| Demonstration | Materials needed | Possible Variables | Notes | Reference Links |
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| Fire Horn | Clear vinyl tubing (Home Depot, Canadian Tire, Aquarium Stores)<br>Barbecue Lighter (Dollar stores, grocery stores)<br>Tape<br>Filling container (plastic squeeze bottle with tube, dollar store sauce dispenser)<br>Flammable material (Lycopodium powder, Coffee Mate, Corn Starch, Flour)<br>Goggles<br>Fire Extinguisher | Type of flammable material<br>Amount of flammable material<br>Strength/speed of air blowing through tube<br>Direction | • Ensure that the end of the tube is BEHIND the flame when constructing the apparatus to ensure the flammable material must pass through the flame<br>• When loading the tube, gently shake the tube so the flammable material forms a solid plug. Without this step, it is possible for air to blow past the flammable material and extinguish the lighter before the flammable material begins to move.<br>• Be VERY careful of what direction you are aiming the tube and anything flammable/heat/smoke sensors in the way | http://resources.scienceworld.ca/component/taxonomy/combustion<br><br>From Steve Spangler:<br>http://www.youtube.com/watch?v=TAdElO1FCSM |
| Greek Waiter's Tray | Basket<br>Shoelaces<br>Cup | Length of string (laces)<br>Speed of spinning<br>Amount of liquid in the cup<br>Type of liquid in the cup | • Watch for any overhead obstructions<br>• Practice out of doors<br>• Start and stop smoothly | From Steve Spangler:<br>http://www.youtube.com/watch?v=yyDRI6iQ9Fw |
| No tray Greek Waiter's Tray | Cup | Amount of liquid in the cup<br>Type of liquid in the cup | • Start with your hand facing away from the direction you will be traveling around the circle.<br>• One revolution is usually plenty | |




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| Balloon in Bottle | Milk Jar<br>Water Balloon<br>Paper Towel<br>Matches<br>Goggles<br>Fire Extinguisher<br>Tray of water | Size of Balloon<br>Size of paper towel/flame<br>Time to put balloon on<br>Size/shape of the jar<br>Texture of the balloon (wet/dry) | • We find it works best if you wet the balloon just before you put it on the jar (using tray of water)<br>• We've had the best success putting the balloon on the jar just as the flame goes out. | http://resources.scienceworld.ca/demonstration/balloon-in-a-bottle |
| Balloon out of bottle (baking soda, vinegar) | Balloon in bottle (from previous demonstration)<br>Vinegar<br>Baking Soda<br>Tray (to catch mess)<br>Goggles | Size of balloon<br>Size/shape of bottle<br>Amount of vinegar/baking soda<br>Order of adding vinegar/baking soda<br>Position (orientation) of the bottle | • We have had more luck adding the baking soda first, then the vinegar, rather than the other way around<br>• Inverting the bottle over the tray helps form a good seal and contain any mess | http://www.scienceworld.ca/what-does-baking-soda-do<br>http://resources.scienceworld.ca/pdf/Air/Balloons_act2C02.pdf |
| Egg Drop | Egg or small ball<br>Toilet paper cardboard tube (or plastic pipe, apprx 12cm)<br>Plastic cup<br>Water<br>Tray<br>Broom | Height of tube<br>Size/weight of egg<br>Position of tray<br>Angle, speed of broom<br>Other methods of knocking the pan away | • Ensure that the egg is centred over the cup<br>• Try not to have the broom go past vertical<br>• A teacher at the Feb 21 workshop suggested old CDs as an alternate to the tray. | http://resources.scienceworld.ca/demonstration/egg-and-broom-trick<br><br>Amazing alternate method (Ricky Jay)<br>http://www.youtube.com/watch?v=A4TDeC3DyyM |
| Ball on Ball | Large Ball (basketball?)<br>Small Ball (tennis Ball?) | Size, material of the two balls<br>Position of the two balls (which one is on top)<br>Adding extra balls (3-4) | • Warn people of the possible angles that the ball may travel in | http://resources.scienceworld.ca/pdf/energy/ElasticEnergy_3energyballs.pdf |
| Cup and Caribineer | Cup (plastic wine glass with stem)<br>Shoelace<br>Caribineer<br>Pencil/dowel | Length of string<br>Angle of release<br>Weight of each side | • Keep spectators clear of the plane that the caribineer is moving in in case it comes loose | http://catalystforscience.ca/pdf/PoS/DiscrepantExplanationsCatalyst2011.pdf<br>(Drop of Doom) |




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| Cup of Water and Lid | Plastic cup<br>Water<br>Plastic yogurt/sour cream lid | Amount of water in cup<br>Type and shape of cup<br>Materials used as lid | | |
| Height vs circumference & Martini Glass volume | Wine Glass, pint glass, martini glasses (plastic)<br>String for measuring<br>Water<br>Food colouring (as bonus)<br>Books, cards, other props to lift glass | Different shaped glasses | | "Scam School" is a wonderful podcast full of surprising bar bets and tricks, many based on some pretty fun mathematical and scientific principles. Definitely adult oriented so not generally videos that can be shown in class but often interesting for research<br>http://www.youtube.com/watch?v=FAyHrANNpkU |
| Stroop test | Poster board<br>Different coloured markers | Word and colour combinations<br>Different languages<br>Different fonts<br>Reversing letters, Reversing words | | http://resources.scienceworld.ca/demonstration/stroop-effect<br>http://resources.scienceworld.ca/perception-and-illusions/illusions |
| PVC Static generators | PVC Pipe<br>Wool, Faux Fur, other fabrics<br>Mylar (foil) balloon pieces<br>Packing Peanuts<br>Rice Crispies | Material to rub<br>Different types of pipe<br>Different materials to pick up<br>Inside/outside<br>Different days (weather/humidity) | • There are tools made for cutting PVC that make the job much easier than a knife or hacksaw: (sample) http://www.homedepot.ca/product/pvc-cutter/969709 | http://resources.scienceworld.ca/component/taxonomy/static%20electricity<br>http://catalystforscience.ca/physical-science/static-electricity-lesson-1 |
| Cabbage Juice Indicators | Red Cabbage<br>Hot Water<br>Baking Soda<br>Soap<br>Ammonia<br>Lemon Juice<br>Vinegar<br>Clear containers | Concentration of cabbage juice<br>Concentration of test material<br>Different types of test materials | • When preparing the cabbage juice, be sure to cut the cabbage, rather than tearing it apart. Cutting releases more juice.<br>• Generally, we will put ¼ pitcher of cabbage pieces to ¾ pitcher of water | http://www.scienceworld.ca/sites/default/files/CSC_COL_FamilyScience012408.pdf<br>http://resources.scienceworld.ca/pdf/perception_illusions/Magic_2moredeeppurple.pdf |
| Balancing | Peacock Feather<br>Dowel/sticks<br>Broom<br>Cardboard<br>Tape | Length of stick<br>Weight of apparatus<br>Width of apparatus<br>Different types of materials | • Remember to focus your eyes on the top of whatever object you are balancing | http://resources.scienceworld.ca/activity/balance-rules<br>http://resources.scienceworld.ca/demonstration/balance-illusion<br>http://resources.scienceworld.ca/activity/betcha-can-t-balancing-challenges<br><br>(Bonus – a unique and beautiful balance act) |




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| | Plastic/stuffed toy | | | http://www.youtube.com/watch?v=-KVPA-9hofw |
| Tablecloth Tower | Table<br>Fabric (smoother the better)<br>Non Stick Pizza pan<br>Cups<br>Buckets<br>Water<br>Kitty Litter Balloons | Height<br>Weight<br>Material for table cloth<br>Alignment of tower | • Position the tablecloth so you have the minimum amount of fabric to pull out from the lowermost pan<br>• Be careful not to get the cloth wet<br>• Pull quickly and smoothly | http://resources.scienceworld.ca/demonstration/pull-the-tablecloth<br>http://resources.scienceworld.ca/activity/playing-cards-and-pennies |




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