

# CARLOS THE CHEMIST

## FIRE FIASCO

Hello engineers! My name is Carlos and I am a forensic chemist! When I was in fifth grade, I loved reading mystery novels and watching detective movies. I was fascinated and knew I would love to learn more! I went to college and studied chemistry at Cal Poly. I was the first one in my family to go to college!

Chemistry is the study of what everything is made of. Chemists use the word “matter” to describe anything that takes up space, from water to your pencil to you! Chemists also study the changes that take place when certain substances are mixed together. They call these changes chemical reactions. Forensic chemists use their knowledge of matter and chemical reactions to solve crimes!

I work for a big detective agency and could use your help on a tricky case I was just assigned.. Last week, an old restaurant in town, First Street Diner, was destroyed in a fire. The owner, Fred, has told police that he thinks Sergio, the owner of Second Street Cafe, set the fire that burned down First Street Diner. Second Street Cafe is a new diner that opened across the street. The weeks before the fire, Fred and Sergio were always fighting because each felt the other was stealing business from their restaurants. I need your team's help to investigate what caused the fire at First Street Diner and who was behind it! Let's get started team, it's time to solve the fire fiasco mystery!

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Now that we are all caught up on the story, it's time to look into some new evidence! The detectives found fingerprints on the scene and need us to identify who they belong to. Move over to the fingerprinting lab area by **turning at a 45 degree angle** and **moving a distance on 30 at speed 25**. To identify the fingerprints, we need to dust graphite powder on them to clearly outline the prints. I need to **repeat** my **wiggle movement 3 times** to make sure the entire fingerprint is covered!

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The tests came back from our fingerprints and it seems that none of them were Sergio's. Interesting...only Fred's fingerprints were found. Well, let's look at our next piece of evidence; what seems to be a blank piece of paper. Even though it looks blank, traces of invisible ink were found on the paper! Change **all the lights to blue** and tilt **my head all the way down so -13 degrees** to be able to see the ink clearly. Now **repeat** my **swerving oval 2 times** to go around the ink to read what is there.

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Hmm... that secret message sure does seem suspicious. Looks like Fred hasn't been very honest with the story he told the detectives. We just discovered that he filed for property insurance just one month ago! This insurance says that if anything damages the First Street Diner, such as a burglary or a fire, Fred will be given half a million dollars to make up for his losses. This seems pretty fishy to me! Let's put the message in a preserving solution so the detectives can look at it later. I need to **turn at a -105 degree angle** and **move a distance of 50 at speed 25**. To preserve the letter we must let it soak in the solution and saturate it with light. **Set all of my lights to pink**, **wait 1 second**, **then blue**, **wait 1 second**, and finally a **random color**. Then, **turn at a 105 degree angle** and **move a distance of 30 at speed 25** to the next station.

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The detectives have sent me some ashes collected from First Street Diner's kitchen! To test the ashes using chemical reactions, I need to swirl the chemicals and ashes together. I need to **repeat a forward spin 3 times** to achieve the reaction. Finally, I need to move the chemical reaction into the fume hood to ensure that we won't breathe in any of the reactive gases. Help me **turn at a -135 degree angle** and **move a distance of 20 at speed 25**.

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The tests from the ashes came back and we found out someone poured gasoline all over the restaurant and lit it on fire! I told the detectives our findings and they revealed that Fred lit First Street Diner on fire himself and framed Sergio in order to get the insurance money; can you believe it?! Congratulations team, we solved the case of the First Street Diner fire fiasco! I am so grateful for all your help, I never would've been able to do it without you! If you all enjoyed helping me solve this mystery, you should really think about becoming forensic chemists yourselves! Who knows, maybe you'll be needing my help on one of your mystery cases in the future!