

Apple Toothpick Tower- If your looking for another way to use up those fall apples why not have your little ones build an Apple Toothpick Tower? You will need; apples, toothpicks, plates and a knife (this engineering activity could also be done with marshmallows or gum drop type candies). Provide the children with apple pieces and toothpicks and challenge them to create different types of structures – tallest, most sturdy or most apples used for example. Save some apple pieces to have the children do the experiment below.



Exploring Ramps – This is an awesome activity that allows children a chance to experiment – with everyone’s favorite thing – CARS!! You will need; pieces of cardboard or wood to make the ramps, materials to provide a different texture/friction for the ramps (you could try towels, carpet pieces, sticky rubber mats, dirt, sand paper...) a variety of cars (metal, plastic, Lego, big tires, small tires) stopwatch, tape and a measuring tape. Position the ramps on an elevated stable surface like a step stool or the bottom of the stairs. If possible have multiple ramps so that the children can test out which cars are the fastest/slowest on which ramps at the same time. To extend this experiment and to have the children engage their math skills you could have them measure the distances travelled and use a stopwatch to time their speed and then record it.

The Scientific Method is a way to use critical thinking to approach almost any problem. **Step 1- Ask a question**- How can you stop apples from turning brown once you cut them? **Step 2 – Do research**; Apples turn brown due to oxidation, essentially the apples are rusting (oxygen in the air combines with iron in the apples to form iron oxides – enzymes in fruit make this process happen faster then the speed at which a car would rust. **Step 3 – Form a Hypothesis**; Ask the children which method will keep the apples the whitest and which method will help the apples taste good? **Step 4- Design an Experiment**; You will need; Honey (1 teaspoon honey mixed with 1 cup water), Lemon juice (1 teaspoon juice mixed with 1 cup water), Salt (1/2 teaspoon salt mixed with 1 cup water), Vitamin C (1 tablet crushed and dissolved in 1 cup of water), Lemon lime soda, Carbonated water, Tap water, Experiment Control (we used the apple core with nothing on it), First set out 8 bowls (labeled) big enough to cover the slice completely with the solution. Cut one apple into 8 slices of approximately the same size. If you use more than one apple, you’re adding variables to the experiment as some apples may brown at different rates than the others. Place an apple slice into each bowl. Immediately cover with each solution, one per bowl. **Step 5 -Record and Analyze Data**; Wait 5 minutes and then have the children take each apple out of the bowls, rinse off the coating on each apple and have the children discuss and record what changes they see in the apples. **Step 6- Draw a Conclusion**; Ask the children to taste a piece of each apple and decide which one tastes the best and stayed the whitest? Where they surprised with the results?



Elephant Toothpaste - *You will need*; a 500 ml plastic bottle, 2 Tbsp. of warm water, 1 tsp. of yeast, 1/2 cup 6% hydrogen peroxide (You must use at least 6%. ** 3% from the grocery store will NOT work as well), 4-5 drops food coloring, a squirt of dish soap, a large pan or cooking dish, a bowl and a funnel if you like. This is an exciting science experiment that has a big reaction that children love. The children can assist by measuring and stirring. Start by mixing the warm water with the yeast in a bowl. Next add the Hydrogen Peroxide (an adult should do this step), soap and food coloring into the plastic bottle. Lastly, add the yeast and water mixture to the bottle and then stand back! The yeast acts as a catalyst and speeds up the hydrogen peroxide's release of oxygen gas - when that gas hits the soap it makes a crazy fun amount of fluffy foam! The reaction is exothermic (it gives off heat). The children can touch the bottle and the foam after the reaction has taken place to feel the warmth radiating out.

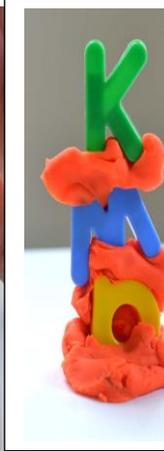


November 2018 -Are you familiar with the acronym STEM (or STEAM)? STEM stands for Science, Technology, Engineering and Math (STEAM adds in Art) these areas of learning are significant because they are involved in every part of everyday life. These are excellent areas of knowledge to develop an interest in for the little ones in your care as they encourage children to be problem solvers, ask questions, make discoveries and so much more. The areas of STEM have for a long time been under-represented by women and minorities, so now is a great time to get all little minds interested and excited in STEM to create amazing things.



Fizzy Ice - You will need; crushed or cubed pieces of ice in a bowl or bucket, vinegar, food coloring, medicine dropper, baking soda, little test tubes (optional). **Start by** mixing vinegar and food coloring to make colored vinegar and put them in your test tubes or little cups. Next, have the children help fill up a bucket with crushed or cubed ice and work to build mounds or piles of ice. Add some baking soda down into the mound and put some more ice on top if it. Have the children take turns sucking up the colored vinegar into the medicine dropper and squeezing it out onto your ice mounds (covered in baking soda). Watch the reactions and chat with the children about what they see! Pick a new color to drop and add to the ice again. Repeat this process, discuss what happens as the different colors mix together, what do they create?

How Heavy is a pumpkin? This is a great activity that challenges the children to develop their math skills, make predications and exploring weight and density. You will need; a hanger, string (2 that are the exact same length), scissors, at least one pumpkin (mini or regular), 2 “baskets” (these can be recycled containers- 2, that are the same). Decide what items you are going to measure the pumpkins against – coins, rocks, Hot Wheels cars, Action figures. Next create a chart to record your findings on. (1 pumpkin= __ rocks). To begin have the children choose an item to compare to a pumpkin (have each child predict how many rocks will equal the weight of 1 pumpkin) and then add the pumpkin to the basket and add the comparing item one at a time. If you are interested in learning how to make your own PVC Pipe stand visit this website <https://frugalfun4boys.com/how-heavy-is-pumpkin-fall-math/> otherwise you could use a doorknob to suspend the hanger from.



Shaving Cream Towers – This is a simple and easy set up for small fingers. You will need; Foam Blocks, Shaving Cream, Large tray (for each child). Provide each little Engineer with a pile of shaving cream and blocks on their tray, ask them if shaving cream could work like a glue to hold the blocks up? Watch and see what designs their buildings take shape. Another variation of this activity is to use Play Doh and magnetic letters.

Check out these amazing STEM focused books

- “Changes, Changes”
- “Ada Twist, Scientist”
- “Rosie Revere, Engineer”
- “Iggy Peck, Architect”
- “Charlotte the Scientist is Squished”
- “How Many Seeds in a Pumpkin”
- “Dreaming Up: A Celebration of Building”
- “Marvelous Mattie, How Margaret E. Knight Became an Inventor

- By Pat Hutchins
- By Andrea Beaty
- By Andrea Beaty
- By Andrea Beaty
- By Camille Andros
- By Margaret McNamara
- By Christy Hale
- By Emily Arnold McCully

If half of the population isn't contributing to the best ideas, they're not, in fact, the best ideas. Without female inventors, we wouldn't have windshield wipers, coffee filters and disposable diapers.

