

Overview: The Girls in STEAM project is a non-profit initiative meant to inspire young girls to pursue STEAM fields. Our hope is to encourage young women to explore into male-dominated fields of work and strive for success to hopefully create a new generation of representation in STEAM. For the duration of this project, there will be 4 different senior-led panels from science, technology, engineering, arts, and mathematics accompanied by a hands-on group project. This program is open to all kids ranging from elementary to middle school for \$10 (per child) and all proceeds will be donated to the Women's Foundation in Boston. (<https://wfboston.org/donate/>)

WHEN:

August 23rd and 24th

3rd: 1st-4th grade

4th: 5-8th grade

10 am -2 pm

LOCATION:

High School Cafe

PROJECTS:

General Materials -

- ☐ Name Tags
- ☐ Paper Towels
- ☐ Clorox Wipes
- ☐ Hand Sanitizer

SCIENCE [flyer](#)

Digestive System Lab

Objective: Students will be able to understand how the digestive system works by modeling ingestion, digestion, absorption, and elimination to see how they work collectively to benefit the body.

Instruction Session:

- **Demo Videos -**
<https://www.youtube.com/watch?v=u9XVMiQq-n4&list=PLulGqR-5xOFjC5xAEVepQnL1qkfUYcU3A&index=1>

C

- **Things to think about:**
 - How is each step of the digestive process crucial to one another?

- Identify and explain the role of each step of digestion.
- How might digestion affect the needs of other bodily functions?

Materials:

Item (what they represent)

- ☐ Gloves
- ☐ Freezer bags (stomach)
- ☐ Pantyhose (large intestine)
- ☐ Plastic Bowls
- ☐ Plastic Trays
- ☐ Lemon Juice (digestive enzymes)
- ☐ Water (saliva)
- ☐ Saltine Crackers (food ingested)
- ☐ Bananas (food ingested)
- ☐ Sticky notes (labeling)
- ☐ Plastic bowl (body)
- ☐ Paper cups
- ☐ Scissors

TECHNOLOGY + ENGINEERING [flyer](#)

Popsicle Stick Bridge

Objective: To practice engineering techniques to construct a bridge made out of popsicle sticks that has the highest ratio of weight supported to the weight of the bridge. Students will attempt to optimize their bridge by analyzing how to use the least material (thereby having a low mass of their bridge) to create the strongest bridge (that can support the most mass). Students will learn about some of these techniques in a very brief instruction session (about 5 minutes), and will then work to apply them in their construction.

Requirements:

- The bridge must be at least 8 inches tall
- The bridge must have at least 8 inches of unsupported length (from the inside of the left support to the inside of the right support)
- There cannot be a support in the middle of the bridge (can only be a support on either end)
- Must be free-standing
- 15 minutes to brainstorm. 1 hour to build.

Instruction Session:

- Give instructions
- Some things for the kids to think about:
 - What is the strongest shape?

- Will a long bridge or short bridge be able to support more weight?

Materials:

- ☐ Paper
- ☐ Pencils
- ☐ 1 Sharpie (for writing scores)
- ☐ 4 packets of popsicle sticks
- ☐ 4 hot glue guns (maybe borrowed from an art room?)
- ☐ Glue sticks for hot glue gun
- ☐ 4 rulers
- ☐ 1 kitchen scale
- ☐ Small weights (can be anything: magnets, erasers, etc.)

ENGINEERING + MATHEMATICS [flier](#)

Create your own floor plan

Objective: Students will be able to demonstrate basic levels of architecture/ interior design by creating floor plans and using their creativity to customize their structure. Students will be shown a video and physical example that will be thoroughly explained so that they can understand and complete the task to the best of their ability.

Requirements:

- The building must have at least 4 rooms (no more than 6)
- Each room must be labeled (written on paper and taped to a wall or floor)
- Each floor plan must have a bathroom
- 10 instructions 10 min brainstorm 49 building time

Instruction session:

- Give instructions
- Something
- Something for them to think about:
 - What type of rooms does their structure require?
 - Is the size of the spaces somewhat realistic?

Materials:

- ☐ Paper
- ☐ Pencils
- ☐ 8 Lego base plates
- ☐ Any regular Lego blocks for the walls
- ☐ An assortment of doors and windows
- ☐ Any available Lego appliances

ARTS [flyer](#)

Tinga Tinga (Tanzanian painting style)

Objective: To create greater awareness of an underrepresented art style among Melrose youth. Students will each create name plates using traditional Tinga Tinga style.

Instruction session:

- Introduce/define the art style being taught
 - Tinga Tinga Painting: A colorful and surrealistic style of African art that uses lots of colors and typical animals from TZ (The big five). The art style originated in 1978 and was named after Edward Tingatinga.

- Show examples:
Final artwork goal:



- There will also be printed outlines of animals for the kids to use.
- Give instructions
 - Paint background first - solid color or gradient
 - While the background is drying the students will sketch on a paper the same size of the board.
 - Once the background is dried, students will sketch then paint.

Materials:

- ☐ Paper to sketch out idea
- ☐ Pencils
- ☐ Thin wooden or cardboard
- ☐ Acrylic paint

GIRLS IN STEAM FLYER



The flyer has a light green background. At the top left are two test tubes, one red and one green, with white liquid. At the top right is a red Erlenmeyer flask with white liquid and a blue beaker. In the center is a large red rounded rectangle containing text. Below this rectangle, on the left, is a red microscope. On the right is a white lab coat with a blue pocket and blue safety goggles. The text is as follows:

GIRLS IN STEAM

Come join us this summer at the Melrose High School for a summer camp meant to inspire young girls to pursue STEAM fields. Our motive is to encourage young women to dive into male-dominated fields and strive for success. There will be 4 different senior-led panels about science, technology, engineering, arts, and mathematics, accompanied by a hands-on group project. This program is open to all kids ranging from elementary to middle school for \$10 (per child). All proceeds will be donated to the Women's Foundation in Boston.

Time: 10 am - 2pm
August 23rd: grades 1-4
August 24th : grades 5-8

Location: Melrose High School
360 Lynn Fells Pkwy, Melrose, MA 02176



The flyer has a light green background. At the top left and right are several beakers and flasks containing colorful liquids (purple, yellow, green). In the center is a large red star with a yellow outline. The text is as follows:

WHAT TO BRING

- \$10 per child (cash/venmo)
- Water
- Snack