

Name: _____

Periodic Table Transfer Task

Background: Walter White has devised a plan to communicate the name of his secret project to his accomplices, which will tell them which person will be in charge of the project. He only left a strange set of clues to them about different elements in the Periodic Table which will help them figure out where his sinister plot will be carried out. As a member of the CIA, you have been tipped to some of the cipher (code) that Walter uses. Also, you have been told it will occur at a State Capitol building. Using the directions below, determined by your brave, devoted, fearless, genius, awesome chemistry teachers, FOIL WALTER'S PLOT!!!! Determine at which state's capitol building the crime will be committed, and therefore, the accomplice who will be in charge of the crime!! Good luck!!

<u>Accomplice</u>	<u>Location</u>
Fred	Vermont
Agatha	Virginia
Arnold	California
Tony	New York
Billy-Bob-Ray	Arkansas
Sue-Ann	Alabama
Vivian	Florida
Blaine	Minnesota

Directions: For each of the following unknown elements, use the clues to determine the element being described. Along the way, please circle any multiple choices (shown in **bold**) and fill in any blanks within the questions. When you determine the element, write its element symbol in the box provided. When finished, rearrange the element symbols to decode Heisenberg's accomplice.

Element #1:

1. The radius decreases when an atom of this element forms an ion.
2. Unknown element has electrons in four energy levels.
3. Not a colorful compound or ion
4. Has a higher ionization energy than potassium

Element #2:

5. Contains five valence electrons in the ground state
6. Has properties of metals and non-metals
7. Has a higher electronegativity value than antimony

Element #3:

8. It is shiny and malleable.
9. It has an oxidation state of +1.
10. At STP, it is the solid with the smallest nuclear charge in its group.

Answers:

Metal/Non-metal

Period/Group: ____ (number)

1

Period/Group: ____ (number)

Type of element: _____

2

Metal/Non-metal

Period/Group: ____ (number)

3

Element #4:

- 11. Diatomic molecule at STP
- 12. In the halogen family
- 13. Solid at STP
- 14. Sublimes at room temperature

Element #5:

- 15. Atoms of this element form anions.
- 16. Is a diatomic molecule at STP
- 17. Located in a group that contains elements that exist as all three phases at STP
- 18. Highest electronegativity in the group

Element #6:

- 19. Nonconductor
- 20. Monatomic gas
- 21. 8 valence electrons
- 22. Highest shielding in its group for naturally occurring elements

Element #7:

- 23. Gains electrons when forming an ion
- 24. Has 6 valence electrons
- 25. Least metallic in its group
- 26. Diatomic gas at room temperature
- 27. Has two allotropes in our atmosphere

Possible elements: _____

Period/Group: ____ (number)

4

Metal/Non-metal

Possible elements: _____

Group: ____ (number)

Top/Bottom of group

5

Metal/Non-metal

Possible Elements: _____

Period/Group: ____ (number)

6

Metal/Non-metal

Period/Group: ____ (number)

Top/Bottom of group

Possible elements: _____

7

Combine the symbols of the unknown elements to solve the question:

____ 1 ____ 3 ____ 5 ____ 7 ____ 6 ____ 4 ____ 2

Who will commit the crime???? _____