Internet Assignment: Gel Electrophoresis

Go to the following website and follow the instructions in the virtual lab, paying attention to the information on the right called **Stuff To Know**. You may need to click the yellow and red button that looks like this to proceed to the next step, otherwise follow the directions.

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ <http://www.scq.ubc.ca/files/VirtualLabDNA/vlabFrame.html>

1. What equipment is necessary to do the experiment
2. What you are doing is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What restriction enzyme does this experiment use?
4. What is the DNA you are cutting called, and what type of organism is it from?
5. In how many places does the restriction enzyme cut in this DNA?
6. How many fragments will this produce?
7. What volume of Restriction enzyme is added to our DNA?
8. What is the difference between a positive and negative control in general?
9. Which sample of our DNA acts as the positive control and which acts as our negative control?
10. At what temperature is the waterbath set?
11. Do all enzymes need to be put in a waterbath at this temperature? Explain.
12. Of our 2 samples, how many of them will be cut?
13. What process do we do to determine if our DNA was in fact cut up by our restriction enzyme?
14. What 2 new pieces of equipment are introduced here?
15. How many pieces of DNA would you expect to see from each of our samples? Explain
16. What is agarose?
17. Which pieces of DNA travel faster through agarose, large pieces or small pieces?
18. DNA will separate on the basis of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ where smaller things will travel \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the gel.
19. The driving force that propels the DNA through the gel is an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. DNA is very \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ charged. Consequently, we just need to make sure that the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ electrode is positioned at the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the gel.
20. How many controls did we use total?
21. What is the second control, and how does it work? Is it classified as a positive or negative control?
22. What items are necessary to stain a gel?
23. After staining, how many times do you have to rinse the gel with water, and for about how long each time?

Now Practice. Analyze the following results after running your gel 1 2 3 4 5 6

A

B

1) Does lane 5 represents a positive or negative control?

2) Which lane contains the smallest fragments of DNA?

3) Which lane contains the largest fragments of DNA

4) Which lane most likely represents a DNA ladder?

5) How does the DNA in fragment A compare in size to the DNA in

Fragment B?

7.) How many cuts does the restriction enzyme used in lane 4 make?

8) Did the restriction enzyme used in lane 3 work, explain?