Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_\_\_\_\_ Chemistry II **Life Cycle of a Polymer**

Polymers are an important category of “designed molecules” in the 21st century. A polymer is a large molecule composed of 500-20,000 or more repeating units called monomers. Many of the polymers we use today are produced from oil or natural gas, called **petrochemicals**.

**Learning Targets:**

* I can describe the life cycle of a polymer and identify everyday items that are made from petroleum-based polymers.
* I can describe the relationship between a polymer and the monomers from which it forms.

**Polymer Properties:**

With your team, examine the container of polymers. Find a way to sort the polymers into several (3-4) categories.

1. Describe your sorting strategy. What categories did you choose?
2. Describe the general properties of each category and what it is probably used for.

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| **Polymer Category** | **Properties** | **Potential Uses** |
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**The Life Cycle of a Polymer:**

Your team will be assigned a plastics code or category from 1-7. Use the internet or other resources to answer the following questions about the polymer resin referred to by your code or category. Be prepared to share your results with the class in a **creative display and short presentation**—make a butcher paper poster.

1. List your assigned code and the name of the polymer to which it refers.
2. Draw the structural formula of the monomer that forms your polymer.
3. List some common applications of your product. Bring in a sample of the material for your presentation. You might have to assign a courageous teammate to do some dumpster diving.
4. Is this material recycled in your town? Check the recycling information sent out by your local garbage collection company, or by Waste Management. The Waste Management web site has lots of useful information on recycling. If the plastic is recycled, how is it done?
5. What products can be made from this polymer after it is recycled?
6. If it is not recycled, then how is this material disposed of?