**Lesson 4: Iron and Steel**

Steel and iron are two of the most common materials used in the manufacturing industry. They are used to make a wide range of products and components. While iron and steel look similar, though, they are two unique materials with their own respective characteristics and qualities.

**What is Iron?**

Iron is a **lustrous** and ductile metal with the atomic number **26**. It has a chrome-colored appearance that reflects a significant amount of light. Iron is also a *ferromagnetic* metal, meaning it’s magnetic and attracts other ferromagnetic metals.

It’s important to note that iron is an essential mineral. Like vitamins, essential minerals are needed for proper nutrition. When consumed, iron supplies the human body with nutrients needed to make hemoglobin. The essentially mineral acts as a catalyst for the production of hemoglobin, which is a main component of red blood cells. If you don’t consume enough iron in your diet, your body won’t be able to make a sufficient amount of red blood cells, resulting in a medical condition known as iron deficiency anemia. Food sources rich in iron include beef, chicken, oysters, beans, lentils, fish, vegetables, bread and fortified cereals.

When iron comes in contact with atmospheric oxygen, it gets oxidized. It is a strong metal that’s cheap so for this reason is widely used in different industries, building parts , machine parts and automobiles.

**What is Steel?**

Steel, on the other hand, is a ferrous **alloy** consisting primarily of **iron and carbon**. Many people assume that steel is a metal, but this isn’t necessarily true. While it exhibits similar properties as metals, it’s technically classified as an alloy. Metals occur naturally as an element, whereas alloys consist of multiple mixed elements and components that aren’t found naturally as an element. You can find iron naturally as an element. In fact, it’s the most abundant element on Earth. But you won’t find steel anywhere in Earth’s outer or inner core, as it’s a man-made alloy that requires mixing iron and carbon.

All steel contains iron, but it also contains **carbon**. The addition of carbon is what distinguishes iron from steel. By weight, steel contains about 2.14% carbon. Although that’s a relatively small amount of carbon, it results in significant physical changes. Steel, for example, is both harder and stronger than pure iron. And unlike iron, steel isn’t an essential mineral. You don’t need to consume steel as part of your diet.

The primary difference between iron and steel is that the former is a metal, whereas the latter is an alloy. Iron is simply a metal element that occurs naturally on Earth. In comparison, steel is a man-made alloy that’s made by mixing iron and carbon together.