

Chemistry 20 – Lesson 1
Alchemy becomes chemistry

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Part A: Fill in the blanks with the appropriate word or phrase:

1. An element is usually represented by a **chemical symbol**.
2. The modern periodic table was developed by Dmitri **Mendeleev**.
3. Vertical columns in the periodic table are called **families** or **groups**. Horizontal rows are called **periods**.
4. Common family names for the elements in group 1, 2, 17, and 18 are, respectively, **alkali**, **alkali earths**, **halogens** and **noble gases**.
5. The elements in groups 3 to 12 are referred to as the **transition elements**.
6. The most reactive metal is **francium** and the most reactive non-metal is **fluorine**.
7. **Boron, silicon, germanium, arsenic, antimony, tellurium or polonium** is an example of a metalloid.
8. SATP stands for **standard ambient temperature and pressure**.
9. In general, atomic mass increases from left to right and top to bottom on the periodic table. Not including the actinides and lanthanides, there are two places where the trend is reversed. These are: **cobalt to nickel** and **tellurium to iodine**

Part B: Write the name of the element which best matches the description.

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|---|-------------------|
| 1. The element that has atomic number 26. | iron |
| 2. The noble gas in period four. | krypton |
| 3. The atom in period two that forms an ion with a 3– charge. | nitrogen |
| 4. The non-metal that is a liquid at SATP. | bromine |
| 5. The element whose atoms contain 56 protons. | barium |
| 6. The alkali metal in period four. | potassium |
| 7. The alkaline earth metal in period five. | strontium |
| 8. The first of the synthetic (man-made) elements. | technetium |
| 9. The largest naturally occurring element. | uranium |

Part C: Use your periodic table to answer the following questions.

1. Complete the following paragraph with the correct terms.

The element called **chromium** has an atomic number of 24. Its symbol is **Cr** . When an atom of this element has a **atomic mass** of 52, the atom contains **24** protons and **28** neutrons. The most common ion charge of this element is **3+**.

2. Identify each element.

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|--|-------------------|
| (a) the element in group 5 and period 5 | niobium |
| (b) only halogen that is a liquid at room temperature and pressure | bromine |
| (c) alkali metal with the most massive atoms | francium |
| (d) synthetic element in period 5 | technetium |
| (e) nonmetal group 16 and period 4 | selenium |
| (f) alkaline earth element with the least massive atoms | beryllium |
| (g) noble gas that has atoms with 54 protons | xenon |