

Six Pack Rings Museum Show Procedure:

The goal of this demonstration is to show properties of polymers. Polymers are made from long chains of molecules called “monomers.” What the monomers are made from and how they are arranged can change the properties of the polymer.

Materials Needed:

- Several store quality six-pack rings
- Photodegraded six-pack rings (six pack rings that have become brittle when exposed to UV light from the sun)
- Large plastic bag with a sealable top
- White Velcro strips with snaps on the ends (soft, “fuzz” side)

Six Pack Rings Museum Show:

Set-up:

1. Define the word polymer as a long chain of molecules. Tell that that this long-chained molecule is a molecule that repeats itself. If there is more than one visitor present, have them link arms and tell them that by linking themselves together, they went from being monomers to a polymer chain.
2. Hand out the white Velcro strips with snaps on the end and ask the museum guests to make polymers from the Velcro strips.

Demonstration:

1. Show the visitors the store quality six pack rings. Ask the visitors’ questions about the six pack rings such as what do they look like? What are they made from? Is it a plastic? What is a plastic? What happens when you bend or fold the six pack rings?
2. Ask for a volunteer to stretch the plastic ring apart and try to break it. While they are stretching it, point out that it is not easy to break the six pack rings because the polymer chains are tough and holding the shape of the six pack rings.
3. When the six pack ring is broken, you may actually see “strings” of plastic. These “strings” are actually the chains of plastic molecules. (Plastics are polymers). All of the “strings” hold together to make the finished plastic to hold soda, water, etc. together.
4. Because the six pack ring is tough to break, ask the visitors to think about why this could be bad? Have they ever seen pictures of animals caught in six-pack rings? Also, have they ever seen six-pack rings as litter?
5. Finally, take the photodegraded six-pack rings and show them to the visitors. Ask them to notice differences between the two types of six-pack rings. Ask one of the visitors to try to break the rings, it should snap easily. Explain that ultraviolet light in sunlight breaks some of the bonds in the polymer chain. This allows the chains to fall apart easier and the six-pack rings to break! Every six-pack ring made in the United States since 1988 is photodegradeable.