**Periodic Trends Worksheet Race – Answers**

1. What’s the most electronegative element? **Fluorine, because it wants to grab electrons more to be like the nearest noble gas, as you’d expect from the octet rule.**
2. What’s the least electronegative element? **Any of the noble gases would be an acceptable answer, as they all have no electronegativity. Again, the octet rule, which says that all elements want to be like the nearest noble gas, is at play because the noble gases have no reason whatsoever to change their number of valence electrons.**
3. What element in group 3 has the smallest atomic radius? **Scandium. Atomic radius increases as you move from top to bottom in the periodic table because the increased number of energy levels causes the atoms to be bigger.**
4. What halogen has the largest atomic radius? **Tennessine (Ts). Again, atomic radius is highest at the bottom of the periodic table.**
5. What element has the highest ionization energy? **Helium. Like all noble gases it has a high ionization energy, but since there is no shielding effect to help counteract this, it will tend to be hardest to pull electrons from.**
6. What element has the lowest ionization energy? **Francium. It’s very easy to pull electrons from it because a) It wants to lose electrons; and b) The shielding effect makes it easier to remove them than other elements.**
7. What charge will an oxygen ion have? **-2. “Minus” is fine at this point, though. Both reflect that oxygen wants to gain electrons to be like the nearest noble gas.**
8. What charge will a potassium ion have? **+1. “Positive” is fine at this point because it reflects that potassium wants to lose one electron to be like the nearest noble gas.**
9. Rank these elements by increasing atomic radius: Al, K, N, O. **O < N < Al < K. As you move left to right across the periodic table elements have smaller atomic radii, and as you move to the bottom of the periodic table they get bigger.**
10. Rank these elements by increasing electronegativity: Rb, N, Se, Sr. **Rb < Sr < Se < N. It should clear that Rb and Sr will have lower electronegativity than the others because they’re both to the left and lower than Se and N. Of Se and N, Se is less electronegative than N because N is much higher than it on the periodic table, while Sn is only one element further to the right**.