

# Exercise 5.2c

## Criminal Element

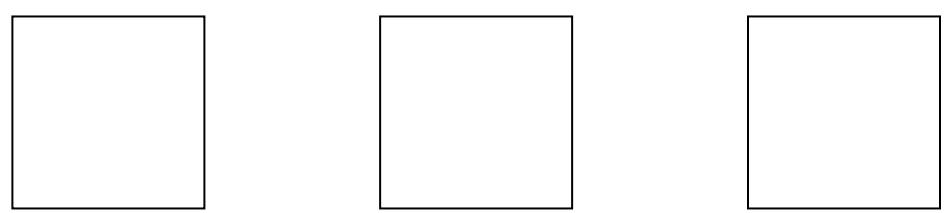
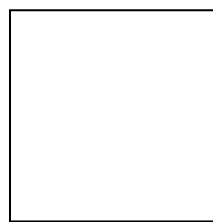
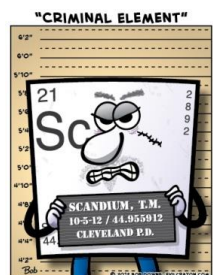
Name: \_\_\_\_\_

Date: \_\_\_\_\_ Per: \_\_\_\_\_

There is a criminal element hiding out on the periodic table that does not want to be located! It has used many aliases and found many places to hide, but has left a trail of clues for you to follow. Each clue is linked to another, so any errors will put you on the wrong path.

**DIRECTIONS:** Fill in the element's name for each clue.

1. Its first hideout was the *period-2* halogen: \_\_\_\_\_ .
2. Then it hid where the atomic number was equal to the number of valence electrons in the previous answer added to the modern group number of the noble gases: \_\_\_\_\_ .
3. Subtract the number of families in the *p-block* from the atomic number of #2: \_\_\_\_\_ .
4. Add the atomic number of #3 to the atomic number of #1, then divide by four to find the next hiding place: \_\_\_\_\_ .
  - a. Draw a 'mug shot' (Bohr diagram) and write an electron configuration at the bottom.
5. Find the lightest metalloid in the period equal to the number of negative particles in the second ring of the mug shot to catch the trail : \_\_\_\_\_ .
6. Subtract the atomic number of the alkaline earth metal in the period of #5 from the atomic number of the noble gas in the same period. This is the atomic mass of the latest hideout: \_\_\_\_\_ .
7. The atomic number of #6 plus the atomic number of the *period-2* noble gas is the atomic number that follows the trail: \_\_\_\_\_ .
  - a. Draw "mug shots" (Bohr diagrams) of the element and the two family members that come directly above it. Write the



\_\_\_\_\_ full (not abbreviated) electron configurations of each of these family members at the bottom of each box.

8. Add the valence electrons for all family members above and divide by 2 to find the mass of the latest sighting: \_\_\_\_\_ .
9. The family member of #8 in *period-5* is a clue to follow: \_\_\_\_\_ .
10. Subtract the atomic number of #9 from the atomic number of the *period-6* noble gas to find the atomic number of the next hideaway: \_\_\_\_\_ .
11. Divide the atomic number of #10 by the number of groups in the representative elements to find the next atomic number: \_\_\_\_\_ .
12. Add the atomic number of #11 to the number of groups in the *d-block* and subtract 2 to find its true identity:

Arrest Report	Bohr Model	Lewis Dot Diagram
Element Name:		
Family Name:		
Period Number:		
Block Name:		
Metal/Non-Metal/Semi-Metal:	Electron Configuration:	