

## Diapers Then and Now

A little over 30 years ago, the vast majority of babies used cloth diapers. There were even different types of cloth diapers including flats, prefolds, and fitteds.



It wasn't until the invention of Waterlock, made from a chemical called sodium polyacrylate, that disposable diapers became popular. These days, Waterlock is woven into disposable diapers to help them absorb an incredible amount of urine. As an engineered polymer **molecule**, Waterlock can absorb an amazing 700 times its own weight in water. Because of this, it is called a **super absorber**. As it absorbs particles of water, it binds them up in gel form so that the water is no longer able to flow freely.

Waterlock is often used in situations where water and other liquids are undesirable. Plumbers use it to soak up standing pools of water when the water pipes break in a house. Emergency rooms use it to bind up the liquid blood from injured patients that drips on tables and floors. Its most common use, however, is in disposable diapers. When babies urinate, the Waterlock absorbs the urine into the diaper and away from their skin. This helps to keep their backsides dry and it even helps to prevent diaper rash.



In this STEM Challenge, your task is to determine the volume of water a diaper can absorb before it becomes saturated. While this capacity is quite incredible and unlike any natural substance on the planet, it can be determined if you are careful and detailed in your measurement and calculations.