

**Elements and the Periodic Table** ▪ *Enrich***More Properties of Metals**

You have learned that each group of the periodic table has similar properties. For example, the metals of Group 1 are so reactive they don't exist uncombined in nature. The Group 2 metals are also quite reactive.

The table below shows atomic radius and reactivity of most of the metals in Groups 1 and 2 of the periodic table. The more reactive a metal is, the more stars appear in the reactivity column. The table also gives the atomic radius of these elements. Atomic radius might be new to you. You might expect atomic radius to be half the diameter of an atom. However, atoms don't have a definite surface, as a ball does. An atom's electrons form a constantly moving cloud around the nucleus. So, atomic radius is one half the distance between the nuclei of two identical atoms. The unit of measurement is the picometer (pm). One picometer is equal to 0.000000000001 meter.

**Group 1**

Period	Element	Atomic Radius (pm)	Reactivity Rating
2	Li	123	★★★★
3	Na	157	★★★★
4	K	203	★★★★★
5	Rb	216	★★★★★
6	Cs	235	★★★★★

**Group 2**

Period	Element	Atomic Radius (pm)	Reactivity Rating
2	Be	89	★★★
3	Mg	136	★★★
4	Ca	174	★★★★
5	Sr	191	★★★★
6	Ba	198	★★★★

*Examine the information above, then answer the following questions on a separate sheet of paper.*

- How does the atomic radius change as you go down Group 1 and Group 2?
- How does the atomic radius change as you go across each period, from Group 1 to Group 2?
- How does reactivity change as you go down Group 1? Does the same pattern hold for Group 2?
- How does reactivity change as you go across each period, from Group 1 to Group 2?
- What seems to be the relationship between atomic radius and the reactivity of the elements in Group 1 and Group 2?
- Francium is the Group 1 element of Period 7 below cesium in the periodic table. Infer how francium's atomic radius compares to cesium's. Is francium more or less reactive than cesium? Explain.