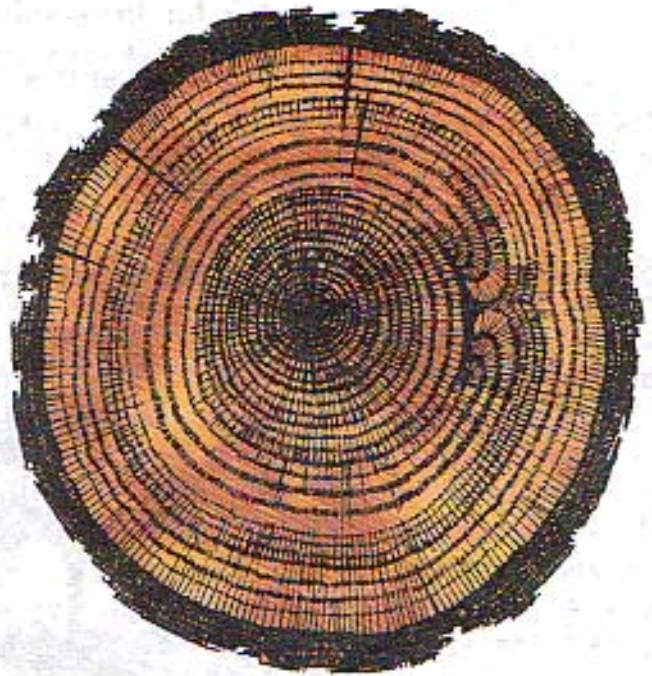


STATING THE PROBLEM

A philosopher said, "Science begins in wonder and ends in wonder." I wonder why the sky is blue? I wonder what that object is made of? I wonder why those things behave as they do? I wonder why the clock ticks? I wonder why the world goes around? Man is naturally curious, and around him are many things to make him wonder. When he asks a question about something, he is stating a problem that he wishes to solve.

Have you ever seen a newly cut tree stump? Observing a newly cut tree stump, you might notice that it has many **concentric** rings. You may decide to count the rings because of an **inference** that the number of rings is the age of the tree. While you are counting the rings, you notice that some of them are wide spaced and some of them are narrow. You also find a burn scar on one of the inner rings. In addition you notice that the center ring does not seem to be in the center of the trunk. You measure distances from the center ring outward and discover that one side of the tree is wider than the other side.



Top of a Tree Stump



Answer these questions.

- 2.1 How old is this tree? _____
- 2.2 What causes the rings to vary in width? _____

- 2.3 What caused the tree rings to grow unevenly? _____

- 2.4 How could a burn scar get inside the tree? _____

Note: If you answered Questions 2.2, 2.3, and 2.4, your answers were *inferences* because they were based on something you knew before today.

Through your observation a number of questions have been raised. You were able to answer some of them, but others (2.3, as an example) could only be a guess. In a short while, we shall come back to Question 2.3 and form a hypothesis.



Observe these two drawings (Figures 6 and 7).

1.25

One is of the universe as Aristotle described it. The other represents Ptolemy's view of the universe. Tell how they are alike and how they differ.

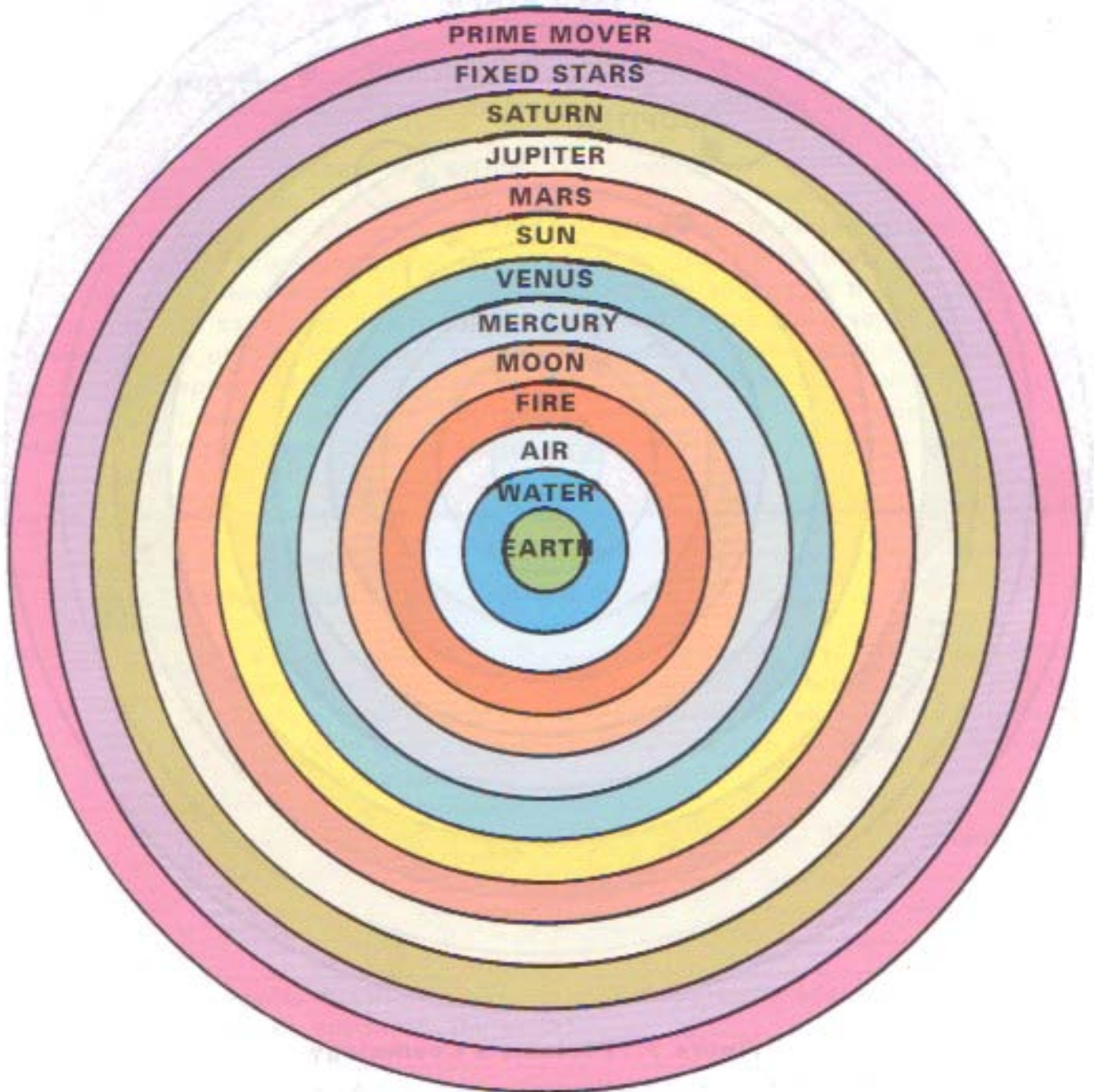


Figure 6: Aristotle's Cosmology



Write the answers to these questions in complete sentences (use your own words).

1.26

How are hailstones formed? _____

1.27

How does the rotation of the earth affect the winds? _____



Teacher check _____

Initial

Date



Review the material in this section in preparation for the Self Test. The Self Test will check your mastery of this particular section. The items missed on this Self Test will indicate specific areas where restudy is needed for mastery.

SELF TEST 1

Answer *true* or *false* (each answer, 1 point).

- 1.01 _____ The air directly above the earth is heated by solar radiation.
- 1.02 _____ Sleet occurs as water droplets form in below-freezing temperatures.
- 1.03 _____ Winds blowing toward the east are called easterlies.
- 1.04 _____ Winds are turned to the right in the Northern Hemisphere.
- 1.05 _____ Trade winds occur between 30° N and 30°S.
- 1.06 _____ Warm air weighs less than cold air.
- 1.07 _____ Winds move from high to low pressure areas.
- 1.08 _____ If the sun's rays hit the earth at a large angle, the area is warm.
- 1.09 _____ The earth rotates towards the east.
- 1.010 _____ Air pressure is measured in terms of pressure at one hundred feet above sea level.

SCIENCE 710: LIFE PAC TEST

Match these items (each answer, 2 points).

- | | | | |
|-----|-------|--------------------------------------|----------------|
| 1. | _____ | connection between two or more bones | a. stomach |
| 2. | _____ | second step in the scientific method | b. kilogram |
| 3. | _____ | digestive | c. cloud |
| 4. | _____ | standard of unit mass | d. Polaris |
| 5. | _____ | father of modern science | e. hypothesis |
| 6. | _____ | source of solar energy | f. joint |
| 7. | _____ | stratus | g. inspiration |
| 8. | _____ | north star | h. moisture |
| 9. | _____ | element of weather | i. Aristotle |
| 10. | _____ | breathing in | j. sun |
| | | | k. Galileo |

Write the letter of the correct choice (each answer, 2 points).

11. Seventy-eight percent of the atmosphere is made up of _____ .
a. nitrogen
b. oxygen
c. neon
d. carbon
12. Air masses produce clouds and _____ .
a. maritimes
b. weather fronts
c. polar caps
d. westerlies
13. Torricelli invented the _____ .
a. barometer
b. thermometer
c. anemometer
d. aneroid
14. The standard unit of volume is the _____ .
a. gram
b. meter
c. liter
d. kilo
15. Patterns made by the stars are called _____ .
a. zenith
b. meteors
c. myths
d. constellations