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Student's Name _____

THINKING WITH SCIENCE
Observation Quiz
Lesson 1, Focus 1 (Eggs A and B)

1. How many lessons are in the Thinking With Science program?
   A. 10 B. 15 C. 20 D. 25

2. Where is a universal law of science true?
   A. On other planets.
   B. In other solar systems.
   C. In other galaxies.
   D. All of the above.

3. Thinking skills involve what?
   A. Analyzing information.
   B. Gathering data.
   C. Memorizing information.
   D. Forming hypotheses.

4. What is the meaning of the word "focus" in Latin?
   A. Data B. Point C. Conclusion D. Analysis

5. A complete answer to the problem question is called:
   A. a focus B. a hypothesis C. data D. a conclusion

6. What does the word "data" mean in Latin?
   A. word B. information C. sentence D. more

7. A data question should not begin with the word:
   A. is B. why C. does D. are

8. What is the control question for the question "Does Liquid A contain any water?""?
   A. Does Liquid A contain only water?
   B. Does Liquid A contain any salt?
   C. Does Liquid B contain any salt?
   D. Does Liquid B contain any water?

9. A valid conclusion is not _____ by the data.
   A. proved. B. refuted C. supported D. improved

Quiz on Focus 1, Lesson 1, continued.

10. Conclusions always mention _____ between the two groups in the experiment.

A. words B. suggestions C. differences D. agreements

11. Switching the eggs calls for two _____.

A. data.
B. experimentation questions.
C. focus questions.
D. conclusions.

12. An experimentation question always begins with the word _____.

A. if B. does C. how D. are

13. What do the following two questions and their answers prove?

X. Will egg A float in liquid B? (Yes)
Y. Will egg B sink in Liquid A? (Yes)

A. The result is caused by salt.
B. The result is caused by the liquids.
C. The result is caused by the eggs.
D. The result has nothing to do with the liquids.

14. What does the following diagram mean? LESS DENSE
MORE DENSE

A. Things that are more dense than a liquid are heavy.
B. Things that are more dense than a liquid sink in it.
C. Things are either more dense or less dense than a liquid.
D. Things that are more dense than water don't float in any liquid.

15. A pint bottle full of olive oil will do what in water?

A. float. B. sink. C. turn solid D. weigh more than the water.

16. If mercury is twenty times as dense as water, how much will a pint of mercury weigh?

A. 2 pounds.
B. 10 pounds.
C. 20 pounds.
D. 100 pounds.

17. Things float better in liquids that are more _____.

A. thick.
B. pure.
C. thin.
D. dense.

Students's Name ANSWER Key

OBSERVATION QUIZ FOR "THINKING WITH SCIENCE"

Quiz for Lesson / Focus / 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

Student's Name _____

THINKING WITH SCIENCE
Observation Quiz
Lesson 1, Focus 2 (Eggs C and D)

1. The reason for switching the eggs between Liquids C and D is:
   A. to find out which egg is more dense.
   B. to find out whether the liquids are the same.
   C. to find out which liquid has salt in it.
   D. to find out which liquid has water in it.

2. If both eggs sink in Liquid C, but float in Liquid D, what does that prove?
   A. the liquids are different.
   B. the eggs are the same.
   C. both of the above.
   D. neither of the above.

3. Why don't the following two questions and their answers cause a change in the conclusion?
   X. Is there salt in Liquid C? (Yes)
   Y. Is there salt in Liquid D? (Yes)

   A. conclusions don't mention differences.
   B. they are both conclusions.
   C. conclusions don't mention similarities.
   D. neither one is a conclusion.

4. What does the word "refute" mean?
   A. to prove.
   B. to prove false.
   C. to prove true.
   D. none of the above.

5. What does a "good" conclusion always tell the reader?
   A. that it is true beyond all doubt.
   B. that it is grammatically correct.
   C. how to set up the focus.
   D. the result of the experiment

Quiz on Lesson 1, Focus 2, continued.

6. Why did ancient people travel long distances to get salt?
   A. it is salty.
   B. it makes food taste better.
   C. it is valuable.
   D. it dissolves in water.

7. Why can't a person sink in the Great Salt Lake?
   A. people are less dense than the water there.
   B. the water there contains a large amount of salt.
   C. the lake water is more dense than people.
   D. all of the above.

Students's Name ANSWER Key

OBSERVATION QUIZ FOR "THINKING WITH SCIENCE"

Quiz for Lesson 1, Focus 2 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

Student's Name _____

THINKING WITH SCIENCE
Observation Quiz
Lesson 2 (Eggs E and F)

1. To find out whether the result is caused by a difference in the eggs or the liquids, we:
   A. add salt to Liquid E.
   B. switch the eggs between Liquid E and Liquid F.
   C. weigh the eggs.
   D. taste the liquids.

2. If the first experimentation question reads, "If you put Egg E into Liquid F, will it float?", the second experimentation question would:
   A. reverse the letters and substitute the word "sink" for "float".
   B. reverse the letters in the first question.
   C. ask if Egg E is less dense.
   D. ask if Egg F is more dense.

3. If the following questions have been asked about E:
   "Does E contain any water?" (Yes)
   "Does E contain any salt?" (Yes)
   " Does E contain any sugar? (Yes)

   Then, the next question to ask about E is, "Does E contain _____ water, salt, and sugar?"
   A. more
   B. only
   C. less
   D. much

4. What is the control question for, "Does E contain any sugar?"
   A. Does E contain only sugar?
   B. Does F contain any sugar?
   C. If you put more sugar in E, would the eggs float?
   D. How much sugar is in E?

5. In this focus, Liquid E contained more salt, and F contained more:
   A. sugar
   B. water
   C. of an unknown substance.
   D. None of the above.

Quiz on Lessons 2, continued.

6. Suppose that the following question were asked, and the following answer given:
"If you removed all of the salt from F, would the eggs still float in it?" (No)

This question and answer prove that:

A. the salt has something to do with the eggs floating.
B. the salt has nothing to do with the eggs floating.
C. the sugar must be making the eggs float.
D. the sugar has nothing to do with the eggs floating.

7. The eggs float better in Liquid F because it is:

A. denser.
B. saltier.
C. heavier.
D. thicker.

8. Liquid F contains a greater - - - - - of salt and sugar.

A. amount.
B. bulk
C. weight.
D. total

9. Why might this experiment not work if you tried it at home?

A. your salt might be different.
B. not all eggs have the same density.
C. not all tablespoon measurers are the same size.
D. your sugar might be different.

Students's Name ANSWER Key

OBSERVATION QUIZ FOR "THINKING WITH SCIENCE"

Quiz for Lesson 2 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

Student's Name _____

THINKING WITH SCIENCE
Observation Quiz
Lesson 3, The Bubbly Liquid

1. Besides the experimental group, what other group is always a part of a properly designed experiment?
   A. manipulated
   B. control
   C. scientific
   D. valid

2. Why should there be only one manipulated variable in any experiment? Otherwise:
   A. the conclusion wouldn't be valid
   B. you wouldn't know what caused the result
   C. both of the above.
   D. neither of the above.

3. What is the control question for the question, "Does A contain any water?"
   A. Does A contain only water?
   B. Does A contain anything else?
   C. Does B contain any water?
   D. Does B contain anything else?

4. How could you tell that the JAR liquid wasn't the manipulated variable?
   A. because they were different
   B because they were the same
   C. because they didn't contain any yeast
   D. because they didn't contain any alcohol

5. Before you put yeast in water, it is _____.
   A. dormant
   B. dead
   C. active
   D. a liquid

6. What does the Latin word "dormir" mean?
   A. sleep
   B. eat
   C. grow
   D. none of the above

7. What adjective describes a conclusion that is supported by the data?
   A. valid
   B. refuted
   C. false
   D. unreliable

8. The word that means "to prove a conclusion false" is:
   A. validate
   B. refute
   C. justify
   D. support

9. The bubbles coming from bottle B contain:
   A. carbon monoxide
   B. carbon dioxide
   C. carbon sulfide
   D. carbon chloride

10. The word "yeast" above the arrow in the chemical reaction means:
   A. the yeasts are alive
   B. the yeasts are causing the reaction
   C. the yeasts are dead
   D. the yeasts are smart

11. Each hole in a slice of bread indicates the location of:
   A. a carbon dioxide bubble
   B. a starch molecule
   C. a sugar molecule
   D. all of the above

12. All types of alcohol:
   A. take away pain
   B. explode
   C. kill brain cells
   D. all of the above

13. The alcohol contained in beer and wine is:
   A. methyl
   B. ethyl
   C. isopropyl
   D. deadly

14. One of the main symptoms of brain damage from alcohol is:
   A. stumbling
   B. memory loss
   C. laughing
   D. none of the above

Students's Name ANSWER Key

OBSERVATION QUIZ FOR "THINKING WITH SCIENCE"

Quiz for Lesson 3 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

Student's Name _____

THINKING WITH SCIENCE
Observation Quiz
Lesson 4, The Caps

1. How are the caps different?
   A. size
   B. material
   C. density
   D. none of the above

2. You can't tell what caused the result of an experiment if there are two:
   A. controlled variables
   B. control groups
   C. manipulated variables
   D. experimental groups

3. What word does an experimentation question always begin with?
   A. does
   B. if
   C. why
   D. how

4. Both caps float in Liquid B, but sink in Liquid A. What does that prove?
   A. the caps are the same
   B. the liquids are the same
   C. the liquids are different
   D. the caps have the same density

5. Because the iron hull of a boat, and the air inside the boat have a combined density that is less than water, boats:
   A. float
   B. go fast
   C. are large
   D. all of the above

6. A "lock" is a device that:
   A. raises and lowers boats
   B. keeps boats out of the water
   C. helps boats to float
   D. keeps boats from sinking

7. Where won't barnacles grow?
   A. rocks
   B. whales
   C. freshwater
   D. saltwater

8. Why did the fishing boat sink in Lake Union?
   A. it was overloaded
   B. it was more dense than Lake Union
   C. the lake was less dense than the boat
   D. all of the above

9. If the first question is, "Does A contain any water?", the next question about A should be:
   A. does A contain only water?
   B. does A contain any salt?
   C. does A contain any sugar?
   D. does A contain any alcohol?

10. Things float better in liquids that are more:
   A. salty
   B. pure
   C. dense
   D. thick

11. Caps A and B had the same:
   A. density
   B. size
   C. neither of the above
   D. both of the above

12. The manipulated variable in this experiment was:
   A. jar A
   B. jar B
   C. alcohol
   D. salt

13. A controlled variable in this experiment was:
   A. the jars
   B. the amount of liquid in the jars
   C. the fact that there was a liquid in jar A and jar B
   D. all of the above

14. Why does Styrofoam float in water?
   A. it is softer than water
   B. it is a solid
   C. it is less dense than water
   D. all of the above.

Student's Name ANSWER Key

OBSERVATION QUIZ FOR "THINKING WITH SCIENCE"

Quiz for Lesson 4 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

Student's Name _____

THINKING WITH SCIENCE

Observation Quiz

Lesson 5 (The Potatoes)

1. A millimeter is about the thickness of a:
   - A. penny
   - B. quarter
   - C. dime
   - D. nickel

2. The group in an experiment that is treated "normally" is the:
   - A. control group
   - B. experimental group
   - C.manipulated group
   - D. scientific group

3. The difference between the control group and the experimental group in an experiment is the:
   - A. controlled variable
   - B. experimental variable
   - C. manipulated variable
   - D. none of the above

4. If a conclusion is refuted, it is:
   - A. supported
   - B. proved false
   - C. proved true
   - D. proved valid

5. A "good" conclusion tell a person:
   - A. it is true
   - B. how to set up the focus
   - C. that it is valid
   - D. all of the above

6. After asking the question, "Does A contain any water?", the next question about A should be:
   - A. Does A contain only water?
   - B. Does B contain any water?
   - C. Does A contain any salt?
   - D. Does A contain any sugar?

7. When a scientist gets additional supporting data, he usually:
   A. changes the conclusion
   B. eliminates the conclusion
   C. both of the above
   D. neither of the above

8. If we know that there is salt in B, but not in A, why do we know that the potatoes were the same length at the start:
   A. B shrank
   B. A grew
   C. we don't know
   D. there can't be two manipulated variables

9. If we find out that B contains salt and water, why should we ask whether B contains "only salt and water"?
   A. so we don't have to ask whether B contains other possibilities
   B. it is the control question
   C. it is the experimentation question
   D. so that we know whether it contains sugar

10. What tells us that the salt has something to do with B shrinking?
   A. it is the manipulated variable
   B. A doesn't have any salt
   C. both of the above
   D. neither of the above

11. Osmosis always involves:
   A. a cell wall and a membrane
   B. a membrane and water
   C. a potato
   D. a plant cell

12. The outermost layer of a plant cell, and a layer that is not found in animal cells is the:
   A. membrane
   B. cell wall
   D. cell juice
   E. none of the above

13. A slug shrinks when you put salt on it because:
   A. water is drawn out of its cells
   B. osmosis occurs
   C. its cells lose water
   D. all of the above

Students's Name ANSWER KEY

OBSERVATION QUIZ FOR "THINKING WITH SCIENCE"

Quiz for Lesson 5 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

Student's Name _____

THINKING WITH SCIENCE

Observation Quiz

Lesson 6 (The Radish Seedlings)

1. The group that is treated in the normal way is the:
   A. manipulated group
   B. control group
   C. variable group
   D. none of the above

2. Why should there be only one manipulated variable in any properly designed experiment?
   A. otherwise you wouldn't know what caused the result
   B. because there are so many controlled variables
   C. it isn't possible to have two manipulated variables.
   D. all of the above

3. Plants are green because they contain:
   A. cell walls
   B. chlorophyll
   C. cell juice
   D. all of the above

4. In order to manufacture chlorophyll, plants need:
   A. sugar
   B. light
   C. soil
   D. all of the above

5. If an object sits on the ground for several days, the grass turns yellow because:
   A. it develops carotene pigment
   B. it lacks light
   C. it lacks water
   D. none of the above

6. Green plants grow straight up because they are reacting mainly to:
   A. water
   B. light
   C. gravity
   D. all of the above

7. Green plants grow faster if they get more;
   A. light
   B. heat
   C. carbon dioxide
   D. all of the above

8. The outermost layer of plant cells is called the:
   A. membrane
   B. chloroplast
   C. cell juice
   D. cell wall

9. The part of a plant cell that regulates osmosis is the:
   A. cell membrane
   B. cell wall
   C. cell juice
   D. none of the above

10. During photosynthesis, green plants produce:
   A. water
   B. oxygen
   C. chlorophyll
   D. carbon dioxide

11. During cellular respiration, cells produce;
   A. water
   B. oxygen
   C. chlorophyll
   D. none of the above

12. The only substance that can change light energy into food energy is:
   A. sugar
   B glucose
   C. chlorophyll
   D. water

13. All of our energy comes from:
   A. glucose
   B. carbohydrates
   C. fats
   D. proteins

14. The two main reasons why the earth could run out of oxygen are:
    A. too many plants and not enough animals
    B. too many animals and not enough plants
    C. too much carbon dioxide
    D. all of the above

15. The three types of energy foods are:
    A. sugar, water, and minerals
    B. carbohydrates, amino acids, and omega-3 fatty acids
    C. water, glucose, and minerals
    D. proteins, fats, and carbohydrates

16. The energy that is stored in energy foods comes from the:
    A. light
    B. chlorophyll
    C. carbon dioxide
    D. water

17. The process of burning wood is like;
    A. photosynthesis
    B. cellular respiration
    C. both of the above
    D. neither of the above

18. Some plants that store much of their excess glucose as fats are the:
    A. canola
    B. olive
    C. cotton
    D. all of the above

19. The main purpose of our stomach and small intestine is to:
    A. turn energy foods into glucose
    B. digest food
    C. turn carbohydrates into glucose
    D. all of the above

Students's Name ANSWER Key

OBSERVATION QUIZ FOR "THINKING WITH SCIENCE"

Quiz for Lesson 6 **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

Student's Name _____

THINKING WITH SCIENCE

Observation Quiz

Lesson 7 (The Lamp)

1. If a lamp on a circuit lights, you know that the circuit is:
   - A. a nonconductor
   - B. complete
   - C. battery operated
   - D. direct current

2. Electricity comes out of:
   - A. the negative end of a battery
   - B. a generator
   - C. both of the above
   - D. neither of the above

3. The filament of light bulbs that Thomas Edison invented were made of:
   - A. iron
   - B. copper
   - C. silver
   - D. tungsten

4. Most conductors are:
   - A. metals
   - B. plastics
   - C. ions
   - D. wood

5. The word "tentative", when applied to a conclusion, means:
   - A. incomplete
   - B. valid
   - C. temporary
   - D. final

6. In experiment A-B, water is a controlled variable because it is:
   - A. a liquid
   - B. in both A and B
   - C. not a solid
   - D. pure

7. After the question "Does A contain any water?", the question that should be asked next about A is "Does A contain ---- water?"
   A. salt
   B. pure
   C. only
   D. filtered

8. A scientist usually changes his conclusion if:
   A. he gets new data
   B. he gets refuting data
   C. he thinks he's right
   D. he thinks new data are wrong

9. The difference between the control group and the experimental group is the:
   A. controlled variable
   B. manipulated variable
   C. focus
   D. only variable

10. You would not know what was causing the result of an experiment if the experiment included:
   A. two experimental groups
   B. two manipulated variables
   C. two controlled variables
   D. all of the above

11. The particles of sodium and chlorine that have positive and negative charges are called:
   A. atoms
   B. molecules
   C. ions
   D. all of the above

12. A universal law of electricity and magnetism is:
   A. opposites attract
   B. they consist of electrons
   C. they flow
   D. ions repel each other

13. Ions in water act like ____ for the electricity.
   A. molecules
   B. energy
   C. atoms
   D. ferryboats

14. The liquid containing only water and sugar didn't cause the lamp to light because:
    A. it was a nonconductor
    B. it contained no ions
    C. it didn't complete the circuit
    D. all of the above

15. Battery acid is also called:
    A. a conductor
    B. sulfuric acid
    C. caustic
    D. all of the above

16. How do you know that liquid D contained more than pure water?
    A. it was cloudy
    B. it caused the lamp to light
    C. it contained no sugar
    D. it wasn't a solid

17. A turbine has:
    A. blades
    B. a motor
    C. a generator
    D. all of the above

18. Most of the electrical generators in the Midwestern United States are:
    A. water powered
    B. nuclear powered
    C. coal powered
    D. atomic powered

19. When the ingoing and outgoing electrical wires from a generator touch each other , it creates:
    A. sparks
    B. heat
    C. a short circuit
    D. all of the above

20. Why won't the current from the six-volt battery pass through pure water:
    A. six volts isn't strong enough
    B. water contains too few ions
    C. both of the above
    D. neither of the above

Students's Name ANSWER KEY

OBSERVATION QUIZ FOR "THINKING WITH SCIENCE"

Quiz for Lesson 7 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

Student's Name _____

THINKING WITH SCIENCE

Observation Quiz

Lesson 8 (The Vial)

1. Why could you tell from the diagram that the vial liquid was water, if you knew that the jar liquid was water?
   A. it was clear
   B. air floated above it
   C. there was no cap on the vial
   D. water is the only clear, colorless liquid

2. Why would it be logical to ask whether the vial gas is helium?
   A. because the gas was floating on the water
   B. because helium rises
   C. because helium is colorless
   D. none of the above

3. What two words explain why this focus works?
   A. density and pressure
   B. weight and pounds
   C. water and gas
   D. air and liquid

4. In the Latin language, "com" means"
   A. after
   B. before
   C. together
   D. up

5. A universal law that is involved in this focus is:
   A. all gases can be compressed
   B. all gases float
   C. water sinks in oil
   D. liquids can be compressed

6. The compressed air that Scuba Divers used is:
   A. put into their tanks under high pressure
   B. compressed
   C. released through a regulator
   D. all of the above

7. How deep is the atmosphere of the earth?
   A. 8000 miles
   B. 250 miles
   C. 63 miles
   D. 5000 feet

8. Most automobile tires have an air pressure, in pounds per square inch, of:
   A. 32
   B. 150
   C. 15
   D. 12

9. The vial sinks when you press on the cover because:
   A. more water enters
   B. the air compresses
   C. both of the above
   D. neither of the above

10. When the lid is off a container, the pressure, at sea level, is:
   A. the same inside and outside the container
   B. 12 pounds per square inch
   C. greater on the inside than on the outside
   D. greater on the outside than on the inside

11. The part of the ear that is inside our body has how many sections:
   A. 1
   B. 2
   C. 3
   D. 4

12. The Eustachian tube connects:
   A. the outer ear and the middle ear
   B. the middle ear and the throat
   C. the middle ear and the inner ear
   D. none of the above

13. The auditory nerve leads from the inner ear to:
   A. the brain
   B. the middle ear
   C. the outer ear
   D. the throat

14. If the eardrum can't vibrate freely, then:
    A. we can't hear very well
    B. we get headaches
    C. the pressure is the same on both sides of it
    D. we have wax in our ears

15. When your ears pop, it is caused by:
    A. the inner ear
    B. the Auditory nerve
    C. the ear drum
    D. the outer ear

16. You can demonstrate that air expands when pressure is decreased on it by:
    A. Opening a plastic water bottle on Mount Rainier, capping it, and driving home with it.
    B. Opening a plastic water bottle at home, capping it, and driving up on Mount Rainer.
    C. Pressing on the cover of the focus
    D. Filling a Scuba diver's tank

17. Why shouldn't you hold your nose, close your mouth, and blow hard with your lungs?
    A. The Eustachian tube will get plugged
    B. The inner ear will get damaged
    C. The auditory nerve could get damaged
    D. The ear drum could get damaged

18. When you press on the cover of the focus, the -------- increases everywhere inside the cover.
    A. water
    B. pressure
    C. air
    D. all of the above

19. Making a mass of air smaller is called ---------- it.
    A. declining
    B. expanding
    C. compressing
    D. decompressing it

20. Everything above earth's atmosphere is called:
    A. space
    B. the troposphere
    C. the hydrosphere
    D. protoplasm

Students's Name ANSWER KEY

OBSERVATION QUIZ FOR "THINKING WITH SCIENCE"

Quiz for Lesson 8 **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

Student's Name _____
THINKING WITH SCIENCE
Observation Quiz
Lesson 9 (Angry Liquids)

1. The substance that we program our space probes to look for on other planets is:
   A. rock
   B. iron
   C. water
   D. oxygen

2. In order to ask the control question for "Does the red contain any water?", we change the word:
   A. red to green
   B. contain to embody
   C. water to alcohol
   D. any to only

3. What word should go in the blanks: "Does the green contain ---- food coloring and water?"
   A. green
   B. only
   C. some
   D. dark

4. When we mentally switched the food-coloring from one bottle to the other, what did the results prove?
   A. red and green food-coloring have the same density.
   B. the food-coloring doesn't matter.
   C. the food-coloring doesn't have any effect.
   D. all of the above.

5. An experimentation question always begins with the word:
   A. when
   B. does
   C. why
   D. if

6. A liquid which is clear, colorless, and more dense than water is:
   A. corn syrup
   B. alcohol
   D. mineral oil
   E. none of the above.

7. What did I use on my pancakes when I was a child?
   A. margarine.
   B. corn syrup
   C. jelly
   D. maple syrup

8. How do we know that corn syrup is more dense than water?
   A. it sinks in water.
   B. it floats on water.
   C. it mixes with water.
   D. none of the above.

9. What is a group of liquids that all float on water?
   A. oil
   B. alcohol
   C. syrup
   D. all of the above.

10. Where do cooking oils come from?
   A. the ground.
   B. plants.
   C. animals.
   D. none of the above.

11. Why is mineral oil called by that name?
   A. it comes from a mine.
   B. it comes from the ground
   C. both of the above.
   D. neither of the above.

12. Why shouldn't you use baby oil on burns, even though it is mostly mineral oil?
   A. it's not really oil.
   B. its fragrances irritate burns.
   C. it's only for babies.
   D. none of the above.

13. What characteristic of a substance determines whether it floats or sinks?
   A. density
   B. thickness
   C. state of matter
   D. none of the above.

14. The word "refute" means:

A. repeat
B. turn around
C. prove false
D. none of the above.

15. Why did Jar Y form 2 layers after it was shaken and then allowed to sit?

A. oil and water don't mix.
B. Y was oil and green was water.
C. both of the above.
D. neither of the above.

16. The salad dressing that would probably be more expensive would contain ___ layers.

A. 1
B. 2
C. 3
D. 4

17. What can you tell about the spices that form the bottom layer of a salad dressing?

A. they are from foreign countries.
B. they are more dense than the other layers.
C. they contain pepper.
D. they contain salt.

18. In a 4-layer salad dressing, how do we know that the spices that form the middle And bottom layer are different kinds of spices?

A. they form 2 separate layers.
B. they are different colors.
C. they both sink.
D. none of the above.

19. If an author makes a statement like "Joe and Frank are like oil and water", the author means:

A. One of them is a slimy character.
B. One of them is all wet.
C. they don't get along.
D. all of the above.

Student's Name Answer Key

OBSERVATION QUIZ FOR "THINKING WITH SCIENCE"

Quiz for Lesson 9 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

Student's Name _____

THINKING WITH SCIENCE
Observation Quiz
Lesson 10 (The Broken Jar)

1. The manipulated variable is:
   A. how the groups are treated differently.
   B. how the groups are treated the same.
   C. how the groups are treated.
   D. none of the above.

2. The control question for "Was B in the freezer?" is:
   A. was B in the freezer longer?
   B. was B at a colder temperature?
   C. was A in the freezer?
   D. none of the above.

3. The fact that both A and B were in the freezer is called:
   A. a controlled variable.
   B. a manipulated variable.
   C. a control group.
   D. none of the above.

4. How do we know that putting them both in the freezer had nothing to do with the difference in the results?
   A. both contained water.
   B. both jars were the same.
   C. there was the same amount of water in both.
   D. none of the above.

5. The manipulated variable was:
   A. the lid.
   B. the water.
   C. the jars.
   D. all of the above.

6. If a conclusion can be called "reliable", that means that it:
   A. is supported by the data.
   B. is not refuted by the data.
   C. both of the above.
   D. neither of the above.

7. When water freezes, it:
   A. expands.
   B. forms ice.
   C. gets hard.
   D. all of the above.

8. The process that makes water different from other substances is that it:
   A. expands when it freezes.
   B. gets hard when it freezes.
   C. forms a gas when boiled.
   D. none of the above.

9. An example that indicates that water expands when it freezes is:
   A. a soda pop can bursts in the freezer.
   B. the ice cubes in an ice tray are higher than the previous water was.
   C. water pipes sometimes burst when the weather is freezing.
   D. all of the above.

10. The word "tentative", when used to describe a conclusion, means:
   A. incomplete.
   B. temporary.
   C. not final.
   D. all of the above.

11. The main reason why B broke was:
   A. pressure.
   B. heat.
   C. water.
   D. none of the above.

12. I was 10 years old 68 years ago. How old am I now?
   A. 68
   B. 73
   C. 78
   D. 83

13. The way that milk is when it first comes out of cows is called:
   A. pasteurized.
   B. homogenized.
   C. raw
   D. cream

14. My ice cream, when I was a child, contained only:
    A. cream.
    B. cream and sugar.
    B. cream, sugar, and salt.
    C. none of the above.

15. A rapid fire focus is one in which:
    A. no questions are asked.
    B. no one writes anything.
    C. the data are written.
    D. everyone asks questions.

16. The reason why Jar D was partly empty was that:
    A. it contained less water originally.
    B. the ice was sawed off after it was frozen.
    C. the ice melted.
    D. all of the above.

17. When water freezes, it gets what per cent bigger?
    A. 5
    B. 8
    C. 10
    D. 12

18. When you hear water gushing out of a faucet under your floor, you would probably feel:
    A. frantic.
    B. panicky
    C. desperate.
    D. all of the above.

19. How much of an iceberg is above the ocean that it is floating in?
    A. 6 per cent
    B. 8 per cent
    C. 9 per cent
    D. 11 per cent

20. Why not get close to an iceberg in your boat?
    A. 92 per cent is under the water.
    B. most of it is under the water.
    C. you might hit the part that is under the water.
    D. all of the above.

Students's Name Answer Key

OBSERVATION QUIZ FOR "THINKING WITH SCIENCE"

Quiz for Lesson 10 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