Name: _____ Date: _____

Lesson 1: Process Skills QUESTIONS
Use the information in the notes to answer the following questions.

1. Which picture is a thermometer? (1)

A. 

B. 

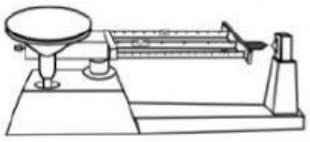
C. 

D. 

2. Which tool is a triple beam balance? (1)

A. 

B. 

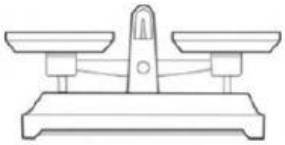
C. 

D. 

3. Which picture is a tweezer? (1)

A. 

B 

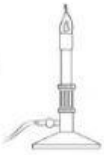
C. 

D. 

4. Which picture is a magnifying glass? (1)

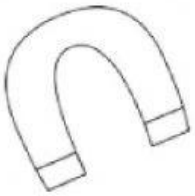
A. 

B. 

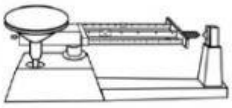
C. 

D. 

5. Which picture is a magnet? (1)

A. 

B. 

C. 

D. 

6. Which tool would a scientist most likely use to study the surface of the moon? (1)

A. 

B. 

C. 

D. 

7. Scientists use the _____ to investigate a problem or search for the answer to a question. (1)

8. Asking a _____ is the first step of the scientific method. (1)

9. Who uses the scientific method? (1)
   a. scientists
   b. scientists and college professors
   c. students in a science lab
   d. anyone can use it

Match each tool with its use. (4)

____ 10. microscope	A. measures liquid volume
____ 11. beaker	B. measures length
____ 12. ruler	C. magnifies objects (easy to use outside a lab)
____ 13. hand lens	D. magnifies objects (thousands of times bigger)

14. Why is it important to do research as part of the scientific method? (1)
   a. research will help you to plan a safe experiment
   b. research will help you know what tools to use
   c. research will help you to from a solid hypothesis
   d. all of the above are reasons to do research

15. What is the purpose of an experiment? (2)

_____

_____

Write T for true or F for false

16. ____ If an experiment does not prove a hypothesis, it means the experiment was faulty. (1)
17. ____ A scientist may repeat an experiment several times. (1)

18. What does replicate mean? (2) _____

_____

19. The results of the experiment are inconclusive. What might a scientist do next? (1)

    a. conduct the experiment again

    b. change the information in the chart

    c. make up a different conclusion

    d. re-write the hypothesis to match the outcome of the experiment

Ramon's Experiment

Ramon was told that rechargeable batteries last longer than disposable batteries. He used a battery-operated radio to test the running time of each type of battery. The rechargeable batteries were more expensive, but the disposable batteries lasted three times as long as the rechargeable batteries.

20. Which of these is the best explanation for Ramon's results? (1)

    a. Ramon's experiment was a failure.

    b. The rechargeable batteries were not fully charged.

    c. Rechargeable batteries cost too much.

    d. Disposable batteries cost too little.

21. Ramon still wants to find out whether or not rechargeable batteries last longer than disposable batteries. What should he do next? (1)

    a. Repeat the experiment with a new set of disposable batteries and a fully charged set of rechargeable batteries.

    b. Write a conclusion that says disposable batteries last longer than rechargeable batteries.

    c. Conduct an experiment with lithium and alkaline batteries.

    d. Repeat the experiment using a digital camera instead of a radio.

22. The steps in a scientific procedure should be very specific. Which of these would be the best way to list a procedure for an experiment. (1)

    a. Water the plants often.
    b. Place the plants in a good location.
    c. Keep the plants moist.
    d. Give each plant 20 ml of water every day.

Dr. Hager's Experiment

Dr. Hager suspects that students who do their homework while watching TV don't perform as well as students who do homework in a quiet area. He assigns one group of students to complete their homework in a room with a TV that is tuned in to a popular program. This is the experimental group. A second group is assigned to work in a quiet room. The students working in the quiet room are the control group.

23. One constant (stays the same) in this experiment is the _____. (1)

    a. students

    b. work area

    c. assignment

    d. television program

24. The independent variable (one thing that is changed) is the _____. (1)

    a. work area

    b. assignment

    c. type of desk

    d. writing instrument

25. Which of these results would verify (support) Dr. Hager's findings? (1)

    a. Both groups of students perform equally well on the assignment.

    b. The control group performs well; the experimental group performs poorly.

    c. The control group performs poorly; the experimental group performs well.

Darcy's Experiment:

Darcy is planning a project for her school science fair. Read Darcy's description and answer the questions below.

- What I want to know: Which brand of cereal stays crunchiest?
- What I will do:
    1. Soak 20 grams of cereal in 150 milliliters of water for 3 minutes.
    2. Pour the cereal and water through a strainer into a measuring cup.
    3. Measure the water that drains off and record the results in a data chart.
    4. Repeat steps 1 – 3 with two more kinds of cereal.

26. Which of these is missing from Darcy's description? (1)

    a. Question

    b. Hypothesis

    c. Procedure

27. What is the independent *variable* (the thing that changes) in Darcy's trials? (1)

    a. amount of cereal

    b. brand of cereal

    c. amount of water

    d. time

28. What is Darcy testing? (1)

    a. how long it takes for cereal to dissolve

    b. how much liquid each brand will soak up in a given amount of time

    c. which cereal will be the tastiest

    d. how much water is needed to soak a given amount of cereal

Cereal Soaking Results

Brand	Amount of Leftover Water
Oatie O's	145 ml
Tasty Flakes	139 ml
Graham Crunch	30 ml

29. According to the results, which brand of cereal probably stays crunchiest? (1)

_____

_____

30. Darcy wants to verify her results. What should she do next? (1)

    a. Repeat the experiment with three other brands of cereal.

    b. Ask a friend to replicate the experiment and compare the results.

    c. Read the information on the labels of each box of cereal.

    d. Ask 50 people which cereal they think is the crunchiest.

Trish's Experiment

Trish wondered if salted water would boil faster than unsalted water. She filled a pan with one liter of plain water and heated it. Trish recorded how much time it took for the water to boil. Then Trish emptied the pan and cooled it to room temperature. She filled the pan with one liter of water and two tablespoons of salt. Using the same heat setting, Trish heated the water until it boiled, and she recorded the time.

31. What is the **control** in Trish's experiment? (Remember, the control is the thing that does not receive the experimental treatment.) (1)

    a. heat

    b. salted water

    c. a timer

    d. plain water

32. What is the **independent variable** (the thing that changes) in Trish's experiment? (1)

    a. boiling

    b. salt

    c. heat

    d. time

33. What is a **constant** (does not change) in Trish's experiment? (1)

    a. level of heat

    b. amount of water

    c. type of pan

    d. all of the above