

Name: _____ Date: _____ Period: _____

What is Life?

Astrobiology: 1- The study of the living universe. 2-The search for life in the universe.

1. What tells you that something is alive? Record all your ideas:
2. In your group, create a common set of characteristics that can be used to identify life. Put your ideas on a sticky-note and turn-in to teacher.
3. 20 Questions: What is it? Is it, or has it ever been, alive? With each hint write A if you think it is alive, and N if you think it isn't.



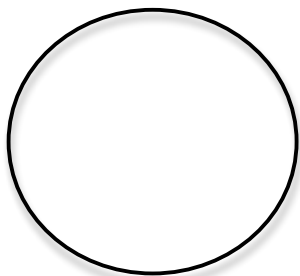
a. **Example #1, Alive or Not:** _____
I think it is: _____

b. **Example #2, Alive or Not:** _____
I think it is: _____

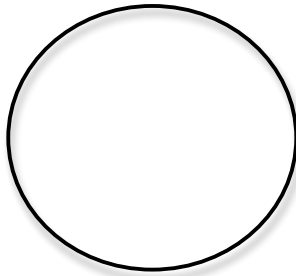
4. As a class, develop a common set of characteristics that can be used to identify life. This is similar to Question 3, but since then, you have thought more about what it means to be alive, and your list could be quite different.

5. Lab Activity: Obtain three jars containing mystery samples from your teacher. Describe and compare the contents of the three jars. You may take out a small sample and place in on a piece of paper to observe with a hand lens. Record your observations (use all senses EXCEPT TASTE!):

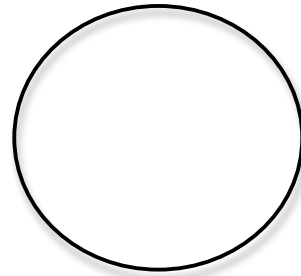
Sample A



Sample B



Sample C



6. Compare the object(s) to the list you generated for Question 6. Which, if any, of these objects is or has been alive? Create a hypothesis:

I think sample _____ is alive because . . .

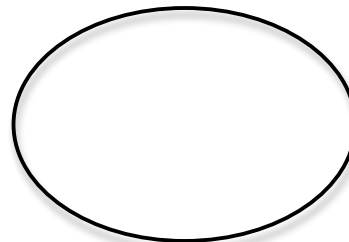
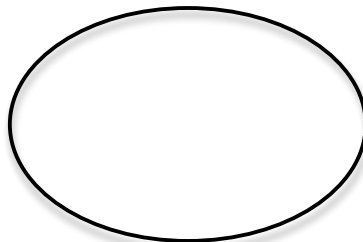
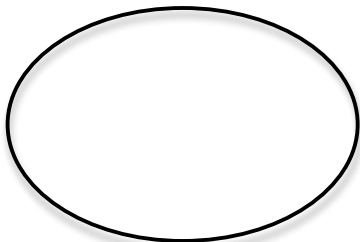
7. Obtain a cup of hot tap water from you teacher. Add enough water to each sample so it is just covered.

8. Describe and compare the three samples after you added water.

Sample A

Sample B

Sample C



9. Use your list of fundamental characteristics to determine whether there is something alive in any of the jars. Write your conclusions and reasoning below.

The purpose of this experiment was to . . .

The data shows that . . .

*The hypothesis that _____ was alive, was
/partially was/ was not supported because. . .*

10. Which of your criteria were most important in helping you draw your conclusions?

11. After the class discussion, in the space below, write the working definition for life.

Analysis

1. Why is defining life difficult?
2. What would you tell someone to help them distinguish between a one-time chemical reaction and a chemical reaction associated with life?
3. Describe some follow-up tests that could provide additional information and help you decide whether or not the jars contained something alive.
4. Does no change in a jar mean that a sample contains nothing that is alive? Explain.