SUCCESS ACADEMY EDUCATION INSTITUTE

The Secret Lives of Cells

Name: _____

Teacher: _____

Class: _____

Life Science (Lower Middle)
Unit 1
Lab Notebook

Lesson 1:
The Stuff of Life

Hypothesis: What do you expect to see when we compare the fresh cuts on the fruits to the healed cuts?

Directions: Examine fruits before and then record your observations after making a cut into them.

Fruit 1	Fruit 2

Discussion Questions:

1. How were the fresh cuts different from the healing ones? Did you observe any changes in the freshly cut area throughout the investigation?

2. What do you predict the fresh cut will look like in a week? Why?

3. How do you think the fruit is able to heal the cuts?

Lesson 1

Analysis Question:

How do you think cuts and injuries heal?

Lesson 2:
A Closer Look, Day One

Directions: Explore with microscopes and record your observations in the space below.

Discussion Questions:

1. What does each part of the microscope do?

2. How should we use the microscope to help us examine the biological samples?

Lesson 2:
A Closer Look, Day Two

Directions: Examine biological samples with microscopes and diagram your observations in the spaces below. Discuss the questions that follow with your partner.

Slide 1

Lesson 2, Day Two

Slide 2

Discussion Questions:

1. What did you see under the microscope?

2. Compare and contrast the liver sample with the cheek sample. What did they have in common? What makes them different?

3. Why do you think animals have cells?

4. Why is creating diagrams of your findings useful? Why might scientists create visuals to share their observations instead of taking written notes?

Lesson 2, Day Two

Additional Notes:

Lesson 2:
A Closer Look, Day Three

Directions: Examine biological samples with microscopes and diagram your observations in the spaces below. Discuss the questions that follow with your partner.

Slide 1

Lesson 2, Day Three

Slide 2

Discussion Questions:

1. What did you see under the microscope?

2. Compare and contrast the liver sample with the cheek sample. What did they have in common? What makes them different?

3. Why do you think animals have cells?

4. Why is creating diagrams of your findings useful? Why might scientists create visuals to share their observations instead of taking written notes?

Lesson 2, Day Three

Additional Notes:

Lesson 3:
Are All Cells the Same? Day One

Directions: Examine the plant cells with microscopes and diagram your observations in the spaces below. Create a Venn diagram to compare and contrast plant and animal cells.

Slide 1

Lesson 3 Day One

Slide 2

Lesson 3 Day One

Create a Venn diagram comparing plant and animal cells in the space below:

Lesson 3:
Are All Cells the Same? Day Two

Directions: Examine the plant cells with microscopes and diagram your observations in the spaces below. Continue working on your Venn diagram to compare and contrast plant and animal cells.

Slide 1

Lesson 3 Day Two

Slide 2

Lesson 4:
The Parts of a Cell

Directions: Complete the chart below based on the Plant and Animal websites:

Organelle	Function
Endoplasmic Reticulum	
Golgi Apparatus	
Ribosomes	
Plasma Membrane	
Nucleus	
Lysosomes	
Mitochondria	
Cytoplasm	
Vacuole	
Cell Wall	
Chloroplast	
Peroxisomes	

Lesson 4

Discussion Questions:

1. How do cells protect themselves?

2. How do cells get energy? Why do they need energy?

3. What other functions do cells carry out? Why?

Additional Notes:

Lesson 5:
What Is a System?

Directions: Dissect the radio using the provided procedure. Record any notes and diagrams that you have in the space below.

Analysis Questions:

What makes some parts essential to the survival of the radio?

Which parts can the radio function without? Why, then, are they there at all?

Lesson 5

How do you know that a radio is a system?

What do you think a radio and a cell have in common?

Revision: How do you know that a radio is a system?

Lesson 6:
The Organization of Cells

Directions: Dissect the onion with the given tools and diagram your observations of how onion cells are organized in the space below.

Lesson 6

Discussion Questions:

1. How is an onion organized?

2. How do cells come together to form larger structures?

3. How do plant cells form so many different-looking plants and plant parts? Why don't all vegetables, for example, look alike if they are all made from plant cells?

Additional Notes:

Lesson 7:
The Cell Membrane

Directions: Use the following procedure to explore the function of the cell membrane.

Preparing the experimental cups:

1. Using a marker, label the plastic cups “Cup 1” and “Cup 2.”
2. Pour 100 mL of water into each cup.
3. Add 7 drops of Lugol’s solution to Cup 1.
4. Mix 1 teaspoon of cornstarch into Cup 2.

Preparing the Experimental Bags:

5. Using a marker, label your sandwich bag “Bag 1” or “Bag 2,” depending on your pair.
6. Add 30 mL of water and a few drops of Lugol’s solution to Bag 2.
7. Mix 30 mL of water and a teaspoon of cornstarch into Bag 1.
8. Place Bag 1 into Cup 1 and Bag 2 into Cup 2.

Record your observations and results in the space below.

Cup 1	Cup 2

Data: Create a data table in the space below before recording your results:

Analysis Question:

What particles were able to pass through the model cell membrane? Why?

Lesson 8:
The Cell as a City

Directions: Fill out the chart below by connecting each organelle to the different parts of a city.

Cell Organelle	Part of City	Explanation

Lesson 8

Draw a model of your city in the space below. Include labels that identify each part of the city and also the corresponding cell organelle.

Lesson 9:
Cell Poetry

Directions: Use the space below to plan your cell poem.

Lesson 9

Write your cell poem on the lines below.