Annual Report for Public Math 2020

November 23, 2020

Introduction

Public Math began in 2018 with the first Public Math Gathering—a collaboration to imagine playful math invitations and experiences for families in public spaces. Public Math was founded as a nonprofit corporation in 2019, and formed an active Board of Directors in 2020.

What We Accomplished

Posters

Overview

Math intersects with identity and with power. In the wake of George Floyd's killing and a summer of protests, Public Math designer Chris Nho was moved to express these ideas visually and made a Black Lives Matter image from black pattern blocks.



We silkscreened, sold, and shipped 100 posters.

Collaborations and funding

This project was self-funded through sales of the final poster design.

We donated all profits to Black Girl Mathgic, a subscription box service that supports girls' confidence and math identity for success in school and continued interest in STEM fields.

Impact

We were able to donate $1500 to Black Girl Mathgic to support ongoing development and scholarships.

Postcards



Overview

We asked, "What might it mean to engage people in informal math outside of school when no one is leaving their homes on a regular basis?"

Our first answer was "Postcards!"

We designed a series of interactive math opportunities to fit a 4.25" by 5.5" cardstock medium. We published a blog post encouraging people to (1) sign up to receive a postcard, and (2) sign up a friend to receive one too. Sign ups were through a google form, linked in the post. We publicized through our Twitter feed.

Collaborations and funding

We received the following funding:

- A $2000 grant from the MathHappens Foundation
- A $2000 grant from the Math Learning Center

We collaborated with the Math Learning Center to design a Pattern Block Heart. The Benjamin Banneker Association partnered with us in the co-design of a Pattern Block Sankofa.







Additional funding for continuing the postcard project comes from sales of packs of pre-stamped postcards through the Public Math website.

Impact

Public Math sent 2,109 postcards to 50 states starting in late March 2020, and sold 4,848 postcards in sets of 16 or 100 across the US and Canada.

The Hexagon Challenge





Overview

In anticipation of the cancellation of the 2020 Minnesota State Fair, and the 2020 installment of Math On-A-Stick along with it, we drafted a proposal for Math On-A-Stick-At-Home for the Fair and the StarTribune. While MOAS-At-Home did not come to pass, one spinoff was The Hexagon Challenge, in which participants are challenged to fit a set of colorful polygons into a hexagon frame in a number of different ways. How many are possible? Hundreds, but exact figure unknown.

Collaborations and funding

We sold 99 printed copies of The Hexagon Challenge through the Public Math website, so this project was self-funded.

Copies of The Hexagon Challenge were provided to participants at a Minnesota Department of Education webinar in August, and reimbursed by the Minnesota Council of Teachers of Mathematics.

The Hexagon Challenge was translated into Spanish and Russian in order to expand community engagement. We are pursuing translation into additional languages.

Impact

A variety of schools and communities have taken up the Hexagon Challenge, including a distribution effort organized by an Educational Service District in southwest Washington State. We continue to reach out to libraries and school districts to get the Hexagon Challenge into more children's hands, and we are exploring a partnership with the MathHappens Foundation to distribute via newspaper insert.

The Math Vending Machine





Overview

What math fits in a 2-inch capsule? Novel dice for making up games and tiny tiles in the shapes of turtles, narwhals, and pigs have been our first answers to this question.

Public Math owns three gumball machines that it offers to loan to institutions or individuals at low cost. We buy or make the things that go into the machines, and we recruit and host

volunteers to fill capsules that we ship with the machines. Further details about how we work with outside institutions is in this document.

Collaborations and funding

The Math Vending Machine was originally designed in 2019, and test-driven at a neighborhood event in Chicago. In late 2019, one was installed in the National Museum of Mathematics in New York City, with a refill of capsules ordered in February.

A Math Vending Machine was in place at a school math fair in Connecticut in early March, and scheduled for appearances at a school math fair in Brooklyn, and at Math On-A-Stick at the Minnesota State Fair before these events were cancelled due to COVID-19.

The future of the Math Vending Machine depends on a large-scale return to public gatherings. We are hopeful that mid-to-late 2021 will offer this opportunity.

Impact

Just lots of delight. Did you see the face of that man using the Math Vending Machine? (That man, by the way, is the Rosenthal Prize winning teacher Nat Banting)

Cheez-It

There are Scrabble-branded alphabet Cheez-Its which children enjoy using to spell words and names as they snack. *Why are there no numeric Cheez-Its?*

Well, we invented them. A couple family-sized boxes of Cheez-Its met a laser cutter one Friday in October, and soon Cheez-Its: Numbers were born.





While we caught the attention of the math world on Twitter, we were unable to gain traction with Big Cheez-It, so Cheez-Its: Numbers remains an inedible prototype.

Public Math Gathering Online

A small group convened online in August for the first Public Math Virtual Gathering. Following a design-thinking process, we focused on unexpected math experiences that can grow from the spaces and objects in people's homes. In particular, we considered the possibilities provided by kitchens.

We repeated a version of this experience for an asynchronous virtual session at the California Mathematics Council's CMC-South conference in November, and will share this session more widely in January seeking increased engagement beyond the scope of the one conference. (Sneak preview here.)

Plans for 2021 and Beyond

Postcards, Version 2.0

We have ideas for new postcards, and for new forms of postcards.

Public Math Murals

Paint in public spaces. We have begun to ask about the possibilities.

Return to Public Activities

Fingers crossed for the end of the pandemic! We look forward to new instances of the Math Vending Machine, to designing for gathering spaces as people return to them, and to bringing pop up play opportunities to families in a variety of public places.

Continuing Collaborations and Beginning New Ones

We will continue to work with prior funders and external collaborators, and will reach out to new ones as well. We are still stinging from that Cheez-It rejection. In all seriousness though, this year's successes with Benjamin Banneker Association, Math Learning Center, CPM Educational Program, and MathHappens are the kinds of rewards that keep our energy flowing.

Obtaining 501(c)(3) Status

Obtaining federal tax-exempt status will allow us to advance some funding conversations we have had with potential partners and donors. Our lawyer at Rubric Legal will support us in this process.

Gratitude

Presently, Public Math depends entirely on the time, talent, and efforts of volunteers. We are deeply grateful to all who have invested in this work, including:

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