

# Chemistry Is All Around Us !!!

from **Celebrating Chemistry** 

**I**ntro: In the city scene below, do you see a sport that you play or that you like to watch? Go through the streets on this page and read about the materials used in the sports gear that you or

athletes may use. If your favorite is not mentioned, ask your teacher or family member to help you investigate the chemistry behind the sport. Discover that chemistry is all around you!

**1. Boxing**—Fighters generally use an instrument called an *enswell* (or “end-swell”) to help reduce swelling from hits to the eye area. It is usually made of aluminum or other metal alloy, and can be easily cooled on ice.

**2. Track and Field**—Most world-class tracks are composed of natural and synthetic rubbers. They are easier to maintain than the clay surfaces used 40 years ago and have allowed athletes to run at faster speeds.

**3. Volleyball**—The sand used in beach volleyball is made of silicon dioxide, but it also contains particles of other chemical elements such as gold and aluminum. Most nets are made of polyethylene.

**4. Cycling**—Bicycle tires are either natural or synthetic rubber mixed with carbon black. Rims and frames can be made from traditional steel to aluminum, titanium, and carbon fiber.

**5. Swimming**—Chlorine is the chemical most often used to keep swimming pools free of bacteria. Chlorine kills bacteria, can be used as a cleansing agent, and also works to rid pools of algae.

**6. Bowling**—Bowling balls today are covered with polyester, urethane, or resin, also called reactive urethane. Inside is either a dense plastic or ceramic core for weight.

**7. Soccer**—Soccer balls are made from synthetic leather, usually either polyurethane or polyvinyl chloride (PVC). Even after many kicks and hits, the synthetic material allows the ball to keep its shape.

**8. Baseball**—Helmets are made from a very hard plastic called acrylonitrile butadiene styrene (ABS). It is crack-resistant, which safeguards players from high-speed pitches and other collisions that may occur during a game. Inside the helmet are soft plastic foam pads of ethylene vinyl acetate or polypropylene that protect a player’s ears.

**9. Gymnastics**—Gymnastics equipment begins as some form of plastic. For instance, vaults and pommel horses contain polyethylene plastic foam to help absorb shock. Gymnasts often use a magnesium carbonate powder on their hands to help prevent slipping from the bars and other equipment.

**10. Tennis**—The primary material used in today’s tennis racquets is graphite, a combination of carbon fiber and plastic resin that makes a light, stiff, powerful racquet. Most players use strings made of nylon or polyester.

