girl scouts of central & southern new jersey

GSCSNJ 2020 STEM Summer Challenge

Are you ready to take the 2020 Summer STEM Challenge?

Take a look at all the STEM ideas below and pick which ones you would like to complete this summer.

Find something cool along the way that isn't listed?

Add it to the list and try that one too!

- Daisy & Brownie Girl Scouts pick 4
- Junior Girl Scouts pick 5
- Cadette Girl Scouts pick 6
- Senior & Ambassador Girl Scouts pick 7

- **AIR-** Conduct an experiment in which you use air .

  Examples: using wind socks, balloons, paper airplanes, lifting things with air, finding out what air can move, blowing bubbles, calculating the speed of wind, or measuring the distance of air according to the object.

- **MAGNETS-** Conduct an experiment in which you need magnets to perform.

  Examples: attracting metals, comparing magnet strengths, magic tricks, making your own magnet, using a compass, using a Magna Doodle for drawing, or using a magnet to find out what objects are magnetic.

- **WATER-** Conduct an experiment in which you need water to complete and name 3 things we use water for. Water has surface tension, which means that some items can float on it.

  Examples: seeing if an item floats, evaporation, freezing, rain gauge, creating music with water glasses, creating a water cycle, moving things with water, or creating a tornado with water bottles.

- **MOTION-** Conduct an experiment in which you would use motion.

  Examples: You can try estimating how high different objects bounce when you throw them from the same distance. What happens if you choose a larger ball or throw it harder? Some other examples include racing cars, dropping objects and measuring the time, pushing and pulling items, pulleys, playing Jenga or any other stacking or motion game, or working with simple machines.

- **CHEMISTRY-** Conduct chemistry experiments of your choice or learn about 3 elements on the Periodic Table. The periodic table is a special chart of elements that can help people better understand atomic chemistry. Investigate the study of matter or use products to create a chemical reaction.

  Examples: creating soap, making slime, or creating invisible ink.

- **ELECTRICITY**- Conduct an experiment in which you need electricity to perform. Electricity makes many things work and the currents created follow a path called a circuit. Therefore, when a lightbulb is unscrewed, or burns out, the circuit is broken and the bulb goes out.

  Example: static electricity, completing a circuit, or learning how a light bulb works

LIGHT- Conduct an experiment in which you use light. Our main sources of light are from sun and electricity. Did you know that we need light to see a reflection in a mirror?

Example: creating shadows, making rainbows, or creating reflections.

HEAT- Conduct an experiment in which you use heat. Heat can move in different ways such as through space using energy waves, through a solid object when you are cooking, or through gases or liquids.

Example: estimating how lighter and darker objects are affected by the sun, sun painting or fading, cooking (with parental supervision), or learning how to read a thermometer.

PHYSICAL CHANGES- Conduct an experiment in which you make something physically transform from its original state. The object you are using in the experiment must change into a different form after the experiment and should not be turn back into its original physical state without doing something done to it; for instance, changing water to ice. You would have to apply heat to the ice to get it back to its natural state of water, therefore, you created a physical change.

Other examples include: thawing, dissolving, blending, freezing, rusting, and melting.

CREATE- Did you know that you can create things on a daily basis while you're conducting your own experiments? Create one thing using your own ideas.

Examples: making lip gloss, creating chocolate in molds, making candy, creating a message phone with cups and string, cooking (with adult supervision), or tie-dye.

TEACH ME- Attend a virtual event, science museum, or other facility where you will be able to learn more about an area of STEM. Share what you learn by passing the knowledge on to your friends and family. This can be done in person or virtually depending on where you live.

COOKING- Conduct an experiment in which you must cook (with adult supervision). Have a taste test of items in the kitchen using a blindfold and/or holding your nose. How many items did you get correct? OR Figure out why a particular ingredient or tool makes a recipe turn out the way it does. For instance, why do things rise in the oven? Why don't they rise if we only mix flour and water? Examples of experiments include homemade bread and yeast; cakes and cookies and baking soda; candy and a candy thermometer; cut up apples with lemon juice (they will turn brown without the lemon juice)

CAREERS- Learn about a variety of careers in the STEM fields and pick which one you would be most interested in.

Examples: Science Teacher, Chemist, Chef, Oceanographer, Astronaut, Computer Programmer, or Engineer.

Did you try something new?

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Did you find something you are good at that you didn't think you would be?

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Which experiment was your favorite?

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Share a story about your STEMsational experience with someone and let them know you worked on this challenge! Who did you share with?

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Notes:_____

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