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U3L9 Report

4.

Generally, as the atomic number of a set of elements increases, their atomic radii also increases. An exception to this rule is Astatine, whose atomic radius is smaller than Iodine, despite having a larger atomic number than Iodine. Also, as the atomic number of a set of elements increases, their first ionization energy tends to decrease. The positive trend of atomic number to atomic radii might exist because as an element contains more protons, those protons also take up more space, therefore increasing the element's overall radius. The negative trend of atomic number to first ionization energy might exist because as an element contains more protons, it also contains an equal amount of electons in order to keep the element neutrally charged. Because of this, it requires much less energy to remove one electron and ionize the element. With the exception of Astatine, these relationships are consistent with the periodic trends I have been studying.

5.

Fluorine was discovered in 1886 by scientist Henri Moissan. I could not find where the element was discovered. Moissan electrolyzed a solution of potassium hydrogen difluoride in liquid hydrogen fluoride in an apparatus cooled to -50**°**C. As a result, isolated hydrogen formed at the negative electrode of the apparatus, and isolated fluorine was produced at the positive electrode. Fluoride is added to tap water and toothpaste to make the enamel in your teeth more resistant to lactic acid, the main cause of tooth decay. Artificial blood is also sometimes created with fluorine. These forms of artificial blood contain PFCs, or perfluorocarbons. PFCs are organic compounds where all hydrogen atoms have been replaced with fluorine. Artificial blood is used during surgeries to delay blood transfusions.