data collected from three rain gauges over a three-week time period.**




**Which statement best describes why the graphs are most useful when used together?**

A. The rain gauges provide two sets of information.
B. Each graph shows the rainfall data in a different way.
C. Rainfall data was measured with different instruments.
D. The graphs show data that took three weeks to collect.

9. **The table below was set up to show some facts about the solar system.**

| Name | Distance to Sun | Diameter | Length of Day in Earth Days | Length of Years in Earth Years |
|---|---|---|---|---|
| Earth | | | | |
| Jupiter | | | | |
| Mars | | | | |
| Mercury | | | | |
| Neptune | | | | |
| Saturn | | | | |
| Uranus | | | | |
| Venus | | | | |

**Which column should the planets be arranged by so that the planets are in order from largest to smallest in size?**

A. Distance to Sun
B. Diameter
C. Length of Day
D. Length of Year

10. **The table has information on the contributions of scientists.**

Title: _____?_____

| Scientist | Country | Subject | Contributions |
|---|---|---|---|
| Ester Orozco 1931 - Present | Mexico | Cellular Biology | Discovered a control mechanism for parasites |
| Jane Goodall 1943 - Present | Britain and Kenya | Biology | Authority on the behavior of chimpanzees |
| Albert Einstein 1879 - 1955 | Germany and United States | Physics | Developed the theories of relativity |
| Roger Kornberg 1947 - Present | United States | Biochemistry | Nobel Prize winner for study in genetics |

**Which is the best title for the table?**

A. Research Leads to Healthy Discoveries
B. Breakthroughs by U.S. Scientists
C. International Achievements in Science
D. Advances in Physical Science

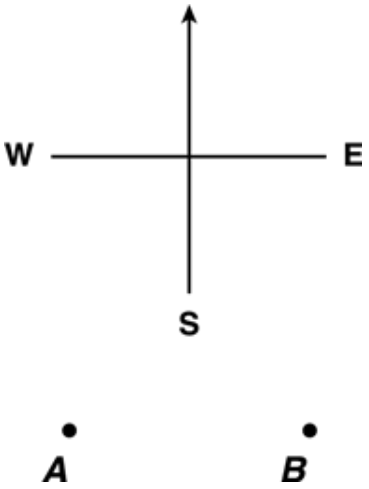
11. **After a race, a newspaper lists the names of the five fastest runners. Another method that could be used to identify the five fastest runners is to make a chart that shows the**

A. average of the speeds of the runners.
B. teams that sponsor each of the runners.
C. time it took each runner to run the race.
D. percentages of the runners who finished the race.

12. **After conducting a plant-growth study, the students were unsure how much water the plants were given. Which method would best solve this problem in the future?**

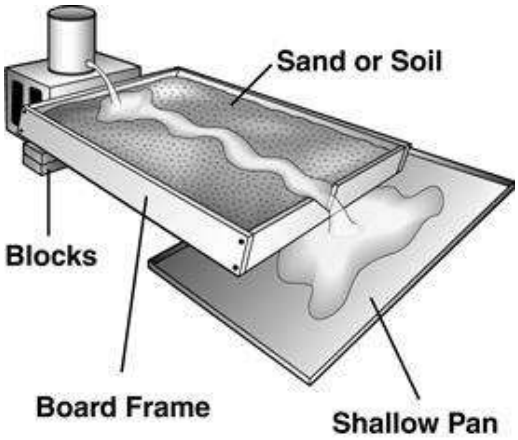
A. Use a chart to record the amount the plants are watered.
B. Keep a full beaker of water next to the plants.
C. Write down a schedule for watering the plants.
D. Have the same person water the plants each time.

13. **If a ball rolls from point A to point B, in what direction is it rolling?**




A. northward
B. eastward
C. southward
D. westward

14. **The picture shows a stream table four students were using to perform an investigation. They repeated the investigation several times. The group is trying to decide how to report their findings. Options to report their findings include using drawings, making a data table, or using a computer spreadsheet.**




**Which will best determine the option to use?**

A. how the data will be used
B. which student will record the data
C. the speed of the computer
D. the number of students with lab notebooks

15. **Information in school textbooks on the classification of organisms has been revised over the last few years. This revision is most likely due to**

A. disagreements between biologists about how animals develop.
B. discoveries revealing that animals have more than one cell.
C. continued investigations into the characteristics of animals.
D. constant efforts by scientists to save endangered animals.

16. **Rebecca wanted to see if adding salt to water would make it take longer to reach a boil. She recorded how long it took one liter of water to reach a boil. Rebecca then added 15 grams of salt to the same amount of water and recorded how long it took the saltwater to boil. She repeated the investigation two more times. Why did she repeat the investigation?**

A. to find out if her results would be the same
B. to find out if the amount of water would change
C. to find out if she should change the amount of salt
D. to find out if she should make a different hypothesis

17. **Reuben set up an investigation on evaporation. He put tap water in one glass and salt water in another glass. Reuben placed both glasses on the classroom windowsill. The results showed the tap water evaporated faster than the salt water. When another student repeated the investigation, his results showed that both types of water took the same amount of time to evaporate. What should be done to find the most valid results?**

A. place the glasses of water outside
B. use bottled water instead of tap water
C. have a third student perform the investigation
D. heat the water before conducting the investigation

18. **John was investigating how long it would take a letter sent from Miami to reach Orlando. John mailed one letter to Karen each day for five days. When Karen received the letter, she would call John immediately. Why did John most likely mail five letters instead of one?**

A. He wanted to form a hypothesis about mailing letters.
B. He needed to make sure he had the right address.
C. He wanted to make sure his investigation could be repeated.
D. He needed to send multiple letters to form an accurate conclusion.

19. **Which situation would most likely result in scientists revising a theory?**

A. reevaluating information that was published by well-known scientists
B. performing experiments that are cost-effective
C. conducting surveys on whether scientists agree with published data
D. continuing research using advanced technology

20. **Most scientists once believed that dinosaurs were closely related to reptiles. However, now many scientists believe that dinosaurs are more closely related to birds. This is most likely an example of**

A. old ideas being replaced by more popular ideas.
B. new knowledge leading to changes in theories.
C. scientists changing the way science data is interpreted.
D. scientists changing the steps of scientific inquiry.

21. **Fossil bones and teeth of dinosaurs have been researched for the last century. Recent discoveries of fossilized dinosaurs have also revealed details of soft tissues, such as skin. Which is best for a scientist to do when reporting research on dinosaurs now?**

A. exclude research on teeth or bones
B. predict what the next discovery will be
C. analyze new data as it becomes available
D. delete earlier reports that were missing the new findings

22. **What should be done when the results of an experiment do not support the hypothesis?**

A. repeat the experiment and check for errors
B. change the observations to match the hypothesis
C. redo the experiment until the expected results are obtained
D. record and analyze the data after changing the hypothesis

23. **Pat and Chris filled two identical bowls with the same amount of water. They left the bowls in sunlight on a warm day. Pat and Chris measured the temperatures of the water every 10 minutes for a half hour. They got different results, which are shown in the table.**

| Water Heating Activity | | | | |
|---|---|---|---|---|
| Bowl | Temperature | | | |
| | Start | 10 Minutes | 20 Minutes | 30 Minutes |
| 1 | 72 °F | 73 °F | 75 °F | 76 °F |
| 2 | 72 °F | 73 °F | 75 °F | 80 °F |

**How can Pat and Chris make the data more reliable?**

A. Use more water.
B. Repeat the activity.
C. Use different colored bowls.
D. Leave the bowls out for a longer time.

24. **Which best explains why scientific conclusions based on reliable scientific data sometimes change?**

A. New information can lead to new ways of thinking.
B. Results of new scientific investigations are always reliable.
C. More expensive equipment is now used to study theories.
D. Scientists have a duty to constantly change conclusions every ten years.

25. **Derek hypothesizes that a potted fern in a closed container will stay healthier than the same type of plant on an open windowsill. At the conclusion of his investigation, Derek finds that his results support his hypothesis. Which best explains why Derek should repeat the investigation?**

A. to be able to start another investigation
B. to prove the investigation is important
C. to learn why the hypothesis is correct
D. to make sure the results are valid

26. **When a scientist comes up with a hypothesis, he or she is most likely**

A. summarizing the data in an investigation.
B. conducting the final steps of an experiment.
C. changing the procedures during an experiment.
D. predicting what will happen in an investigation.

27. Earth Science is divided into four branches: meteorology, hydrology/oceanography, astronomy, and_____.

A. geography

B. geology

C. geochemistry

D. ecology

28. Which of the follwing is NOT true about the scientific method?

A. There are always 6 steps.

B. It includes communicating results.

C. It is used in all branches of science.

D. It involves making guesses.

29. You may eat, drink, and chew gum within the science lab room.

T. True

F. False

30. You may pour all chemicals down the sink.

T. True

F. False

31. There is absolutely no horseplay while in the lab.

T. True

F. False

32. Read all labels on chemical bottles BEFORE using them.

T. True

F. False

33. Match the definition in the first column to the word in the second column.

| Questions | Answer Choices |
|---|---|
| 1. part of experiment that provides a reliable standard for comparison | A. constant |
| 2. the variable that is being measured in an experiment | B. independent variable |
| 3. a variable that can change in an experiment | C. dependent variable |
| 4. an educated guess that can be tested | D. bias |
| 5. deals with morals and values | E. data |
| 6. a personal opinion | F. hypothesis |
| 7. measurments recorded during an experiment | G. ethics |
| 8. conditions that remain the same in an experiment | H. control |

34. SpongeBob loves to garden and wants to grow lots of pink flowers for his pal, Sandy. He bought a special Flower Power fertilizer to see if it will help plants produce more flowers. He plants two plants the same size in separate containers with the same amount of potting soil. He places both plants in a sunny window and waters each plant every day. He uses plain water on one plant and water that contains the fertilizer on the other plant.

Answer the following questions using the SpongeBob scenario.

What is the independent variable?

What is the dependent variable?

What is the control?

What are the constants?