Answer Key: It’s Alive!

Prelab Questions
Responses may vary based on background knowledge

1. How do people get sick?
   People get sick from germs.

2. How are germs spread?
   Germs are spread from person to person or by touching/coming into contact with infected people or objects.

3. How can we stop germs from spreading?
   We can stop germs from spreading by washing our hands, covering our mouths, or staying away from sick people.

4. What do you think works best for cleaning our hands, using hand sanitizer or using hand soap? Explain why you think that.
   Answers will vary based on students’ opinions.

5. List some advantages of hand soap.
   Some advantages of soap are that you can see the dirt being rinsed away; you must use water; soap gets rid of dirt and germs, etc.

6. List some advantages of hand sanitizer.
   Some advantages of sanitizer are that it contains alcohol; it kills germs/bacteria; it is easier to use or more convenient; you don’t have to go to the bathroom to use it; you don’t have to use water or dry your hands, etc.

7. How do you know when a chemical change has occurred?
   A chemical change has occurred if something new is created (i.e. smoke, color, etc.) and you can’t get the original substance back.

Analysis
Responses may vary based on observations and data analysis

1. Were any new substances formed? What is your evidence?
   We observed different sizes and colors of mold growing on the bread.

2. Was there a difference between your initial sample weights and your final sample weights? What, if anything, does this indicate?
   Even though mold “grew”, the mass of the bread did not change. This indicates that matter cannot be created nor destroyed, only changed from one form to another.

3. Did you observe any chemical reactions? How do you know?
   Yes, the mold growth is a chemical reaction because it is a new substance and we can never get the original bread back; the bread is decomposing and the mold is growing—it’s ALIVE!
4. Based on your observations and data, which substance is best suited for eliminating germs? Why?  
   Answers will vary based on the students’ opinions and the mold growth; the sample with the least amount of growth should indicate which substance is better suited for eliminating germs.

5. What are the strengths and weaknesses of the two cleaning methods tested?  
   Answers will vary based on the students’ opinions and the mold growth; they should be based on group discussions data analysis.

6. Was your hypothesis supported? Why or why not?  
   Answers will vary based on the students’ opinions and original hypotheses.

7. What is the most important thing that you learned in this investigation?  
   Both hand cleaning methods can be effective at killing and preventing the spread of germs, as long as they are done correctly. (Answers may vary.)

**Conclusion**

Both hand cleaning methods are effective at killing and preventing the spread of germs, as long as they are done correctly.

Some examples of expected results: