

**Did Pete Cheat?
Chromatography Lab**

Name _____
Date _____ Period _____

Purpose: To use chromatography to determine if Pete cheated on his taxes.

Background:

Pete Greer owns a computer business and has become quite successful in the last several years. To save money, Pete refuses to hire an accountant to help him file his income taxes. When preparing his taxes, however, Pete can rarely find the receipts that verify the deductions he has claimed as business expenses.

About a month ago, Pete received a card from the IRS notifying him that his income taxes for the last four years were going to be audited. Pete was instructed to gather all his supporting documentation and bring it with him to the IRS auditor's office.

Pete panicked and began collecting everything he could find. He found some of the receipts from the purchase of computer equipment for the new business. However, he could not find all of them. Pete was not sure he had all the documents he needed to back up the numbers he filed on his taxes. He considered changing the amounts on several of the receipts. He thought, "I'll use this black felt-tip pen and change some of those 3's to 8's. No one will ever know the difference. In fact, they may end up owing me some money!"

Did Pete change any of the numbers on the receipts that verify his business expenses? You are the forensic scientist who must answer this question.

Materials:

- 3 chromatography tubes
- water
- 3 samples of questioned document

Procedure:

1. Obtain three pieces of filter paper with ink samples on them. These three papers were taken from three separate locations on one of Pete's suspicious receipts.
2. Place the filter papers in the chromatography tubes by bending them slightly.

3. Carefully add water to each tube until it covers the bottom of the tube and makes contact with the pointed ends of the papers. Do not add so much water that it covers the ink marks on the papers.
4. Leave this beaker undisturbed until the solvent has dampened most of each piece of paper.
5. Remove the rod and the three pieces of paper. Place the three pieces of paper on a towel to dry.
6. Once dry, staple the three pieces of paper (which are chromatograms) to your Lab.

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Data: Staple one of the three chromatograms to the bottom of this page.

Conclusion Questions:

1. Did Pete change his receipts to keep from paying more money to the IRS.
Support your answer.
2. Is water always a good solvent in ink separation? Explain your answer.
3. How could a teacher use ink chromatography to determine whether or not a student has changed his or her answers after a test has been graded and returned?

STAPLE CHROMATOGRAMS HERE.