Welcome to the 2022 STEAM it Up event!

We hope you enjoy the activities and have fun with one another! Each activity offers you a chance to use your **STEAM Habits of Mind**.

STEAM It Up!
Program

So many activities to try and take home! Stretch and Explore. See yourself in STEAM!

STEAM Habits of Mind

Habit of Mind	Ask yourself
Observe	• Using my five senses, what do I notice? • Do I see any patterns in my observations? • How can I describe my observations with words, drawings, and/or sound recordings?
Reflect	• Why? How? • What is working? What needs to be improved?
Engage and Persist	• What is the problem I'm trying to solve? What are some different ways to solve it? • What is the phenomenon I'm exploring? • What questions do I have? Which of these questions are testable?
Stretch and Explore	• How can I think about this differently? • What can I learn from this failure? • How do I test this idea?
Express	• How do I represent this idea/feeling/design through writing, drawing, modeling, sound, etc.? • What materials should I use to best convey my meaning? • What is my process?
Develop Craft	• What materials and tools do I need? • How do these materials and tools work?

STEAM Activities from

Agenda for Children Literacy Initiative
Biogen Community Lab
Broad Institute
City of Cambridge, DPW Recycling Division
Cambridge Math Circle
Cambridge Public Library—The Hive
Charles River Conservancy
City Sprouts
CPS Educational Technology Department
CPS Math Department
CPS Science Department
Green Cambridge
Peabody Museum of Archaeology and Ethnology (Harvard)

Lemelson-MIT Program
Lesley STEAM Learning Lab
McGovern Institute for Brain Research at MIT
MathTalk
MIT Kitchen Matters
MIT Museum
MIT Sea Grant
MIT SEA (Sustainable Energy Alliance)
MIT Women+ in Chemistry
Mystic River Watershed Association
Science Club for Girls
Tank Design
The Young People's Project
Urban Griots

2021

Activity Descriptions

Specific Activities for PK-2th grade

Heads Up!: Paper Airplane Engineering (The Hive/STEAM at Cambridge Public Library)
Cambridge has a free public makerspace at the main library. Learn about this exciting space and workshops! Make your own magnets, use our green screen photobooth, and more!

Urban Griots Playground (Urban Griots Playground)
Music Is Healing, a community wellness organization, is excited to present a series of music-based family literacy workshops called the "Urban Griots Playground" that introduce "digital drum talk" as a mode that allows children to use rhythm patterns in order to produce letters, sounds and spell words. Parents and children will get to try the Drumball and Alphariddims game which connects music with literacy as well as with numeracy.

Specific Activities for PK-5th grade

Venn Diagram Installation and Measuring Everything App! (Math Talk)
Engage with our Venn Diagram MathTrail installation, a diagram that shows the relationship between groups of things by means of overlapping circles. You can also download and play our free app, *Measure Everything*, an Augmented Reality experience to encourage young children's math exploration and playful learning of math-related concepts.

Specific Activities for Middle School

Whirligig Centrifuge (Biogen Community Lab)
Let's build a spinning toy that engineers use to detect parasites and other things in people's blood that make them sick.

Plant a Tree in Cambridge (Green Cambridge)
Cambridge needs more trees. Where would you plant more trees? Using a map, you can place a tree, learn about the urban canopy, and how to get involved!

VR tours of MIT's Brain Research Labs (McGovern Institute for Brain Research at MIT)
Put on a virtual reality headset and step inside a cutting-edge neuroscience laboratory! Scientists who do experiments in these same labs will be here in-person to meet you, talk about their discoveries and describe what it's like to work at the McGovern Institute for Brain Research in Kendall Square.

Experimental Archaeology (Peabody Museum of Archaeology & Ethnology)
Experiment with an ancient tool to understand how people made food, medicine, and make up 35,000 years ago. Can you perfect the technique? This activity is part of the Foragers to Farmers Museum program for ages 11-14.

Design Thinking Framework (Tank Design)
Create a product that meets people's needs. Framework: Empathize, Define, Ideate, Prototype, Test.

All Ages Activities

Children's Books Give Away (Agenda for Children Literacy Initiative)
Every young person gets a book to bring home and read!

DNA Bracelets (Broad Institute)
Make a DNA bracelet! Using beads that represent the 4 DNA letters, create a bracelet that corresponds to the DNA sequence of a plant or animal of your choosing.

Play math with Cambridge Math Circles (Cambridge Math Circle)
Build with snowflakes, investigate the river-crossing problem, origami, and Voronoi diagrams!

Floating Wetland Engineering Challenge (Charles River Conservancy)
Join the Charles River Conservancy and build your own floating wetland structure from craft materials! Show off your engineering skills and test your wetland's floating ability!

All Ages Activities

Trash or Treasure (City of Cambridge DPW Recycling Division)
Play our sorting game to find out if different items are trash or can be given a new life through recycling or composting! See what your paper, bottles, and cans turn into when you recycle.

Gardening Everywhere! (City Sprouts)
Join CitySprouts as we teach you all about the basics of gardening and help you start your very own herb garden!

Code a Bot! (CPS Educational Technology Department)
Code a Bee-Bot or Sphero Robot with simple commands to go through a maze or to spell your name!

Math in the Garden (CPS Math Department)
Come explore the connections between gardening, math, science, and art! Estimate and count seeds, plant and measure seedlings, design and build a garden.

Stomp Rocket Blast Off (CPS Science Department)
Calling all engineers! Come design and test a stomp rocket. See how far you can make it fly!

Light Up Halloween Night! (Lemelson-MIT Program)
Everyone loves a good scare on Halloween, but not when it comes to the safety of little trick-or-treaters. On average, children are more than twice as likely to be hit by a car and killed on Halloween than on any other day of the year. Fortunately, there are lots of easy things young inventors can do to stay safe on the spookiest of holidays. Join the Lemelson-MIT Program to light up Halloween night!

Number Play and Quilting (Lesley STEAM Learning Lab)
Can you make a pattern using different colors and shapes? What happens when you reflect and rotate these shapes and patterns? Join the Lesley STEAM Learning Lab for some hands-on fun exploring the relationship between colors, geometric shapes, and patterns to design and build your own quilt to take home!

pHun with Food: Acid-Base Tea Party (MIT Kitchen Matters)
What do acid-base reaction, color-changing lemonade, and cake batter have in common? Come to tea and see!

Windy Whirligigs (MIT Museum)
Build a whimsical wind-powered creature or contraption!

Live Touch Tanks + Science! (MIT Sea Grant)
Come meet coastal critters with MIT Sea Grant, microscopes, and live touch tanks!

DIY Solar Panel Circuits (MIT SEA—Sustainable Energy Alliance)
Come by to try your hand at making your own renewable energy! We have solar panel circuits and cranks for you to play around with, and we can tell you all about the broader world of renewable energy.

Make Slime!! (MIT Women+ in Chemistry)
We will be using household products to make one of the most fun polymers out there—slime! Come to our table for a short and simple chemistry lesson while you make your own slime.

Gum Drop Towers (Science Club for Girls)
Building structures is a great activity to incorporate STEM into play by encouraging science, engineering, and math skills to design and build gumdrop structures.

Flagway Math Games (The Young People's Project)
Learn and experience how we gamify complex mathematical concepts that students all across the country use to sharpen their math skills.