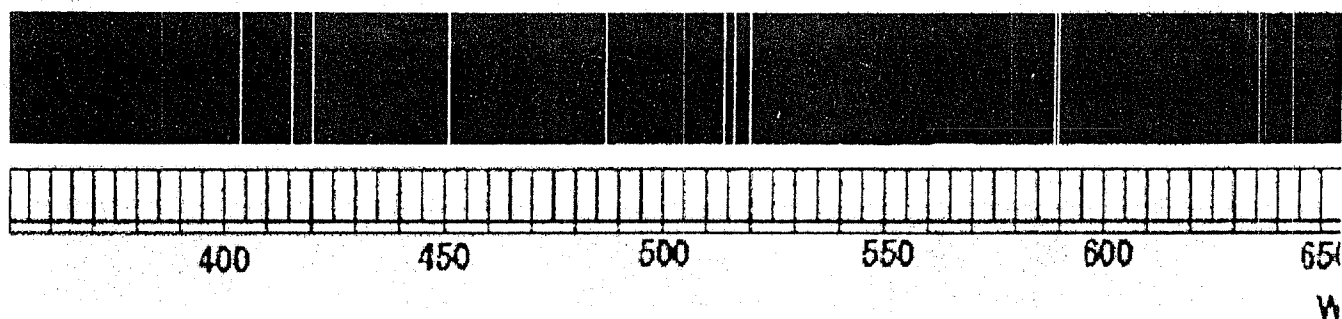


CHEMICAL DETECTIVE STUDENT ACTIVITY

You are a private eye who stays in business mainly by recovering lost dogs and the occasional runaway pet turtle. You have just learned that last night some devious criminal elements pulled a huge bank robbery. This could be your big break. Crack this case and you'll be famous!

You grab your diffraction grating and head to the scene of the crime. What is that strange glowing gas you see in the bank vault? Hold your breath, it's a clue. You look at the gas through the grating. The emission lines you see are like fingerprints. Now you can identify the criminal elements.

This is the "perpetrator spectrum":



Look at the visible light emission lines of the suspects, shown on the following page. Can you match the lines in the "perpetrator spectrum" to the elements whodunnit?

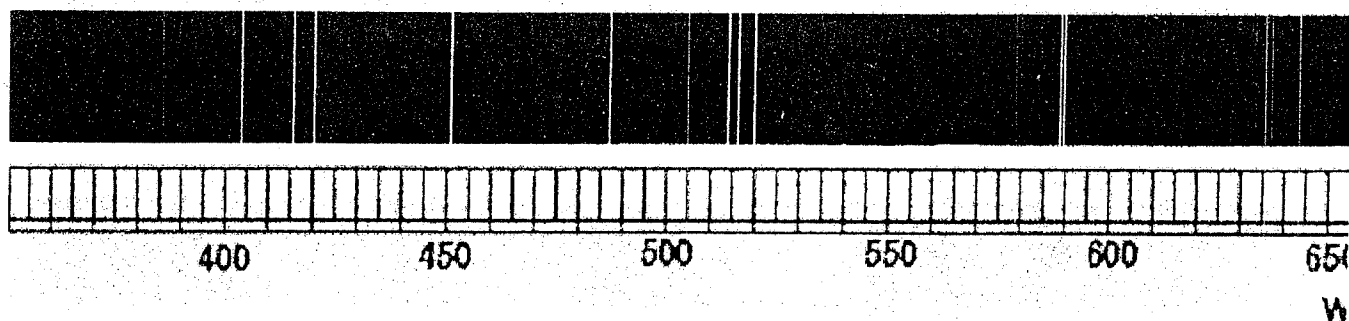
The president of the bank is offering a huge reward to whoever solves this case but is demanding hard evidence against the wrongdoers. Write a report to the president of the bank listing the names and aliases of the perpetrators and, most importantly, explaining in detail how you used techniques of spectroscopy to crack the case.

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