

Unit 1 Handout \_\_\_\_\_

*Lesson 1: Determining if Something is Alive*

**Purpose:** Design an experiment to collect evidence on if something is alive.

- Guiding Question:**
- How do scientist design and carry out a controlled experiment?
  - What evidence is needed to demonstrate something is alive?

**In this part of lesson 1** we will collect data and use evidence to determine if

**Part 1.** In the table below write down your thoughts of how we might be able to determine the following characteristics of a living thing. That is, what could we do to determine if something meets these characteristics?

Characteristic	Possible test to determine if something meets this characteristic
Made of Cells	
Uses energy/produces waste	
Responds to stimuli	
Grows and develops	
Reproduces	

**Part 2: Demonstration.** Observe as Mr. Ower exhales into the tube. Write down your observations and then

1. What happened when Mr. Ower exhaled into test tube 1?
2. What caused that change to occur?
3. How might this help us determine if something is alive?

**Part 3: Investigating the yeast.** Now we will carry out our investigation to collect data on if yeast are living organisms. You may know the answer already, and that's fine! But science is about collect data and creating arguments that are supported by evidence.

We won't be able to carry out every test due to limited resources. But, we can easily determine 3 of the characteristics: has cells, uses energy, responds to stimuli.

Up first, responds to stimuli. We can give yeast different substances to see how they respond to each one. Here are the substances we will use: bleach, honey, ketchup, maple syrup, mouthwash, salt, table sugar, vinegar and water. With your group, predict how the yeast will respond to each substance.

Promotes Activity	Does not Promote Activity

We can also investigate if the yeast are obtaining energy. Part of obtaining/using energy is producing waste.

1. What could we do to determine if the yeast are obtaining/using energy and are producing waste?

Finally, we can determine if yeast are made of cells. This will be a simple characteristic to identify.

2. How will we determine if the yeast are made of cells?

*Continue on to the next page.*

**Results.** In the table below, record the results from your investigation.

Test	Data
<b>Responds to stimuli</b>	
<b>Obtains/uses energy, creates waste</b>	
<b>Is made of cells</b>	

*Continue on to the next page.*

**Argument.** Create a claim and support your claim with evidence from the investigation.

**Question:** Are yeast alive?

**Tips for writing:**

1. State your claim first.
2. Provide your 3 lines of evidence.
3. Explain why that evidence is important to get.
4. Briefly describe what you did to get that evidence.