

Program Title	Mad Home “Egg-speriments”
Objective	Girl Scouts will become Home Scientists by undergoing science experiments using everyday household items. Science is around every corner! Brownies will earn their Home Scientist Badge, and all can earn a fun patch.
Grade Level	Customizable for all age levels
Allotted Time	Approx. 2 hour time session depending on number of girls and number activities used
Equipment/Supplies	<p>Kit Includes:</p> <ul style="list-style-type: none"> • Measuring Cups (1/4 and 1 C) • Measuring Spoons (1 tsp and 1 Tbsp) • Wooden Spoon • Large mixing bowl • Sharpies (Registration Activity) • Ping pong balls (Activity 1) • Piece of white paper (Activity 1) • Tall, clear glass (Activity 2) • Scotch Tape (Activity 3) • Safety glasses (Activity 3) • Small Funnel (Activity 3) • Plastic Bottle (Activity 3) <p>Shopping list:</p> <ul style="list-style-type: none"> • Sugar (Registration Activity) • 12 oz plastic cups (Registration Activity-one per girl) • Small wooden skewers (Registration Activity-one per girl) • Saran Wrap (optional Registration Activity) • Balloons (Activity 1, Activity 3) • Salt (Activity 1, Activity 2) • Pepper (Activity 1) • A Lemon (Activity 2) • A Lime (Activity 2) • Lemon Lime Soda (Suggested Scientific Snack) • Raisins (Suggested Scientific Snack) • 2 Liter of Diet Coke (Activity 3) • Roll of Mint Mentos Candies (Activity 3) • Vinegar (Activity 3) • Baking Soda (Activity 3) • Cornstarch (Activity 4) • Elmer’s Glue (Activity 4) • Borax (Activity 4) • Food Coloring (Registration Activity, Activity 2, Suggested Snack, Activity 4) • Ziploc Bags-Sealing ones (Activity 4) • One egg <p>Things to consider: This is a complete shopping list. Look at each activity to decide which ones you will actually do. You may not need every item on this list. Quantities will vary depending on the number of girls.</p> <p>Some activities require water—check to see if your site can provide water or if you need to bring enough water for the experiments.</p> <p>Science gets MESSY—make sure you have what you need to clean up spills, etc. and encourage girls to wear old clothes</p>

Allotted Time	Topic	Instructions	Supplies
	Registration and activity	As girls are checked in: Supervised activity—Make rock candy (fulfills the Kitchen Chemistry, step 1 of the Home Scientist Badge Girls take a cup, write their name on it, fill the cup half way with sugar-water solution, add food coloring, place a wooden skewer in the jar/cup. At the end of the session, you can check to see if any rock crystals have formed. The longer you leave it, the bigger the crystals will grow. If meeting at your regular meeting location and you are able, consider leaving this experiment for a week or two to see how big your rock candy can get!	Measuring Cups 4 C Sugar 1 C Water Food Coloring (optional) Skewer Sharpie 12 oz cups or jars can also be used Saran Wrap (if transporting cups home) Note: Sugar and water need to be heated until completely combined, either in a microwave or on a stove top.
10 min	Introducing Science!	Take a moment to introduce Science! Experiments work to prove or disprove a hypothesis. What actually happens vs. what we think will happen.	Feel free to reference the Brownie Home Scientist Badge for more information.
20 min	Activity 1: Creating Static Electricity! Do at least one of these activities.	Static Electricity Exercises: Move a Ping Pong ball: <ol style="list-style-type: none"> 1. Blow up a balloon and tie the end. 2. Rub it on your hair. 3. Hold it close to a ping pong ball. When you move the balloon, what happens? <p>When you rub the balloon against your hair, you give it a negative charge. The balloon takes some of the electrons from your hair which leaves your hair positively charged. Your positively charged hair is now attracted to the negatively charged balloon, so your hair stands up to meet it. The Ping Pong ball is drawn to the negatively charged balloon. Opposites attract!</p> <p>Or:</p> <p>Make Pepper Dance</p> <ol style="list-style-type: none"> 1. Pour some salt and pepper on the white sheet of paper 2. Blow up the balloon and tie it. 3. Rub it on your hair. 4. Hold it over the salt and pepper. What happens? <p>After you rub the balloon on your hair and it gets a negative charge, bring it close to the salt and pepper. The charge attracts the pepper first because it is lighter than the salt. The pepper moves to the balloon where it gets a negative charge which repels it back to the paper where it loses the negative charge and dances back and forth between the balloon and the paper.</p>	Balloon Ping Pong Ball Balloon White Paper Salt and Pepper
20 mins	Activity 2: Dive into Density Do at least one of these activities	Egg in salt water <ol style="list-style-type: none"> 1. Mix the salt and one cup of water in the large glass. 2. Add a few drops of food coloring 3. Mix to dissolve the salt completely 4. SLOWLY pour the remaining cup of plain water down the side of the glass—you will see that the salt water with food coloring stays below the cup of plain water. 	Tall Glass Measuring Spoons Measuring Cup 4 Tbsp Salt 2 C water Food coloring

		<p>5. Carefully lower your egg into the glass. What happens?</p> <p>The egg sinks until it hits the layer of salt water. The food coloring helps you to see the boundary between the salt water and the plain water. The salt water is more dense than the egg, so it floats!</p> <p>Lemons and Limes</p> <ol style="list-style-type: none"> 1. Fill a deep container with water 2. Add the lemon. What happens? 3. Add the lime. What happens? <p>Usually the lemon floats, but the lime sinks. A lemon is denser than water, a lime is not!</p>	<p>Plastic Mixing Bowl A Lemon A Lime</p>
15 min	<p>Snack</p> <p>Snack of Density!</p>	<p>Dancing Raisins</p> <ol style="list-style-type: none"> 1. Pour soda into the glass. 2. Drop 6 or 7 raisins into the soda. What happens? <p>Raisins are denser than the soda so they sink. But the bubbles get caught in the wrinkles of the raisins which lifts them up! When the bubbles reach the top, they pop, and the raisins sink. Some raisins may dance more than others! It all depends on their wrinkles and their density.</p> <p>Look for more ways to bring science into your snack choices.</p>	<p>Raisins Sprite or 7 Up Clear cups</p> <p>Other snacks as determined by the facilitator.</p>
20 min	<p>Activity 3: Make something bubble up.</p> <p>Do at least one of these activities</p>	<p>Soda Geyser (SUPER MESS: this activity NEEDS to be done outside)</p> <ol style="list-style-type: none"> 1. Take the top off of the soda bottle on the ground somewhere outside with nothing else around. 2. Open the pack of Mentos candy and stick them to a piece of scotch tape. 3. Drop the tape of Mentos into the diet soda. 4. Stand back quickly! What's gonna happen? <p>The carbon dioxide gas created by the rapid reaction between the candy and the soda will make a huge eruption! How high do you think it's going to go?!?!? Take a video of the eruption and see if you can guess!</p> <p>Blow up a balloon without using your breath!</p> <ol style="list-style-type: none"> 1. Pour 2 Tbsp of Vinegar into the bottle 2. Have one person hold open the mouth of the balloon 3. Pour 1 tsp of baking soda into the balloon 4. Stretch the balloon's opening over the mouth of the bottle. 5. Make sure the baking soda falls into the bottle. What happens? <p>The baking soda and vinegar create carbon dioxide when they mix. There is not enough room for the expanding gas, so it fills the balloon!</p>	<p>Safety glasses</p> <p>2 Liter Bottle of Diet Coke Roll of Mint Mentos Candy Long piece of scotch tape</p> <p>Small funnel Measuring Spoons Measuring Cup 2 T of vinegar Clean, empty plastic bottle Balloon 1 tsp Baking Soda</p>
25 min	<p>Activity 4: Play with science</p>	<p>Dinosaur Snot:</p> <ol style="list-style-type: none"> 1. Mix the cornstarch and water in the mixing bowl 2. Add yellow and green food coloring 	<p>Mixing bowl Measuring cups 1 1/2 C Cornstarch 1 C Water</p>

	Do at least one of these activities	<p>3. Use your hands to make sure that it is combined. What is that stuff!?!?! After about a minute, you'll have stretch slime that looks like it came from a dinosaur's nose! Ewwwwww!</p> <p>Homemade Silly Putty</p> <ol style="list-style-type: none"> 1. Mix 8 drops of food coloring, glue, and 1 C of water until combined 2. Mix the Borax with 1 1/3 C of water 3. Slowly add the Borax mixture to the colored glue and water mixture. Knead the mixture until you can stretch it! The more you play with it, the more firm it should get! Why? <p>Glue has long flexible molecules called polymers. When Borax is added, it forces the polymers to link together so they can't move or flow as easily so the solution changes from being very liquidy to rubbery!</p> <p>Girls can store their putty in Ziploc bags and take it home with them!</p>	<p>Mixing Bowl Measuring cups 3/4 C Glue 1 C Water</p> <p>1/4 C Borax 1 1/3 C Water (Borax and Water will be mixed)</p> <p>Ziploc bags (sealing)</p>
10 min	Wrap Up	<p>Check on Rock Sugar Experiment—see registration activity</p> <p>Clean up the room! A Girl Scout ALWAYS leaves a place better than she found it!</p> <p>Have a discussion about what the girls discovered.</p> <p>How can you give service after earning this badge/completing these activities?</p> <ul style="list-style-type: none"> • Show off your science skills at home! • Make a science snack for your friends • Teach a Daisy Troop how to make their own Silly Putty! <p>End with a friendship circle.</p>	