



Marble-ous Machines: Ingenious Marble Computers

PROGRAM DESCRIPTION

See computing and gaming in a whole new way by getting hands-on time with marble-driven computers, calculators, and logic games. You'll learn about binary math, get a rare glimpse into what actually happens inside computer circuits, and create physical arithmetic and logic programs to represent and solve problems ... all with marbles!

Visit STEMpunkED.com/Programs for more details

LOGISTICS, FEE & DELIVERY REQUIREMENTS

Duration: 2.5 hour interactive program | **Age Range:** 8/9-Adult | **Participants:** 4-30 | **Cost:** See Website | **Requirements:** Video Projector with HDMI port and speakers ; 8 large tables for presenter's items with 4 chairs each ; 1 table with electricity ; 1.0 hour setup and breakdown times ; additional travel charges may apply.

CORE TOPICS & GOALS

- ▲ Convert between decimal and binary values; code analog switches to perform addition, subtraction, multiplication, and division operations in binary
- ▲ Recognize, represent, and manipulate abstract mathematical relationships through the functions of logical switches and gates
- ▲ Carry out and explain new procedural practices with fluency and flexibly; gain an appreciation for the results of their careful application



CORE TOPICS & GOALS

- ▲ Formulate conjectures about the form and meaning of mathematical and logical problems and plan physical problem representations and their solution pathways
- ▲ Apply the mathematical and logical capabilities of the computers to solve problems arising in everyday life, society, and the workplace
- ▲ Make connections between modern mathematical/logical processes (electronic and manual) and the physical operations of the computers