gsema

STEM FEST

May 2 • 9 AM-1 PM
Camp Cedar Hill
Waltham

gsema.org/stemfest

Come to a STEM takeover at Camp Cedar Hill! Explore these fun, hands-on science, technology, engineering, and math activities presented by local STEM professionals.

***NEW* Ocean Cleanup Challenge**
DB
What happens when trash enters our oceans? Use a hands-on "mini ocean" model to remove debris and discover the challenges of cleaning up plastic pollution. Explore how engineers work to protect marine ecosystems.
-Ms. Massachusetts Elemental

Tough as Pudding
DB
Learn about material properties by mixing concrete made of pudding! Test out different ingredients to learn how to make your material stronger.
-Simpson Gumpertz and Heger

***NEW* Sound Waves in Action**
DBJ
Watch sound make waves! See vibrations come to life as a speaker creates visible ripples in water.
-Bose Corporation

Floor is Lava
DBJ
The floor is lava, and the bears need your help! Explore balanced and unbalanced forces as you design a structure to rescue them.
-Society of Women Engineers Boston

***NEW* Marshmallow Engineering**
DBJ
Think like an engineer and build with marshmallows and toothpicks! Test your design skills to see how tall and strong you can make your tower.
-Suffolk

Need for Speed
DBJ
Do you think you can use plastic building blocks to build something in less than a minute? Put your skills to the test with this speedy engineering challenge! Compete by yourself or take things to the next level by competing with another Girl Scout.
-RTX

Need a Tissue?
DBJ
Get a glimpse into how engineers think about creating synthetic tissues for people who need them! Then, make one of your own by building a model bone, crafting a heart, or assembling your own cells.
-Tufts Biomedical Engineering

World's Strongest Straws
DBJ
Drive a robot around a field and try to achieve various tasks with it! Work through the engineering design process by building a structure that can support a cup of pennies using only straws and tape. Challenge your peers to a friendly competition and try to build the structure that can support the most weight!
-Andover Robotics

NEW Color Lab & Fingerprints
DBJC
How do scientists separate mixtures? Explore chromatography and discover how colors are created. Then, examine your own fingerprint and learn what makes it uniquely yours.
-Millipore Sigma

Strawberry DNA
DBJCS
When we think about genetics and biology, we usually aren't thinking about a fruity summertime favorite. Learn what DNA is and how scientists study it by using common household objects to extract genetic material (DNA) from living organisms (strawberries).
-X-Chem

Build, Burn, Breathe
DBJCSA
Take a deep breath and get ready to dive into the science of air! Build models using plastic building blocks to uncover the secrets of everyday air pollutants, and discover where they come from.
-MIT Biological Engineering

NEW Drone Pilots
DBJCSA
Soar into STEM as you pilot a drone! Practice taking off, landing, and maneuvering while learning the science of flight.
-Mitre

Each activity includes the Girl Scout level the activity has been designed for, but they are all open to all Girl Scouts.

D - Daisy
B - Brownie
J - Junior
C - Cadettes
S - Seniors
A - Ambassadors

***NEW* Robot Builders**
DBJCSA
Explore how robots are designed and built! Use LEGO robots to complete challenges and see how robotics helps solve everyday problems.
-Gummy Bear Robotics

***NEW* Plant Power**
DBJCSA
Get hands-on with horticulture as you plant seeds and create wildflower seed balls! Discover how plants grow and how native flowers support bees and butterflies.
-Massachusetts Horticultural Society

Hold Your Helmets
DBJCSA
Have you ever had a concussion? Try on concussion goggles to see what it feels like. Test your skills on an obstacle course and discover how difficult everyday tasks can become.
Boston Children's Hospital

Bridges!
DBJCSA
Check out realistic model bridges and learn what makes a bridge strong!
-Boston Society of Civil Engineers

In Our Energy Era
DBJCSA
Explore energy and conservation! Learn how to save energy and money at home, and make a new bracelet for your energy era.
-Eversource

Robot Rumble
DBJCSA
Get ready to design and build your own combat robot! Use sustainable materials, motors, wires, and batteries to bring your creation to life while exploring building, design, and iteration. Then put your robot to the test and discover the power of strategy and engineering in action.
-Guild Hall Learning

Ultimate Operation
DBJCSA
Test your hand-eye coordination by trying to perform a surgical procedure! Use a camera to guide your movements as you grasp small items and explore how surgeons work.
-J&J DePuy Synthes

Bug Off!
DBJCSA
Learn how to make DIY natural bug spray! Discover how some store-bought products contain harmful chemicals and how you can protect yourself and the planet by choosing alternative ingredients.
-Silent Spring

Designing for Coastal Change
DBJCSA
Discover how waves and rising sea levels impact coastal cities like Boston! Test out different engineering solutions to help communities adapt to beach erosion and climate change.
-Stone Living Lab

***NEW* From Liquid to Life**
BJC
Explore the science of biomaterials in this hands-on activity! Create your own gel-like beads using sodium alginate and calcium chloride, and watch a liquid instantly transform into a soft “solid.” Discover how scientists design materials that mimic human tissues, and explore real-world applications in medicine and regenerative science.
-Mass AWIS

***NEW* pH Power!**
BJC
Test a variety of juices and fruits to discover which are acidic or basic! Learn how to use pH strips, and explore how pH impacts your body.
-Young Women in Bio Boston

***NEW* Stream Sleuths**
BJCS
Explore the hidden world of river bugs living in the stream! Help collect specimens with a net, take a closer look, and even identify them to discover what they reveal about stream health. Follow the journey of this waterway as it flows into Beaver Brook, the Charles River, and all the way to Boston Harbor within the Charles River Watershed.
-Charles River Watershed Association

IY Periscope!
BJCSA
Use mirrors to peer around a corner! Make a periscope and learn how light reflects and refracts, and find out how your creation is similar to a microscope or a telescope.
-New England Sci Tech

***NEW* AI App Lab**
J
Explore how artificial intelligence can be used to create apps! Discover how technology turns ideas into interactive tools.
-Dell

Light It Up!
JC
Design and illuminate your own logo using an electrical circuit! Explore how batteries, conductors, and insulators work together to make your creation shine.
-GirlStart

How Dense Is It?
JC
Create a rainbow in a tube! Pour different colorful liquids together and explore the concept of density as you discover which colors rise to the top.
-Brookline Girl Scout Troop 84329

***NEW* Paper Tower Challenge**
JCSA
You’re the engineer! Build the tallest tower you can using only paper. Test your design as it stands on its own, no leaning, no support.
-Suffolk

Energy Efficient Dollhouse
JCSA
This dollhouse needs your help! Improve its energy efficiency by making creative upgrades using the materials provided and explore how homes can use less energy.
-Christa McAuliffe Center at Framingham State University

Building Blocks
JCSA
Use blocks made from deconstructed buildings to design your dream home or structure! Explore architecture and engineering as you bring your ideas to life.
-SA+C Inc

***NEW* DNA Design Lab**
C
Step into the role of a geneticist and explore what makes every living thing unique! Use colorful beads to represent the building blocks of DNA as you design and assemble your own DNA sequence bracelet. Discover how these patterns connect to the amazing diversity of life.
-Broad Institute of MIT and Harvard

***NEW* Sound Builders**
CSA
Build and decorate your own Bluetooth speaker! Discover how speakers work as you explore the science of electronics and circuitry through hands-on assembly.
-Bose Corporation

***NEW* Light Up a Star**
CSA
Create your own electrical circuit using a button battery, copper tape, and an LED! Light up astronomical images and explore the life cycle of a star.
-Chandra X-Ray Observatory