

## Chem Essential Questions

### What does it mean?

Chemistry explains a macroscopic phenomenon (what you observe) with a description of what happens at the nanoscopic level (atoms and molecules) using symbolic structures as a way to communicate. Complete the chart below in your *Active Chemistry* log.

MACRO	NANO	SYMBOLIC
Which properties of the element cards referred to observable properties that you could identify with your senses?	The elements in the periodic table are organized in families which exhibit similar chemical properties. At the Nano level, fluorine, bromine, and iodine are described as “diatomic,” meaning that these elements have two bonded atoms as elements. Do you think another member of the same family, chlorine, is also diatomic? Explain your reasoning.	Rather than write out the names of elements, chemists use symbols. Write down both the names and the symbols for at least three elements.

### How do you know?

What did you do in this activity that led you to a better understanding of deductive reasoning and matter?

### Why do you believe?

Explain a situation where you have used deductive reasoning in your life, outside of the classroom. Write a short paragraph explaining the scenario and the outcome of your reasoning.

### Why should you care?

Give an example of how you could use the properties of the elements in your crime scene for the *Chapter Challenge*. Be specific, referencing a particular element you could use.

## Reflecting on the Activity and the Challenge

Part of your task for the *Chapter Challenge* is creating a crime story for the crime scene you will design. Also, you must make sure that all of the evidence leads to the identification of the correct suspect and that the clues are not too easy or too difficult to follow. Think about how you can use your deductive reasoning skills to design a crime scene that meets all of these requirements.