

Your Home— It's All Built on Chemistry

from **Celebrating Chemistry**



Think about the rooms in your home, like the bedroom, bathroom, and kitchen. How much chemistry can be found in them? It's everywhere! In fact, your home is built out of materials made possible by chemistry. From the concrete in the foundation to the shingles on the roof, from the fiber in the carpets to the insulation in the walls, and from the counters in the kitchen to its pipes and cabinets, chemistry is essential to the structure and contents of your home.

What do wood and carpet fibers have in common, aside from being materials that are in your home? They are polymers! Polymers are tiny chemical units that are hooked together to form very long chains. "Poly" means many and "mer" means part. Together the word polymer means "many parts".

Wood is an example of a natural polymer called cellulose. It is found in the lumber used to build the frame structure supporting your home, in the cabinets in your kitchen, or your hardwood floors. The furniture and some of your toys may be made from wood, too.

Polymers can also be made in laboratories by chemists. These polymers are known as synthetic polymers. One example is nylon. Nylon can be in many items around your home, but the most likely place to find it is in carpet.

Another synthetic polymer that builders are using more and more is a plastic material called polyvinyl chloride or PVC for short. You may also hear it referred to as "vinyl". PVC, or vinyl, is flexible, strong, and can be used in a number of ways around the home. For instance, you can see it as house siding, window framing, and kitchen flooring.

Another reason vinyl is becoming popular is that it can be made to look like wood, clay, concrete, bricks, and other materials. It is less expensive and is mainly used to replace the real material for decorative reasons—though sometimes people choose vinyl because it is lighter in weight or requires less maintenance than an actual tile or wood floor, for example. So next time you see window shutters or knock on a front door, investigate to see if it is wood or vinyl.

Are all materials in the home made from polymers? Even though it may seem like it, the answer is no. The glass used in windows and mirrors is a mix of silicone dioxide and limestone. From glass, manufacturers make a material called fiberglass. It can be found in insulation and shower doors and stalls.

Metals are found throughout the home too. Common examples are copper and nickel. Most builders today use PVC instead of copper for plumbing, but many older homes still have their copper, and luxury houses may use this distinctive metal on their roofs. You may also spot some copper-bottomed pots and nickel-plated faucets in your kitchen. Look at the chart on page 2 to see other metals that are in your home.

Ask your teacher how chemistry is found in the home. After you have finished reading and doing the activities, ask your teacher or family members about where else chemistry can be found in homes. It is amazing how much you can learn from talking to people—and with your own new knowledge about chemistry and the home, perhaps they will be learning from you, too!



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ELEMENT	WHERE YOU MIGHT FIND THE ELEMENT IN THE HOME
Al Aluminum	Foil, window frames, doorknobs, cookware, cans, refrigerators, siding
B Boron	Glass, insulation, soaps and detergents
Cu Copper	Wires, tubes, cables, pipes, stoves
Au Gold	Stereo, jewelry, telephone
Fe Iron	Metalwork, gates, stoves, combined with other metals and carbon to make steel
Li Lithium	Batteries, ceramics/pottery

ELEMENT	WHERE YOU MIGHT FIND THE ELEMENT IN THE HOME
Ni Nickel	Knives, forks, spoons, rechargeable batteries, clocks
Ag Silver	Photographic film and paper, jewelry, mirrors, wiring, silverware
S Sulfur	Paints, rubber products, batteries
Ti Titanium	White paints, toothpaste, enamel finishes, bicycles
W Tungsten	Light bulbs, paints, TV
Zn Zinc	Washing machines, cameras, coins, batteries, gutters

