

# The Life Cycle of a Soccer Ball



Soccer—the most popular sport in the world—is played by people young and old in countries near and far. Whether you play on a school team or with friends on the weekends, you know that what makes the sport so great is that you can play anywhere; all you really need is open space, teammates, and a ball. And while that may appear simple enough, the making of a soccer ball isn't quite as simple. Have you ever wondered how soccer balls are made and what happens to them when you're finished playing with them?

As with any product, making a soccer ball uses natural resources and energy, which can impact the air, land, and water.

Follow the life cycle of a soccer ball on this poster to learn more about how it is made and how you can help reduce its environmental impacts. Understanding this life cycle can help you make environmental choices about the products you use, and how you dispose of them.

## Fast Fact

In most parts of the world, soccer is called football, or fútbol.



## Gathering the Materials



Soccer balls are made from a variety of raw materials that come from the Earth. For example:

- Crude oil and other materials extracted from the Earth are used to make various kinds of plastic and polymers, including polyurethane (PU), thermoplastic polyurethane (TPU), butyl, and silicone.
- Natural latex rubber is extracted from plants.
- Glue is made from natural substances such as natural rubber, animal bones, fish, starch, milk protein, or casein, or from cyanoacrylate, a clear plastic invented by Dr. Harry Coover.
- Cotton is picked from plants, which grow throughout the United States and other countries.

## Preparing the Materials



Most raw materials must be processed before manufacturers can use them to make products. For soccer balls, this means converting raw materials into usable plastics and other materials.

The **cover (surface)** of most soccer balls is visible to everyone. It may be patterned with black and white hexagons or a variety of different colors.

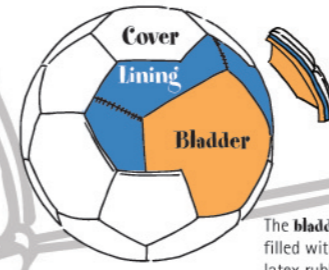
- The surface of soccer balls is made from synthetic leather or rubber, which is typically made from plastics such as types of polyurethane.

**Stitching** or glue holds the hexagon panels of the surface together.

- Some balls are stitched together using polyester or similar thread, while other balls use glue to hold the panels together.

The **lining** of a ball plays an important role in its strength, structure, and bounce. Layers of lining are placed between the cover and bladder to make sure the thickness of the ball is the same throughout the panels.

- Lining is composed of polyester and/or cotton bonded together.



The **bladder** is the inside part of the ball that is filled with air and is typically made from natural latex rubber or butyl (plastic).

- Bladders made from natural latex rubber provide the softest feel and proper bounce from the ball.
- Bladders made from butyl can hold air longer and retain the ball's shape better than bladders made from latex rubber.

## Putting the Pieces Together

Although soccer balls can vary in size, weight, and quality, the process to make them is similar:

- Surface material is rolled out—usually several layers of synthetic foam-filled panels are glued (laminated) together to make a strong, yet smooth exterior.
- The lining, made of multiple sheets of fabric, is glued to the cover. The lining goes between the cover and the bladder to provide shape, feel, control, and structure. Balls can have up to four layers of polyester and cotton lining—the more layers, the better the shape and durability of the ball.
- Panels are cut into the exact number needed to make one ball. The number of panels varies for each design.
- Exterior panels are silk-screened with graphics or logos, with each panel printed separately. After printing, the material may have another layer of clear urethane (or other clear plastic substance) applied for protection.
- Holes are pre-punched in each panel and the ball is either hand-stitched or machine-stitched with a polyester thread. A hand-stitched ball takes one person approximately 1.5 hours to sew. A machine-stitched ball takes approximately 10 minutes to be stitched together by many workers.
- The stitched ball is reversed so none of the stitches will show and the bladder is inserted and inflated.
- Soccer balls that are used for professional play or those that include the seal of approval of a soccer organization go through a series of tests performed by an independent laboratory to ensure quality of performance.

## Getting the Soccer Ball to You



## Fast Fact

The first international soccer match took place in 1872 between Scotland and England.

## Using the Ball



- Do:**
- Check the air pressure frequently to maintain proper pressurization.
  - Remove excessive dirt with a damp cloth and mild soap.
  - Play on soft, smooth surfaces, such as grass or turf.

- Don't:**
- Use harsh chemicals for cleaning.
  - Play on hard or rough surfaces such as gravel, asphalt, or concrete.
  - Play with a wet ball during freezing temperatures.
  - Stand or sit on your soccer ball.

Soccer balls come in a variety of different sizes for different age groups, so choosing the right size can impact how you play. In addition, the higher quality soccer balls will likely last longer than cheaper, lower quality balls. One way to ensure quality is to look for a soccer organization's "approval" imprinted on the ball. These designations let you know that the ball has passed tests for proper shape, balance, bounce, and other requirements at an independent laboratory.

Taking good care of your soccer ball will increase its useful life.

## Tip

When you buy a ball, try putting a few drops of silicone oil into the valve. The oil will help the ball retain air, and make it easier to insert the needle when refilling it.

## Getting Rid of the Ball

Disposal is a dead-end option. If you can reuse a soccer ball instead of throwing it out, you can save resources, save energy, and prevent pollution.

Recycling a soccer ball is difficult because most of the materials used to make a ball are glued, stitched, or printed and cannot be separated out for recycling. Wondering what to do with your soccer ball when you are done with it? There are two options: reuse it or throw it away. Which one is better for the environment?

### Share your love of the sport.

- Donate your used soccer ball to an organization that sends the balls to children who cannot buy their own.
- Donate your soccer gear—shin guards, cleats, or clothes—that you've grown out of or no longer need (see "Global Gear Giveaway" on the back of this poster for more information).

- Organize a "swap" day at your school, camp, or soccer club. Swap your gear for something "new!"

### Get Creative.

- Hang your old soccer ball from the ceiling of your garage to mark where the car should stop. The soft ball won't harm the car and may help prevent you from hitting a wall, shelf, or other item in the garage.
- If your ball just won't hold air anymore or is too beat up to be donated, you can give it to your dog or a neighbor's dog as a chew toy. Larger dogs, in particular, love old soccer balls.

# 6

## Reuse

