Review Lab #1 Elements

Titanium

Find Titanium on your periodic table. Note how many protons it has (that matches the atomic number). See the electron configuration, if you add up those electrons, it matches the atomic number (how cool). The MASS we round to the nearest whole number, and by subtracting the number of protons from that mass, we get the number of neutrons (in the most common isotope).

Titanium is very, very tough and inflexible. Try to bend it (with JUST your fingers and not the table top. It's a bit duller now, because of a thin layer of titanium oxide (which one? We don't know in our class room, but it must be Titanium (II) or (III) or (IV)!.

It's still a silvery metal (shiny even, which means it is LUSTEROUS), and like most metals is a conductor of electricity and heat. This one is not as malleable compared to softer metals, but the general rule is that metals are malleable and ductile too (that means they can be drawn into wires). Malleable and ductile imply they are shape shifters.

Review Lab #1 Elements

Silver

Find Silver on your periodic table. Silver is a "precious" metal because it's one that does not oxidize well (react with oxygen). Iron rusts, copper turns green, the titanium gets grey.
Silver (and gold, platinum, palladium and a few others) hardly tarnishes, so it looks good for a long time. That's why people think these metals are "precious" and valuable.

Silver is a transitional metal, but it only makes ONE type of cation. No roman numerals in silver compounds.

It's a great conductor of heat and electricity too. It's very soft and very malleable. Jewelry of silver is NOT PURE, the pure silver is too soft and too easily bent. It's a great metal for wires, it conducts electricity very well. Real "silver ware" that you eat with at your grandmother's house is not pure either.

A pure silver knife would bend on a decent steak when you tried to cut the steak up!

Review Lab #1 Elements

Silicon

Find Silicon on your periodic table. This element is considered to be a nonmetal because it's on the right side of the staircase, but since it TOUCHES the stairs, it is also a METALLOID.

Metalloids are sometimes called semi-metals. These elements have most of the properties that you would expect (for metals or nonmetals) but usually have some properties from "the other side of the staircase".

For instance, silicon should not be able to conduct electricity, but it does so very well. When melted and turned into a sheet, silicon exhibits a strong luster. As a nonmetal it is still brittle (breaks when pounded) and it does not conduct heat well either. It is lustrous and conducts electricity very well (weird!)

9 atoms touch the staircase, but 2 atoms (note the dog food can now), aluminum and polonium (Al-Po) are pure metals but by exception, touch the staircase. These elements never got the memo to line up better in a table. That means there are 7 Metalloids, tell your lab partner what they are now.

Review Lab #1 Elements

Sulfur

Find Sulfur on your periodic tables. Note it's on the right side of the staircase, which means it's a NONMETAL. As a nonmetal, sulfur is NOT malleable or ductile, instead, it is brittle. This yellow "rock" is how sulfur exists in a pure state, but can easily be ground into a powder. Sulfur is NOT ductile, nor can it conduct electricity nor can it heat up well.

Nonmetals make anions, nonmetals are brittle (except when they are gas elements!), and they do not conduct heat or electricity.
They are pretty much OPPOSITE the metals.

As is with all elements, the MASS is the sum of protons plus neutrons in the nucleus. Round the mass to the nearest whole number. The electron count matches the atomic number, as the positive protons always equal the negative electrons. All atoms are NEUTRAL.

Touch, but don't eat the sulfur.