Worksheet: Observation and Inference

1. A number of objects are grouped on the basis of common properties. What is this process called?
   a. observation
   b. inference
   c. classification
   d. measurement

2. Which statement about a cumulus cloud seen over Syracuse, N.Y., is an inference?
   a. The cloud has an irregular shape.
   b. The cloud formed over Lake Ontario.
   c. The cloud appears white.
   d. The base of the cloud is determined to be 2.6 km above ground.

3. An interpretation based upon an observation is called
   a. a fact
   b. a classification
   c. a measurement
   d. an inference

4. Scientists often use classification systems in order to
   a. extend their powers of observation
   b. make direct comparisons with standard units of measurement
   c. make more accurate interpretations
   d. organize their observations in a meaningful way

5. A student observed a freshly dug hole in the ground and recorded statements about the sediment at the bottom of the hole. Which statement is an inference?
   a. The sediments were deposited by a stream.
   b. Over 50% of the sediments are the size of sand grains or smaller.
   c. Some of the particles are rounded.
   d. The hole is 2 meters deep.

6. In the classroom during a visual inspection of a rock, a student recorded four statements about the rock. Which statement about the rock is an observation?
   a. The rock cooled very rapidly.
   b. The rock is black and shiny.
   c. The rock formed deep in the Earth’s interior.
   d. The rock dates from the Precambrian Era.

7. A classification system is based on the use of
   a. the human senses to observe properties of objects
   b. predictions made by observing data
   c. observed properties to group objects with similar characteristics
   d. inferences to make observations
8. While on a field trip to a large lake in New York State, an observer recorded four statements about this lake. Which of these statements is most likely an inference?
   a. A log is floating in the lake.
   b. The lake was formed by glacial action.
   c. The water is clear enough to see the bottom of the lake.
   d. The surface temperature of the lake is 18.5°C.

9. A prediction of next winter’s weather is an example of
   a. observation
   b. inference
   c. classification
   d. measurement

10. Which statement about a burning candle is most likely an inference?
    a. Carbon dioxide and water vapor are produced by the burning.
    b. The wick gets shorter as the candle burns.
    c. The candle wax is melting.
    d. The flame is yellow.

11. Which statement about a rock sample is an inference?
    a. The rock was formed 100 million years ago.
    b. The rock has no visible crystals and is red.
    c. A balance indicates the rock’s mass is 254 grams.
    d. The rock scratches a glass plate.

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13. Which property was probably used to classify the substances below?

<table>
<thead>
<tr>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td>water</td>
<td>aluminum</td>
<td>water vapor</td>
</tr>
<tr>
<td>gasoline</td>
<td>ice</td>
<td>oxygen</td>
</tr>
<tr>
<td>alcohol</td>
<td>iron</td>
<td>air</td>
</tr>
</tbody>
</table>

   a. abundance within the Earth
   b. specific heat
   c. state of matter
   d. chemical composition
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Directions: Determine whether each of the following examples in an inference or an observation.

14. This rock has large crystals.
   a. inference
   b. observation

15. Based on their shapes I believe Africa and South America were once connected.
   a. inference
   b. observation

16. This pebble has a diameter of 3.2 cm.
   a. inference
   b. observation

17. After the thunder and lightning of the cold front I predict cooler air will move in to this area.
   a. inference
   b. observation

18. I see that a steel nail left a scratch mark on this mineral sample when I tried to scratch it.
   a. inference
   b. observation

19. Object A feels heavier than object B.
   a. inference
   b. observation

20. Because of the fins on this fossil I believe this animal lived in the water.
   a. inference
   b. observation

21. Object A is 3.5 cm longer than object B.
   a. inference
   b. observation

22. I think this rock is igneous because it has intergrown crystals.
   a. inference
   b. observation

23. I believe the temperature will be cooler at Rock City because it has a higher elevation.
   a. inference
   b. observation

24. I believe the children are our future, teach them well and let them lead the way.
   a. what
   b. really?
Worksheet: Observation and Inference

Directions: Determine whether each of the following examples are qualitative data or quantitative data.

25. 45% of workers in New York earn above minimum wage.
   a. qualitative
   b. quantitative

26. Charlie is taller than Brady.
   a. qualitative
   b. quantitative

27. The cake recipe requires 3 cups of flower.
   a. qualitative
   b. quantitative

28. The barometric pressure is falling.
   a. qualitative
   b. quantitative

29. The barometric pressure has fallen 10 millibars in the past hour.
   a. qualitative
   b. quantitative

30. 17 students passed the Earth Science Regents exam.
   a. qualitative
   b. quantitative

31. Most students took Living Environment before Earth Science
   a. qualitative
   b. quantitative

32. It is 1,100 miles to Daytona Beach Florida.
   a. qualitative
   b. quantitative

33. Sprinters run faster than distance runners.
   a. qualitative
   b. quantitative

34. Carmen Sandiego is 13,000 miles from Trinidad Airport.
   a. qualitative
   b. quantitative

35. My lazy daughter sleeps 12 hours a day.
   a. qualitative
   b. quantitative