

Top GEMS Ideas

Please don't limit yourself to these—but they are really fun and informative activities that we repeat every two years for sure. There is information on each of these on the GEMS Web site at <u>https://gems.education.purdue.edu</u> There are also many other downloadable lesson plans on the site.

- <u>Chromatography</u>: Using permanent markers, the girls make designs on white t-shirts. Then we use eyedroppers of super-strength alcohol to make the permanent marker ink "give up" its colors and spread over the shirt.
- Building bridges out of candy: There are many bridge-building activities out there, but this one was the most fun. We use many different forms of candy to build bridges that would span a sheet of 8 ½ by 11 paper and support a full can of soda. The girls had to work with the strength of the candy and the span of the bridge to make a successful project. As with most activities, the girls worked in pairs.
- Estimating: Over the years we have done many estimating activities. This is one of the best and the easiest, and is a good one to start out the year: We went onto the M&Ms[™] web site and found the approximate number of colors in each size and type of bag of M&Ms[™]. We then give each girl her own bag to count. We record data and graph it using the classroom computers.
- Carbonation Celebration: Each year the girls are fascinated with a little mild destruction. We combine baking soda "bombs" made of Wintergreen Lifesavers™ in Coke™ bottles and Alka-Seltzer™ into a fun-filled afternoon talking about pressure and chemical reactions.
- LEGO® Hydraulics: We borrow these sets from the middle school technology labs, complete with the picture directions. The girls had a great time. I plan to borrow even more difficult sets next time. My school system owns many of these sets and most girls don't get much exploration time in their childhood. It's a great activity.

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- <u>Crystals-growing your own</u>: A high school chemistry student, a former GEMS member, came in and demonstrated how to write names in crystals, how to use magic crystals (provided by her chemistry teacher), and how to grow a crystal garden.
- Making paint from scratch: When the Pittsburgh Paint research center in Maryland said that making paint was too hard for elementary students, I decided that the challenge was on! I found a recipe for paint in a Virginia history book. We used colored chalk and a glue and water mixture. The girls donned goggles and used hammers to pound the chalk into powder. Then they mixed their paints and painted charms to take home.
- Map treasure hunt: We combined a visit from a cartographer from the National Geographic and a treasure hunt. I laminated maps of the local area downloaded the from the United States Geological Survey site. <u>https://nationalmap.gov/ustopo/</u> or <u>http://www.mytopo.com/maps/.</u> The girls, in pairs, had to find 20 landmarks on the maps and mark them. This was a great contest.
- Making recycled paper: We used the instructions found here: <u>http://www.pbs.org/parents/crafts-for-kids/homemade-paper/</u> The extra things we added were to use cotton lint from the craft store and to mold the paper into cookie molds: the girls created a really nice final product.
- Taking apart computers: It took two years to beg old computers from friends, but it was worth cluttering up the garage to see the girls tear into the towers with screwdrivers. They were absolutely fascinated with the inner guts of these items and took home most of the contents to share with their families. Now I get computers donated from the schools or businesses.



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