

The DNA Chromatography Lab -

*This paper will NOT be turned in. Lab write up should be done in your lab book!

Purpose: To run a DNA gel for known and unknown markers, then determine which marker is made by which company. This is very similar to how DNA labs determine individuals within a population and also which species an organism belongs to.

Procedure:

Part 1: Creating the standard of comparison.

- 1) Obtain a piece of filter paper.
- 2) Measure 1 cm from the bottom and draw a line across the bottom with pencil.
- 3) Below the line, evenly space labels (A, B, C, D, E, F) for each of the pens you'll be testing.
- 4) Just above the line, make a dark dot with each of the pens above the correct label.
- 5) Using a graduated cylinder, measure 15 ml of water.
- 6) Pour water in the 100 ml beaker.
- 7) Place the filter paper, labels and dots down, into the water.
- 8) Record 3 observations as water rises up through the filter paper.
- 9) When the water reaches the top of the filter paper, remove the filter paper and set aside to dry.
- 10) When dry, staple filter paper on the back in the correct location.

Part 2: Determining unknowns

- 1) Obtain another piece of filter paper.
- 2) Measure 1 cm from the bottom and draw a line across the bottom with pencil.
- 3) Below the line, evenly space labels (1,2,3) for each of the unknown pens you'll be testing.
- 4) Repeat steps 4-10 above.

Results:

Observations

Part 1:

- 1.
- 2.
- 3.

Part 2:

- 1.
- 2.
- 3.

Filter paper

Part 1: Creating the standard of comparison.

Part 2: Determining unknowns

Staple filter paper here

Staple filter paper here

Questions: On a separate piece of paper each student will answer these questions thoughtfully, in complete sentences.

2. List the identification numbers of the pens you have chosen to test.
3. Match the results on your filter paper to the "key" filter paper and identify each by the letter. Write the letter next to the number below.

4. Which pens were the easiest to identify? _____ Why?

5. Which pens were the most difficult to identify? _____ Why?

6. What was the solvent in this experiment? _____ What did it do?

7. Were any of your pens insoluble? _____ How do you know?

8. Why did some pigments move farther than others?

9. Water is called the "Universal Solvent" meaning it can dissolve anything. Is this true? _____ Explain.

10. Why is the ink in these markers considered a mixture?

11. Is the ink a homogeneous or heterogeneous mixture? _____ Explain.

12. Why might chromatography be a useful technique in science?