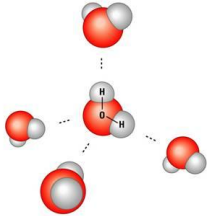


## Structure and Function

### Part A: Hierarchical Organization

1a. Define biology & define characteristics of living.

1b. State and describe properties of water that sustain life



1c. Describe four basic macromolecules that make up the basic cell

macromolecule	Function	Monomer (subunit)	Example

1d. Classify cells into four major types of tissues and their function in the human body systems.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_

### Part B: Homeostasis

2a. pH: Describe pH and importance of keeping a stable pH in cells.

pH is \_\_\_\_\_. Acid pH \_\_\_\_ Neutral pH \_\_\_\_ Base pH \_\_\_\_\_

pH scale difference between pH 1 and pH 4 is \_\_\_\_

### Part C: Science Practices/Investigation

#### 3a. Planning and carrying out investigations

Define the following terms and be able to identify them in an experiment: Independent Variable, Dependent Variable, Confounding Variable, Constant, Control group, and Experimental group.

#### 3b. Analyzing and interpreting data

Statistically analysis of data (Chi Square Analysis) – 2013 FRQ Q.1

In an investigation of fruit-fly behavior, a covered choice chamber (like the one used in our animal behavior lab) is used to test whether the spatial distribution of flies is affected by the presence of ripe bananas at one end and unripe bananas at the other end.

a) Predict the distribution of flies at 10 minutes.

The positions of the flies are observed and recorded every minute for 10 minutes. The positions of flies after 1 minute and after 10 minutes are shown in the table below.

DISTRIBUTION OF FLIES IN CHOICE CHAMBER

Time (minutes)	Position in Chamber		
	End with Ripe Banana	Middle	End with Unripe Banana
1	21	18	21
10	45	3	12

b) Perform a chi-square test on the data for the 10-minute time point in the banana experiment. Specify the null hypothesis that you are testing and enter the values from your calculations in the table provided.

c) Explain whether your null hypothesis is supported by the chi-square test and justify your explanation.