Educational Innovations®

#GB-3

Water Gel Spikes

When a Water Gel Spike is placed in water, it will increase in length, mass, and volume. The Water Gel Spike will take about a week to reach its full size, which may depend on the type of container the Water Gel Spike is placed in and the purity of the water used.

Explanation
The Water Gel Spikes are made from a polymer that readily absorbs water. Materials of this type are said to be hydrophilic, water loving. Materials with the opposite property are said to be hydrophobic, water fearing. An example of a hydrophobic substance is Magic Sand, (SS-2), which repels water and never seems to be "wet."

Activity #1: The Growing Water Gel Spikes
Remove a Water Gel Spike from its package and have your students observe its original size. Ask them to estimate its original mass and length. You will need a balance for determining its mass. Ask students to predict how large the Water Gel Spikes will be when placed it water.

Place the Water Gel Spike in a container of water and continue making measurements of mass and length every day at about the same time of day until the Water Gel Spikes reaches its maximum size. In some parts of the country, bottled water may increase the size of the Water Gel Spikes. It is necessary to keep the Water Gel Spikes out of direct sunlight as UV radiation degrades the polymer.

A fun activity for younger students is to measure the height of the Water Gel Spikes with string, and then use those strings to make a string bar graph.

Activity #2: The Shrinking Water Gel Spikes
Place the expanded Water Gel Spikes on paper towels or newspaper out of direct sunlight. Continue making measurements as the water slowly evaporates. Notice that the shrinkage of the Water Gel Spikes is a much slower process than its growth.

Activity #3: Further Experimentation – Science Projects
Investigate the effect of the growth of the Water Gel Spikes by using:

- different water sources: pond water, salt water, bottle water, distilled water, etc.
- different concentrations of a dissolved substance, such as sugar, baking soda, or salt
- different solutions with varying pH, such as different concentrations of vinegar, baking soda, etc.
- different temperatures
- different exposures to direct sunlight
- different carbonated beverages, sugar vs. sugar free

362 Main Avenue
Norwalk, CT 06851
www.teachersource.com

Phone (888) 912-7474
Fax (203) 229-0740
info@teachersource.com