Student's Name _____

THINKING WITH SCIENCE
Observation Quiz
Lesson 19 (The Magic Balloon)

1. How did you know that the contents of the balloon bottle wasn't a liquid or solid?
   A. It was clear.
   B. It was colorless.
   C. You couldn't see it.
   D. It wasn't thick.

2. Which of the following combinations describes air?
   A. 70% nitrogen, 29 % oxygen, 1 % carbon dioxide.
   B. 99% oxygen, 1 % carbon dioxide.
   C. 1 % nitrogen, 1 % carbon dioxide, 98% oxygen.
   D. 20 % carbon dioxide, 20 % nitrogen, 60% oxygen.

3. For the question, "Does A contain any water?", the control question would be:
   A. Does A contain only water?
   B. Does B contain any water?
   C. Does A contain any food coloring?
   D. Is the food coloring in A red?

4. The fact that there is water in both A and B makes that what kind of variable?
   A. manipulated
   B. experimental
   C. reliable
   D. controlled

5. A conclusion that is supported by the data, but not refuted by the data can be called what?
   A. final
   B. reliable
   C. complete
   D. controlled

6. Why does the balloon inflate when the bottle is put into hot water?
   A. The air in the bottle rises.
   B. The air in the bottle condenses.
   C. The air in the bottle expands.
   D. The bottle expands.

7. What does air do when it is heated?
   A. rises.
   B. expands.
   C. both of the above.
   D. neither of the above.

8. When you cool air, what does it do?
   A. contract
   B. condense
   C. compress
   D. conclude

9. When you get more supporting data for a conclusion, what should you do to it?
   A. shorten it
   B. finalize it
   C. add to it
   D. refute it

10. Because the air in the bottle expands, the balloon does what?
   A. expand
   B. inflate
   C. deflate
   D. collapse

11. What expands when heated?
   A. carbon dioxide
   B. propane
   C. nitrogen
   D. all gases

12. Where is a universal law always true?
   A. Earth
   B. Mars
   C. Milky Way Galaxy
   D. all of the above.

13. What is a very common example of the fact that air expands when you heat it?
   A. soda pop fizzing
   B. a food can gushing when you open it
   C. a balloon popping when it is filled too much
   D. a hot air balloon

14. If 10 pounds of air that occupies 100 cubic feet of space is heated until it expands to fill 200 cubic feet of space, what happens to its density?

A.2 times as dense
B. 200 times as dense
C. half as dense
D. one-fourth as dense

15. What rises?

A. less dense fluids in more dense fluids.
B. hot water in cold water.
C. hot fluids in cold fluids of the same type.
D. all of the above.

16. Why is the statement, "Heat rises" not true?

A. heat sinks
B. heat doesn't rise.
C. heat is energy.
D. heat is matter.

17. What does the hot air balloon pilot do to make the balloon go higher?

A. tosses off some sandbags
B. closes the opening
C. turns on the torch
D. none of the above.

18. How does the pilot make the balloon go down?

A. lets some of the air out.
B. turns off the torch.
C. opens the top.
D. none of the above.

19. Why does a warm basketball bounce better than the same basketball when it is cold?

A. the air expands when it is warm.
B. the basketball gets firmer when it is warm.
C. a firm basketball bounces better than a soft basketball.
D. all of the above.

20 What is the air pressure all around the earth at sea level?

A. 14 ppsi
B. 24 ppsi
C. 63 ppsi
D. 32 ppsi

Students's Name ANSWER Key

OBSERVATION QUIZ FOR "THINKING WITH SCIENCE"

Quiz for Lesson 19 Quiz Number _____

1. A B **C** D E
2. **A** B C D E
3. A **B** C D E
4. A B C **D** E
5. A **B** C D E
6. A B **C** D E
7. A B **C** D E
8. **A** B C D E
9. A B **C** D E
10. A **B** C D E
11. A B C **D** E
12. A B C **D** E
13. A B C **D** E
14. A B **C** D E
15. A B C **D** E
16. A **B** C D E
17. A B **C** D E
18. A **B** C D E
19. A B C **D** E
20. **A** B C D E