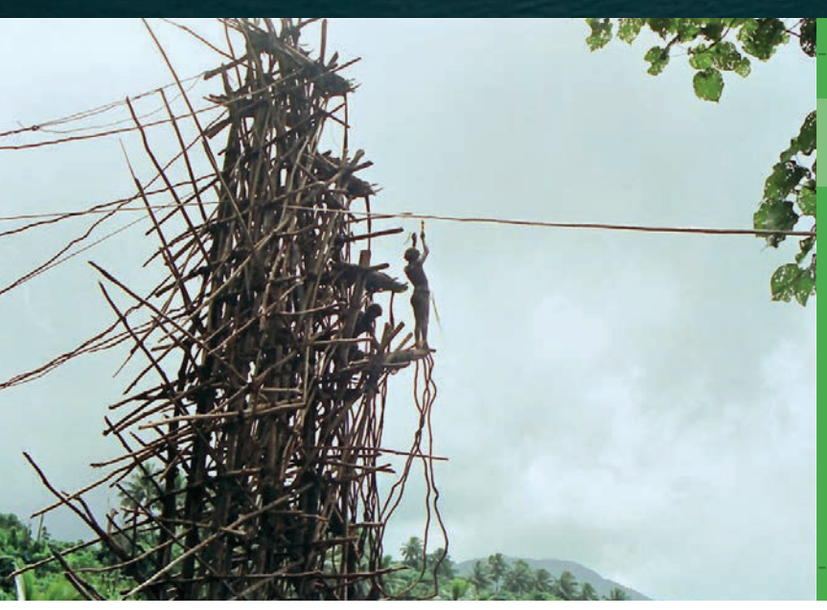
The Power of Polymers:
Structure and Properties of Large Molecules

CHEMISTRY

FOUNDATION SCIENCE

2001-2012



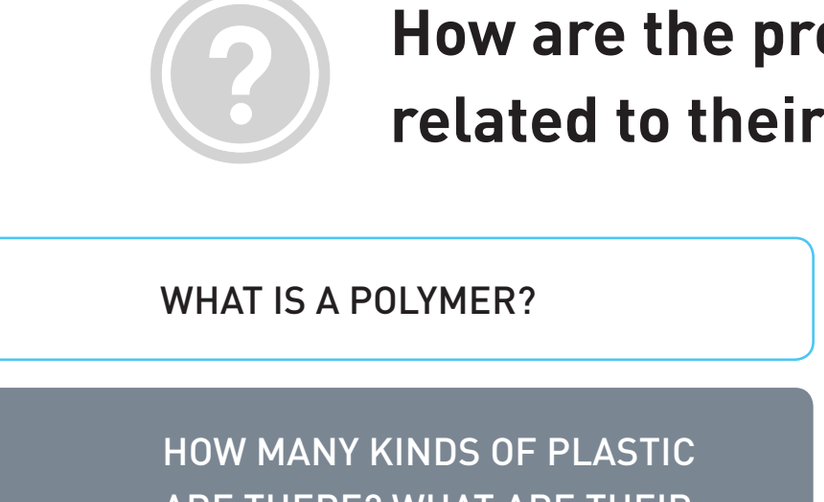
What's the Story? TWO STORIES—TWO LIFELINES

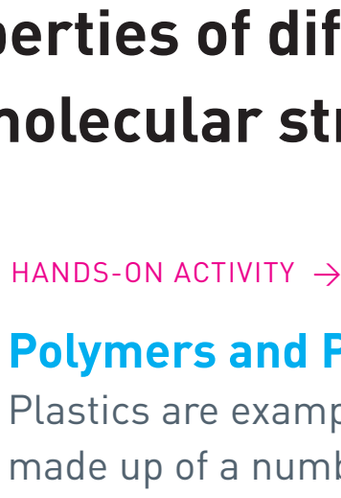
In a long-standing tradition, people on Vanuatu Island perform the heart-stopping feat of jumping 20 meters (65 feet) with vines attached to their ankles. Now, people around the world perform similar feats using bungee cords. Vines and bungee cords are polymers—the first natural and the second synthetic. The most common synthetic polymer is plastic.

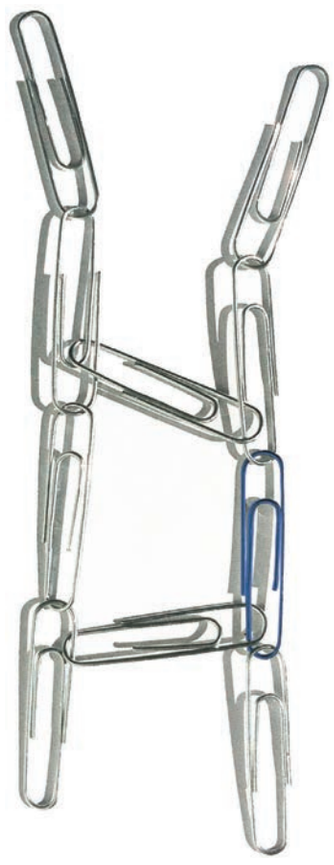
How are the properties of different plastics related to their molecular structures?

WHAT IS A POLYMER?

HOW MANY KINDS OF PLASTIC ARE THERE? WHAT ARE THEIR PROPERTIES?







HANDS-ON ACTIVITY →

Polymers and Paper Clips

Plastics are examples of polymers—very long chain molecules made up of a number of linked repeating small molecules called monomers. Students link paper clips together to model the linking of monomers.

Plastics in the Ecosystem

Students carry out tests to determine the properties of commonly used plastics.

READING →

So Few Elements, So Many Properties

How does the atomic composition and structure of a polymer determine its properties?

Questions for YOU to think about:

1. What kind of new material would you like to make to improve existing products or make new ones?
2. What kinds of properties would this new material have to have to fulfill the function of the product?
3. What do you think you would have to find out to design your new material?

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