



## The Learning Cell Scavenger Hunt Honors Biology

NAME \_\_\_\_\_

### Flinn Scientific Student Safety Contract



1. How should your work area be kept?
2. What behaviors are considered dangerous & prohibited in the lab?
3. What procedures/policies are you agreeing to by signing the student contract?
4. Why should you examine glassware before each use?
5. What is never removed from the laboratory?
6. Describe proper dress code in the lab.
7. Why do you think you should never return unused chemicals to their original containers? How is chemical waste properly disposed of?
8. What should you do in the case of any accident (spill, breakage, etc.) or injury (cut, burn, etc.) no matter how trivial it may appear?
9. In addition to yourself, who else must read and sign the safety contract?
10. What cautions must be exercised when using a gas burner?

### Lab Equipment Stations

1. Using lab equipment marked #1 transfer exactly 2.5 ml of red liquid into the glass beaker. Demonstrate this technique to your teacher to ensure correct methodology. Teacher will initial your paper to confirm proper usage. What should you do if you accidentally break the beaker?
2. Find one of the digital microscopes and **READ THE INFORMATION SHEET** for the digital microscope. After following the information sheet, calculate the total magnification by multiplying the ocular lens by the red objective lens. Next, sketch the field of view for one slide of your choice.
3. Find the digital probe station. **READ THE INFORMATION SHEET** and describe the uses and functions of the LabQuest 2. Follow the instructions at the station carefully and return all items to homeostasis before you leave the station. Record your data and answers here per instructions for this station.
4. When would you use lab safety equipment #4?
5. Find one of the digital scale stations and turn the scale on. Place the measuring boat on the scale and press "zero". Measure out 2.8 grams of salt and then place the contaminated salt into the waste beaker. What is the mass of the boat? Next, remove the boat and scale and describe what occurs when you rapidly wave your hands just above the scale. **NEVER PRESS DOWN ON THE SCALES.**
6. Find the lab equipment marked with #6. What is the name and function of this apparatus? Follow the instruction sheet and answer the questions on the sheet that accompanies this station.
7. Examine the item labeled #7. Follow the instructions on the information sheet.
8. When would you use lab safety equipment #8?
9. Identify the various glassware labeled #9.
10. Find the two lab items marked with #10. Which do you feel is potentially more dangerous and why?

### Becoming Familiar with Your Classroom

1. Find the following safety equipment in your classroom and describe the physical location of each:
  - Eyewash station
  - Safety shower
  - Broken glass container
  - Fire extinguisher
  - Goggles & Goggle storage center
  - Lab aprons
  - Possible exits
2. How many lab stations are in your classroom?
3. What instructions/diagrams are located in the clear, plastic envelope hanging by the front/exiting door?
4. How many student desks are in your classroom? Student chairs?
5. Where can you find the following classroom essentials:
  - Georgia performance standards
  - Essential questions
  - Trash can
  - Pencil sharpener
  - Student work displayed
  - Word wall
  - Extra supplies for activities/dry labs

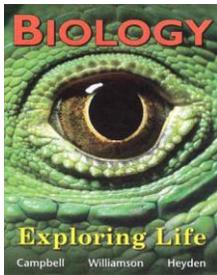
### Becoming Familiar with the Georgia Performance Standards

1. What do you think SB1 stands for? What does GPS stand for?
2. Which sub-standard requires you to compare the quantity of energy in the steps of an energy pyramid?
3. Which standard deals with the theory of evolution?
4. Which sub-standard states “compare and contrast viruses with living organisms”?
5. How many ScSh standards are there?
6. What is the difference between the ScSh standards and the SB standards?



### Becoming Familiar with your Textbook

1. Refer to page 9 to find out which kingdoms belong to Domain Eukarya.
2. What is the key concept for section 6.5?
3. Find figure 13.16. What is gel electrophoresis used for?
4. What page does the glossary begin with?
5. Find figure 12-10. Which trait is dominant and is the dominant trait shown in white or purple on the pedigree?
6. Find page 230. What are the two DNA pyrimidines and two DNA purines?
7. Find section 16.5. What is the review topic for this section?
8. What page will you find the difference between thigmotropism, phototropism and gravitropism? Define each.
9. What does figure 7-20 illustrate?
10. What topic is covered in Unit 2?



### Scientific Method – Bozeman Video



1. Describe the people associated with developing the scientific method.
2. Describe the key components of the Scientific Method.
3. What are the important characteristics of a hypothesis?
4. Compare and contrast independent variables, dependent variables and controlled variables.
5. What is a control group and why is it important?
6. Describe how data can be presented graphically.
7. Why is publishing research important?
8. Create your own question and hypothesis.
9. Design a brief experiment to test your hypothesis.

### Essential Characteristics of Life – Bozeman Video

1. What can the tree of life tell us? Name the three domains.
2. What other characteristics do all living things have?
3. Describe the genetic code and why it is important.
4. Define the central dogma and include a diagram.
5. Name two metabolic pathways.
6. What is ATP and why is it important?
7. How did cells become more complex?
8. Describe endosymbiosis.



### Biological Molecules – Bozeman Video

1. Name the four types of macromolecules.
2. What are biological molecules made up of?
3. What are the building blocks of each macromolecule?
4. What is dehydration synthesis and what does it create?
5. What is hydrolysis and what does it do?
6. What are the three parts that make up a nucleic acid and which components make up the backbone of DNA?
7. Describe the 5' and 3' direction of DNA and RNA and why this is important.
8. How many amino acids are there and what do they make? Describe each part of amino acids.
9. Different R-chains give proteins
10. What gives protein their structure?
11. What structure do all lipids have in common? And what are the characteristics of this structure?
12. Compare and contrast unsaturated and saturated fatty acids and give examples of each.
13. What makes trans fats bad?
14. List functions of carbohydrates.