FRED HUTCHINSON CANCER RESEARCH CENTER
SCIENCE EDUCATION PARTNERSHIP

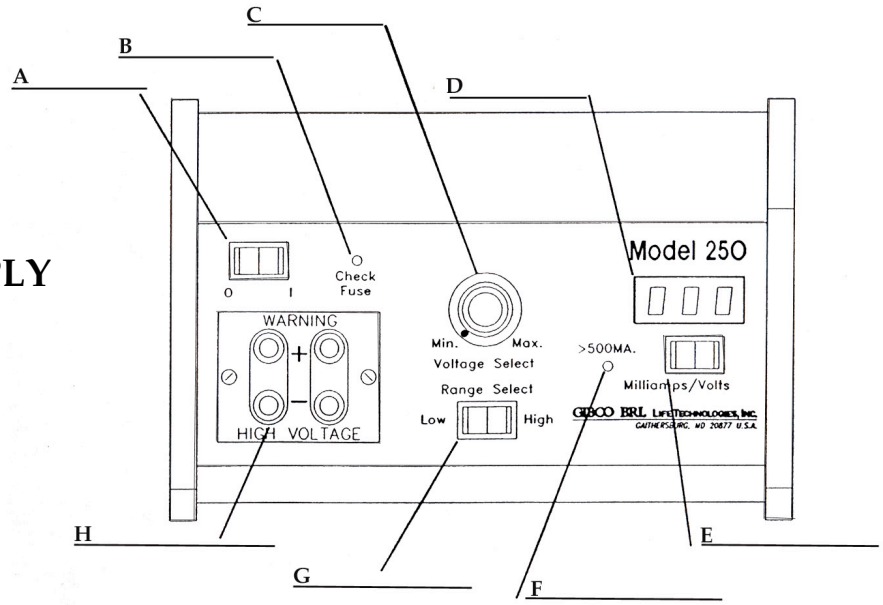
Name_____

Date_____Period_____

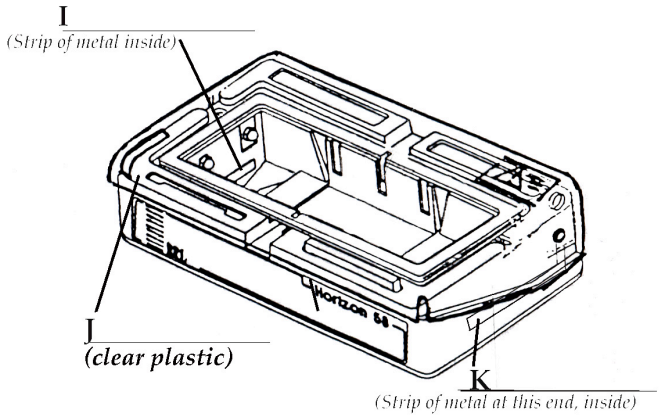
ELECTROPHORESIS EXPLORATION RECORD SHEET

Step 1 & 2:

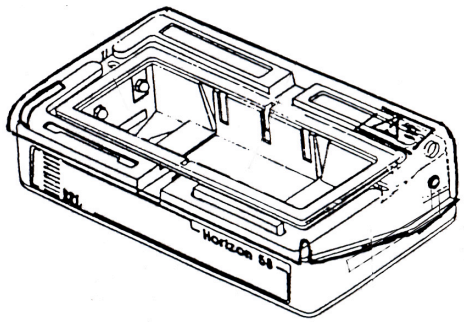
POWER SUPPLY



GEL BOX A



GEL BOX B



How do you know where to connect the electrical leads? Explain: _____

_____

_____

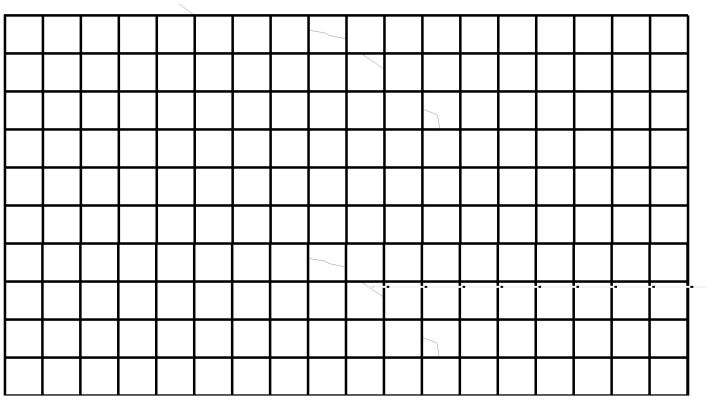
****IF TWO BOXES ARE CONNECTED TO ONE POWER SUPPLY, DIVIDE THE CURRENT SHOWN IN HALF TO GET MILLIAMPS PER BOX.****
DO THIS THROUGHOUT THE LAB.

STEP	GEL BOX CONTENTS	POTENTIAL (volts)	CURRENT (milliamps)	OTHER OBSERVATIONS (color changes, bubbles, pH, etc.)
4	Empty gel box (air only inside)	100 V		
6	Distilled water	100 V		
8	Distilled H_20 + NaCl 1 box connected 2 boxes connected	 100 V 100 V		
9	Distilled H_20 + NaCl a (Your choice) b c (Your choice) d e	 25 V ____V 100 V ____V 250 V		
11	Distilled H_20 + NaCl	100 V		cathode pH= anode pH=
13 /14	Distilled H_20 + NaCl + phenol red	100 V		cathode pH= anode pH=
15	1X TAE + phenol red	100 V		buffer pH =
16	1X TAE + phenol red	100 V		cathode pH= anode pH=

POSTLAB

1. Use your data to complete this graph.

   Note: use only the data from step 9 to create your graph!



Current (in milliamps)

Potential (in volts)

2. Summarize, in your own words, the relationship between voltage and current.

3. When and where were gases produced?

4. What was the source of the gases you observed?

5. What colors did the phenol red indicator turn when you added it to the salt water and let current flow for 3-5 minutes?

6. What did this color change (See Question 5) indicate about the pH in the gel box?

7. When you used buffer instead of salt solution, did you observe the same phenol red color changes as in Question #5? Explain.

8. What effect, then, must buffer have on the pH of a solution?

9. Explain the purpose of adding (a) salt and (b) buffer to the gel box.