Name Period Date

Unit	Handout	
1	7-D	*Lesson 1: Determining if Something is Alive Sample Data*

Purpose:	To provide sample data for students who missed the activity
Guiding Questions:	- How do scientist design and carry out a controlled experiment? - What evidence is needed to demonstrate something is alive?

NOTE: Sample data is not actual data collected during the investigation. It is data that is similar to what is expected. This data is meant to be used by students who were absent and need the data to complete an assignment or homework.

What did we do?
In this investigation we collected data to claim if yeast are considered alive or not. We conducted three tests: determining if they are made of cells, observing how they respond to stimuli, and determining if they use energy or create waste. Please read handout 7-P to see exactly what was done for each test. Below is sample data that is similar to what was collected during the investigation.

Testing for Response

The data below shows how well the yeast responded to the different substances they were placed into. The data is a measurement of the foam they generated. More foam indicates more activity/response from the substance. Less foam indicates little response. No foam indicates no response.

Substance	Foam Height (in cm)
Water (control)	0
Vinegar	0
Bleach	0
Mouthwash	0.2
Maple Syrup	2
Table Sugar	3
Honey	2.5
Ketchup	1.2
Salt Water	0

Testing for Energy Use/Waste Creation	
The data below shows if the yeast consumed the substance they were given. We used a chemical called Bromothymol Blue. This changes from blue to yellow in the presence of an acid. Many organisms release carbon dioxide as a waste after obtaining energy from a food source. When carbon dioxide is in water, it makes it slightly acidic.	
Substance	**Color Change**
Water (control)	No change, blue
Vinegar	Yellow (false positive, vinegar is an acid)
Bleach	No change
Mouthwash	Slight change to yellow, mostly green
Maple Syrup	Changed to yellow
Table Sugar	Changed to yellow
Honey	Changed to yellow
Ketchup	Changed to yellow*
Salt Water	No change

***** *Ketchup is acidic but this is not an indication of a false positive. Why? We already observed a layer of foam which means a gas is being produced. This, combined with the color change, likely tells us that the yeast are releasing carbon dioxide gas.*

Final data on the next page!

Testing for Cells

When observed with a microscope, students saw hundreds of small, green, circular shapes which are the yeast. Some of the shapes had a dark circular shape within them. Below are pictures of what was observed.