

# SUMMER STEM CHALLENGE

Make this your STEM Summer!

Complete the recommended number of challenges for your level and flex your STEM skills by sharing photos and more (tag us at @GSNCCP)!

**Daisies: 20 | Brownies: 25 | Juniors: 30 | Cadettes: 35 | Seniors: 40 | Ambassadors: 45**

- Create wax-resist art with crayons and watercolor (oil and water don't mix - do they?)
- Cross three different kinds of bridges: suspension, truss, lift, arch...
- Find and compare 3 different habitats in a natural space.
- Ask an architect or builder to show you how to read blueprints.
- Be an engineer and build a fort! Experiment with ways to make it stronger.
- Write an algorithm for making a sandwich - have a friend test your program out.
- Watch fireworks and call out the elements that make up the colors: green=barium, blue=copper, yellow=sodium, red=strontium, orange=calcium
- Try a family Citizen Scientist activity with SciStarter or Zooniverse.
- Make a musical instrument with a rubber band and other materials to explore sound vibrations.
- Find out what the SPF on your sunscreen means.
- Watch for a rainbow after a storm. Research why rainbows happen.
- Create a board game using math concepts and recycled materials .
- Talk to someone who is a programmer about their work.
- Hunt down some clean energy: can you find wind towers or solar panels?
- Cook something using foil, a box, and the sun.
- Visit a dam or hydroelectric plant (in person, or take a Youtube tour!)
- With an adult, use a GPS unit or smartphone to locate a geocache.
- Invent an outdoor game that uses 2 different senses.
- Make up a secret code using a cypher (or Morse code) and send notes to a friend.
- Find symmetry in nature and take a photo or draw a picture of it.
- Make a cardboard and rubber band car.
- Design and draw a picture of a future mode of transportation.
- Explore space science by tracking the phases of the moon for at least 2 weeks.
- Find a local stream and use a map to determine what larger body of water it flows into / from.
- Propagate a plant (leftover veggies are great for this!)
- Go on a fossil hunt.
- Explore space science by identifying a planet or constellation.
- Ask older folks for a story about something invented in their lifetime.
- Collect seashells and use a guidebook to identify them. What are their scientific names?
- Experiment with different paper airplane designs - learn about roll, pitch and yaw to make them go faster, farther, and straighter.
- Learn a formula to determine distance from a lightning strike.
- Investigate 3 different health/medical careers.
- Solve a problem with a piece of duct tape.
- Make fingerprints on paper using a washable marker. Learn to identify different fingerprint characteristics (whorls, arches, loops...) and then turn them into fun doodles by adding details!

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- Make a beauty product using common items from a kitchen.
- Double a favorite recipe or cut it in half.
- Build a sandcastle.
- Create a safe cleaning product using common ingredients from a kitchen.
- Make something using wire cutters and pliers.
- Learn about energy conductors/insulators and keeping safe in an electrical storm.
- Explore static electricity with a balloon.
- Pick out a paint color and watch it get mixed at a hardware store.
- Build a fairy shelter or a miniature version of your favorite place from found objects.
- Investigate 3 different programming careers.
- Look at something up close: use a magnifying glass and/or binoculars.
- Upcycle a tin can into something fun or useful.
- Use yeast to bake bread that rises.
- Investigate 3 different engineering careers.
- Visit a car dealer or mechanic and ask about safety features on cars.
- Visit a science museum, in person or virtually.
- Make an article of clothing using a new tool or method.
- Identify 3 kinds of plants - learn about their characteristics and scientific names.
- Learn to safely use a new tool and use it to fix something.
- Learn to check tire pressure on a car.
- Sew something using a sewing machine.
- Find a directions to a favorite place using a paper map, and again with a GPS.
- Upcycle old paper into jewelry or use it to make new paper - check out guides online for directions.
- Pick a home appliance and compare model features and designs in a store or online.
- Talk to someone who is an engineer about their work.
- Try a fruit or vegetable that you never tasted before .
- Write your name (or favorite quote) in binary code.
- Learn about the vitamin and mineral content of your favorite food using nutrition labels.
- Investigate 3 different Space Science careers.
- Throw a ball and use your feet to estimate how far you threw it.
- Use a cup and ruler to measure rainfall.
- Make a weather quilt or piece of art by creating a color code to represent the temperature and weather.
- Visit a local body of water and identify 3 different species living there.
- Learn about at least one endangered local animal. How can they be helped?
- Practice your coding skills using Hour of Code or another online resource.
- Learn how to identify and treat signs of dehydration and heat exhaustion.
- Learn a new stretch, dance move, or yoga pose. Research the muscles and bones that allow your body to move in that way.
- Listen to bird calls outside or online - learn to identify at least 3.
- Learn about deciduous and coniferous trees, then find 2 of each type.
- Spell your name (as best you can!) using symbols from the Periodic Table of Elements. Learn the elements that make up your name.