Biotechnology Rubric 2014- 2015

*Lab 6A: Bacterial Transformation*

Abstract
- (250 words summarizing the laboratory and the results)

Procedure/ Extension
- In 250 words, describe the procedure and expected results for two questions from the list below.

1. How does plasmid concentration affect transformation success?
2. How does bacterial concentration affect transformation success?
3. Can a salt other than CaCl2 be used for transformation?
4. How does transformation temperature affect transformation success?
5. How does CaCl2 concentration affect transformation success?
6. Is the 10 min ice incubation prior to heat shock necessary?
7. How does time at 42°C affect transformation success?
8. Is the ice incubation after heat shock transformation necessary?
9. Does the amount of LB broth added after transformation affect success?
10. Is 37°C the ideal temperature to grow the transformed bacteria?

Questions
- pg 43- 44 pt A Data Collection and pt B Analysis of Results

*Lab 6B: Gel Electrophoresis*

Procedure IDEA Candy Lab

Abstract
- 250 words summarizing the laboratory and the results

Procedure/ Results
- 250 words explaining what are some potential uses of this technology and what were sources of error in procedure
- Photo of Candy Gel with standards identified & candy dye components identified

Questions
- Focus Questions: All focus 8 questions including food color log for the week

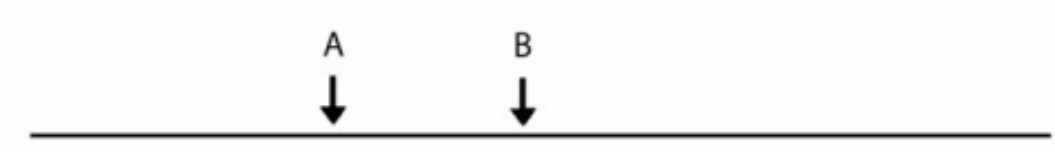
Restriction Enzyme

Abstract
- 250 words summarizing the laboratory and the results- use the gel photographs on the website for results

Procedure
- Review Questions after lesson 1
    1. Compare tube P to tube L; what do you expect to happen in the P tube compared to the L tube?

2. If the DNA in the L tube becomes fragmented at the conclusion of the reaction, what can you conclude?

3. Is there any visible change to the DNA after adding restriction enzymes?
4. If the DNA molecule has two restriction sites, A and B, for a specific restriction enzyme, how many fragments would be produced if the DNA is cut by that enzyme?



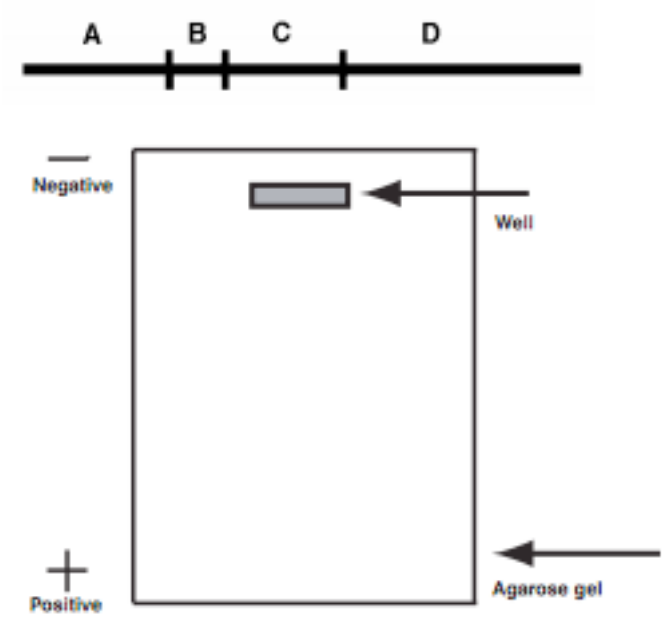

5. Number each fragment.

6. Which fragment would be the largest?

7. Which fragment would be the smallest?,

- Lesson 2

1. How you think the fragments might be separated. Label each fragment with its corresponding letter.




2. Where would the larger fragments, those with the greater number of base pairs, be located, toward the top of the gel or the bottom? Why?

3. Suppose you had 500 pieces of each of the four fragments, how would the gel appear?

4. If it were possible to weigh each of the fragments, which one would be the heaviest? Why?

5. Complete this rule for the movement of DNA fragments through an agarose gel.

6. The larger the DNA fragment, the …

There are no questions for Lesson 3.

Results
Graph and Table of restriction pages 42- 43
Use the following steps to fill in table and graph results

1. Using a ruler, measure the distance (in mm) that each of your DNA fragments or bands traveled from the well. Measure the distance from the bottom of the well to the bottom of each DNA band and record your numbers in the table on the next page.

2. Estimate the sizes, in base pairs (bp), of each of your restriction fragments.
Hint: Compare the distance that the unknown bands (lambda DNA, PstI digested, and EcoRI digested) traveled with those of the HindIII bands. Write the estimated sizes in the data table.

3. A more accurate way of estimating unknown DNA band sizes is to first construct a standard curve based upon the measurements obtained from the known HindIII lambda bands. Later in the analysis you will construct a standard curve and more accurately determine the size of each of the DNA bands