*Lab: Paper Chromatography Lab* Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Your Task****:*** After completing the following lab, complete a lab report, including each of the following sections. You will likely have time to start your report while you are working.

**Problem:** Is the ink in a writing instrument a pure substance or a solution?

**Hypothesis:** Answer the problem and EXPLAIN your reasoning. What do you think you will see? (2 – 3 sentences)

**Materials:**

* List these from your textbook (p. 22)
* Be sure to include whatever your 2nd writing instrument is

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| *Cut out the Procedure and include it in your lab write-up* 🡪 | **Procedure:**1. Cut a piece of filter paper so that it is slightly larger than the width and height of the beaker. This will become your chromatogram.
2. Using a pencil, draw a horizontal line 1 cm from one end of the paper.
3. Put 2 large dots of ink on the filter paper along the horizontal line. Make sure that the dots aren’t too close to each other. One will be with the black marker, the other with a writing tool of your choice.
4. Pour water into the beaker to a depth of 0.5 cm.
5. Predict what will happen to the ink dots when you put the paper in the water.
6. Curve the paper so that it can stand up by itself in the beaker. Be sure the bottom edge is touching the bottom of the beaker. The line of dots should be just above the water. Do NOT allow the water to touch the line of dots.
7. The water will move up as it soaks into the paper. When the water almost reaches the top of the paper, take the paper out and place it on a paper towel. Allow it to dry.
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**Observations:** Record what you see happening. Consider keeping track of time and noting any changes in your paper. Attach a photo of, or your actual coffee filter to your lab.

**Analysis:**  Describe what happened. What did you see? Why did it happen that way? (4 – 6 sentences)

**Conclusion**: (3-4 paragraphs, 14-20 sentences)

What to include:

- Answer the problem and give your reasoning.

- Discuss if your hypothesis was correct. Why or why not?

- Was you lab accurate? What could have gone wrong to not make your results correct?

- What would make the lab more effective?

**Extension:** Answer the following question in a complete paragraph:

Chromatography has many uses, especially in the criminal justice industry. Explain how chromatography is used in the real world. Provide an example of a specific case.

**Lab Grading Rubric**

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| **Component** | **Description** | **Mark** |
| **Criteria****(1 mark)** | Does the lab have all required sections and formatting? |  |
| **Organization****(1 mark)** | Is the lab completed in an orderly and organized way? Is it a “good copy”? |  |
| **Hypothesis****(2 mark)** | * Does the hypothesis answer the labs problem?
* Is your hypothesis supported with scientific reasoning?
 |  |
| **Observations****(1 mark)** | Are your observations presented in an organized and meaningful way? |  |
| **Analysis****(2 marks)** | * Did you answer all of the questions from the pre-lab?
* Does you analysis simplify the observations? Are your results easy to understand?
 |  |
| **Conclusion****(5 marks)** | * Did you answer the problem?
* Did you address if your hypothesis is correct?
* Did you discuss possible errors in the lab?
* Did you discuss what improvements can be made to make the lab more effective?
* Did you answer all of the questions based on lab results and scientific reasoning?
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| **Extension****(2 marks)** | * Did you explain how chromatography is used in the world of criminal justice?
* Did you provide an example?
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| **Total:****(14 marks)** |  |  |