

## Simple STEM Activity

### Poke a Polymer

<b>Purpose:</b>	The purpose of this activity is for students to explore the properties of plastic bags and learn why they are so useful.
<b>Standard:</b>	<p><b>SKP1. Obtain, evaluate, and communicate information to describe objects in terms of the materials they are made of and their physical attributes.</b></p> <p>a. Ask questions to compare and sort objects made of different materials. (Common materials include clay, cloth, plastic, wood, paper, and metal.)</p> <p><b>S2P1. Obtain, evaluate, and communicate information about the properties of matter and changes that occur in objects.</b></p> <p>a. Ask questions to describe and classify different objects according to their physical properties.</p> <p><b>S8P1. Obtain, evaluate, and communicate information about the structure and properties of matter.</b></p> <p>a. Develop and use a model to compare and contrast pure substances (elements and compounds) and mixtures.</p>
<b>Materials:</b>	Plastic bag (ziplock preferred), 3-4 sharp pencils, 1 large glass of water, 1 bowl.
<b>Procedures:</b>	<ol style="list-style-type: none"> <li><b>Observe</b> the properties (features) of your plastic bag. <b>Write</b> a list of words that <b>describe</b> your bag.</li> <li>Open the plastic bag, fill it most of the way with water, zip or twist is shut.</li> <li>Carefully poke a sharp pencil into one side and keep pushing on it until it comes out the other side. Observe that the water doesn't leak out.</li> <li>Carefully add 3-4 more pencils.</li> <li><b>Explain</b> why you think water doesn't leak out through the holes.</li> <li>Carefully dump out your water and clean up as needed.</li> </ol>
<b>Science Behind It:</b>	Plastic bags are made of <b>materials</b> called polymers. <b>Polymers</b> are made of small particles that bond together to form large chains. These materials are super useful because they are strong, flexible, and transparent so you can always see what is inside them. And, if you poke a hole in the bag with something sharp like a pencil, the particles can seal back around the holes as they try to retain their shape. As a result, the bag doesn't even leak. Pretty amazing huh?

<b>Questions to Ask:</b>	<ol style="list-style-type: none"><li>1. What words can be used to describe the properties of your plastic bag?</li><li>2. Why do you think you could poke holes in your bag without the water leaking out?</li><li>3. Why do you think we use plastic bags so often?</li></ol>
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