



Ni Nickel 28	Cu Copper 29	Zn Zinc 30	Ga Gallium 31	Ge Germanium 32	As Arsenic 33	Se Selenium 34	Br Bromine 35	Kr Krypton 36
Pd Palladium 46	Ag Silver 47	Cd Cadmium 48	In Indium 49	Sn Tin 50	Sb Antimony 51	Te Tellurium 52	I Iodine 53	Xe Xenon 54
Pt Platinum 78	Au Gold 79	Hg Mercury 80	Tl Thallium 81	Pb Lead 82	Bi Bismuth 83	Po Polonium 84	At Astatine 85	Rn Radon 86
Ds Darmstadtium 110	Rg Roentgenium 111	Cn Copernicium 112	Uut Ununtrium 113	Fl Flerovium 114	Uup Ununpentium 115	Lv Livermorium 116	Uus Ununseptium 117	Uuo Ununoctium 118

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The periodic table of tech

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Oct 26, 2012 3:00 AM [SINGLE PAGE](#)

You're probably familiar with the periodic table of elements, which adorns the wall of every high-school science classroom. This comprehensive table charts elements by categories and characteristics, and even leaves room for synthetic elements yet to be created. The elements are the basic building blocks for chemistry, scientific development, and the entire universe.

But beyond the chemistry lab, most elements appear in everyday tech gear, too. We've researched each element to learn more about its properties and typical uses, and found common products that spawn from that element. From iPhones to microwave ovens, from alkaline batteries to camera lenses, and from hybrid-car fuel cells to plasma HDTVs, everything starts with elements. Here's the breakdown.

PERIODIC TABLE of TECH ELEMENTS
 All of your tech gear starts with science. Check out this table to see which elements contribute to popular products.



1. Hydrogen is a major component in the fuel cells of some vehicles, such as the [2007 Mazda Premacy Hydrogen RE Hybrid](#).

2. Helium serves as a cooling agent for such common products as the [Bulldozer CPU](#), and it helped to cool a CPU that broke the overclocking world record.

3. Lithium is found in batteries for small electronics. For instance, lithium-based batteries are found inside the [Apple iPhone 5](#).

4. Beryllium is used in the manufacture of high-frequency speaker drivers. Occasionally products will be marketed as containing beryllium, yet they may not. You'll most likely find beryllium in high-end home applications, such as the [Pioneer S-4EX speaker system](#).

5. Boron, like silicon or germanium, is a common *doping agent* in semiconductors. In English, that means small traces of boron are added to other elements to alter their properties. This is a crucial step in the production of CPUs such as the [Intel Core-i5 quad-core desktop processor](#).

6. Carbon: PC makers frequently use carbon fiber in laptop chassis designs because it is lightweight, and improved manufacturing techniques are reducing the cost and time necessary to make this material. The [Lenovo ThinkPad X1 Carbon](#) laptop has a carbon-fiber shell.

7. Nitrogen acts as a cooling agent in some extreme cases, particularly in [overclocking a PC](#)—the process of pushing your computer components harder and faster than the manufacturer designed them to go. If you're planning to do some extreme overclocking, you're going to need to buy special equipment for using liquid nitrogen with your PC.

8. Oxygen is used in the production of pretty much everything, but its liquid form is used to make polyethylene terephthalate, or [PET](#). Many screen protectors for touchscreen smartphones and tablets, like [BodyGuardz Classic screen protectors](#), are made of PET.

9. Fluorine reacts with glass and acts as an etching chemical, removing unwanted film buildup in glass production. It's used in the production of LCD desktop monitors and TVs, including the line of [Kyocera Display TFT](#) monitors.

10. Neon: Back in the 1920s, the first commercially available television sets contained neon in their TV tubes. Today, neon is found in plasma TVs such as the [Panasonic Smart Viera Plasma HDTV](#), Class ST50.

11. Sodium: Alternative energy production methods use sodium-sulfur batteries. The town of [Presidio, Texas](#), uses a large sodium-sulfur battery as the emergency backup energy source.

12. Magnesium is a strong metal and commonly serves as a construction material. The new [Microsoft Surface RT](#) contains magnesium.

13. Aluminum is a strong, light metal, and is optimal as a construction material. [Apple's MacBook Pro line](#) features an aluminum unibody design, as does the [Samsung Series 7](#) notebook.



14. Silicon: CPU makers construct their chips using silicon as a "scaffolding" of sorts, and they dope certain other parts of silicon with small quantities of other elements to make it more susceptible to conducting electricity. Intel offers a cool infographic that shows [how a CPU is made](#); it all starts with sand, which has a high percentage of

silicon dioxide.

15. Phosphorus is commonly used in fluorescent light bulbs.

16. Sulfur: As listed under sodium (11), sodium-sulfur (NaS) batteries play a role in alternative energy production methods. [Tokyo's power plants](#) used NaS batteries to generate additional power during the peak summer energy demands in 2010.

17. Chlorine: According to the [Dow Chemical Company](#), chlorine technology is used in the manufacturing of memory cards.

18. Argon can glow either bright blue or bright green, so argon ion lasers are a common feature in laser light shows.

19. Potassium: Potassium bromide (potassium combined with bromine) acts as a black-and-white film-developing agent in film photography. It improves the differentiation between exposed and unexposed crystals of silver halide, and thus reduces fog. You can purchase potassium bromide as [developer formula](#).

20. Calcium: [Calcium fluoride lenses](#) reduce light dispersion in photography, in a method that was introduced in the 1960s. The [Canon EF 17-40mm f/4L USM Ultra-Wide Zoom lens](#) is calcium fluoride-based.

21. Scandium is used in the bulbs in metal halide lamps, which produce a white light source with a high color rendering index that resembles natural sunlight. These lights are often appropriate for the taping of television shows.

22. Titanium, a strong metal, serves as a tech construction material. The old [Apple PowerBook G4](#) had a titanium edition made of this metal.

23. Vanadium: Although rechargeable vanadium redox batteries haven't caught on commercially yet, they are acclaimed as being instrumental in renewable-energy plans.

24. Chromium is a transition metal and has a variety of industrial uses due to its toughness and its high resistance to heat and corrosion. Vinyl-record lovers should note that [RCA Victor record player needles](#) are based on chromium.

25. Manganese is essential to the alkaline battery. Such batteries work due to a reaction between zinc and manganese dioxide. Any common alkaline battery—such as those of the Duracell and Energizer brands—has manganese.

The periodic table of tech

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