

# Making the Most of Math Connections at Museums and Historic Sites

Texas Historical Commission Webinar, 6-25-2020



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## MathHappens Foundation 2020 Catalog

This google document is photographs, descriptions and ideas for activities and models we've created and used over the past six years. Use as inspiration or implement our ideas at your institution! Feel free to share with colleagues. This catalog is unfinished and more information is available upon request.

[View 2020 Catalog](#)

Or type into your browser:

[https://docs.google.com/document/d/11S5EZMvRC1M4mfKKx2KHz\\_0q\\_oCuS48Zuvfd-sPFGsw/edit?usp=sharing](https://docs.google.com/document/d/11S5EZMvRC1M4mfKKx2KHz_0q_oCuS48Zuvfd-sPFGsw/edit?usp=sharing)

## Youtube videos - Some Models Explained

<b>Mini La Belle:</b> <a href="https://youtu.be/p4Yg0CSO8nw">https://youtu.be/p4Yg0CSO8nw</a>	<b>Quadrant and Plumline:</b> <a href="https://youtu.be/1K8mAw2ckVQ">https://youtu.be/1K8mAw2ckVQ</a>	<b>Lewis Carroll Coin Trick:</b> <a href="https://youtu.be/5q-hWdkaky4">https://youtu.be/5q-hWdkaky4</a>
<b>Pythagorean Theorem Puzzle:</b> <a href="https://youtu.be/N5h_XXLIPrE">https://youtu.be/N5h_XXLIPrE</a>	<b>Magicians Trick:</b> <a href="https://youtu.be/HHwcKyh2Q5k">https://youtu.be/HHwcKyh2Q5k</a>	<b>Compass Rose:</b> <a href="https://youtu.be/oTYYxjBz2Sc">https://youtu.be/oTYYxjBz2Sc</a>
<b>Number Puzzle:</b> <a href="https://youtu.be/nGSc8m3OMUw">https://youtu.be/nGSc8m3OMUw</a>	<b>Mexican Army Cipher:</b> <a href="https://youtu.be/PV6LV46lxCY">https://youtu.be/PV6LV46lxCY</a>	

## Programming for Texans

This program includes information from emails from the General Land Office and the interactive scenario we created from that information, the survey activities, connections to period survey textbooks, youtube links to explain mathematical techniques and more. These materials could be used in conjunction with any Texas History field trip and are geared towards 7th grade.

[\*\*\*Math to Measure Texas: Size Matters!\*\*\*](#)

Or type into your browser:

[https://docs.google.com/document/d/1I9nGwloTqEDkM\\_T57t3ylSihKmdsT05GXe8xBwmFe1Y/edit](https://docs.google.com/document/d/1I9nGwloTqEDkM_T57t3ylSihKmdsT05GXe8xBwmFe1Y/edit)

## Mathematics of Trains

For those who work with trains, this document has some early conceptual ideas, activity designs, and resources for you to get started.

### [Trains + Math](#)

Or copy into your browser:

[https://docs.google.com/document/d/1F1UWCAXkQp9hpsiEcdO8LznD3Z\\_JbQSI-rSdbORHVYk/edit?usp=sharing](https://docs.google.com/document/d/1F1UWCAXkQp9hpsiEcdO8LznD3Z_JbQSI-rSdbORHVYk/edit?usp=sharing)

## Further Reading

[“Parent’s Beliefs about Math Change Their Children’s Achievement”](#) by Jo Boaler

Or copy in browser: <https://www.youcubed.org/resources/parents-beliefs-math-change-childrens-achievement/>

[“Why Museum Visitors Touch the Exhibits”](#) by Fiona Candlin

Or copy in browser:

[https://drive.google.com/file/d/0B9-R\\_7V7np0AVkRQalZRWkd3YTBtMFC4M21pd3g1ajFYczdj/view](https://drive.google.com/file/d/0B9-R_7V7np0AVkRQalZRWkd3YTBtMFC4M21pd3g1ajFYczdj/view)

[“Effects of Movement, Growth Mindset and Math Talks on Math Anxiety”](#) by Peterman & Ewing

Or copy in browser: <https://scholarworks.sfasu.edu/cgi/viewcontent.cgi?article=1051&context=jma>

[“Could mental math boost emotional health?”](#) By Duke University

Or copy in browser: [https://www.eurekalert.org/pub\\_releases/2016-10/du-cmm101016.php](https://www.eurekalert.org/pub_releases/2016-10/du-cmm101016.php)

[Geogebra Math Modeling Software](#) - Open Source Modeling Software

Or copy in browser: <https://www.geogebra.org/>

## Student Thoughts

Thank you notes from high school students who attended the field trip at the Texas State History Museum.

Group 1: [Austin High Field Trip Thankyou 1.pdf](#)

Group 2: [Austin High Field Trip Thank you 2.pdf](#)

## Let’s Zoom!

Join us for an upcoming zoom coffee hour. Be sure to indicate you’d like to participate in the THC follow-up survey or let us know at [lsiegel@mathhappens.org](mailto:lsiegel@mathhappens.org)

## Make a Connection- Presenters, Collaborators, Resources

Name	Notes
<p>Lauren Siegel - presenter            Director, MathHappens Foundation            1606 Pearl Street            Austin, TX 78701  <a href="mailto:lsiegel@mathhappens.org">lsiegel@mathhappens.org</a></p>	<p>Lauren combined her enthusiasm for inquiry learning, interest in making things, and a desire to impact museum education into MathHappens. Working with interns from University of Texas UTeach programs, developing new ideas, researching math concepts, and collaborating to find a great fit are all areas she can discuss (at length - beware).</p>
<p>Claire Steffen - presenter            Museum Professional  <a href="mailto:steffen.claire9@gmail.com">steffen.claire9@gmail.com</a></p>	<p>Claire has implemented math programming at Pioneer Farms in several modes. Her professional studies and experience are in museums, history and anthropology and she has presented on incorporating mathematics in a historical setting. She is the former Director of Experience at Jourdan-Bachman Pioneer Farms. Currently residing in St. Paul, Minnesota.</p>
<p>Elizabeth Lay - presenter            MathHappens Foundation            Texas History Connections</p>	<p>Elizabeth Lay has a background in history and has worked in the classroom as well as administration. She is an experienced theater director as well. Her research into Texas History has uncovered fascinating stories and artifacts related to the survey, mapping and early government of the state of Texas.</p>
<p>Josephine Sheng            University of Texas Undergraduate            Biochemistry Major            Current MathHappens Staff/Former Intern  <a href="mailto:jsheng@mathhappens.org">jsheng@mathhappens.org</a></p>	<p>Josephine has hands-on experience finding ideas, researching activities, and making site visits. She also has extensive experience facilitating activities and interacting with the public as well as presenting to educators in a conference setting and working with museum staff.</p>
<p>Ximena Garcia            University of Texas Undergraduate            Department of Mathematics            Current MathHappens Staff/ Former Intern  <a href="mailto:ximena.mgarcia@utexas.edu">ximena.mgarcia@utexas.edu</a></p>	<p>Ximena Garcia has worked on our Math in Texas History programs, in various capacities at Museum Day, designed and built models on the laser cutter and is currently creating videos in Spanish for Austin Public Television. Ximena is also working on how we can offer the conversation cart program at the Texas State History Museum in a virtual format, and in Spanish.</p>

<p>Jennifer June MathHappens Foundation California Projects jj@mathhappens.org</p>	<p>Jennifer June has worked extensively in public health and in education programs for communities most recently for BBK in Richmond CA that face serious challenges in school quality, language and cultural barriers and a simple lack of resources. She is a good person to discuss ways education programs can be offered to be more accessible.</p>
<p><i>Collaborators working in Museums</i></p>	
<p>Joshua Ransom Exhibit Coordinator Austin Nature and Science Center 301 Nature Center Drive Austin, Texas 78746 P: 512.974.3870 E: <a href="mailto:Joshua.Ransom@austintexas.gov">Joshua.Ransom@austintexas.gov</a> <a href="http://austintexas.gov/department/austin-nature-and-science-center">austintexas.gov/department/austin-nature-and-science-center</a></p>	<p>Austin Nature and Science Center is the site for the Human Sunclock, one of our most successful installations. ANSC has hosted MathHappens collaborative field trips for elementary, middle and high school students, and has a small permanent exhibit on the Golden Ratio. We opened the doors on a Math Activities Room this spring. There is no admission charge so we are particularly interested in long term investments at this facility.</p>
<p>Kaitlin Lloyd-Leva Head of School Programs Texas State History Museum <a href="mailto:Education@TheStoryofTexas.com">Education@TheStoryofTexas.com</a>.</p>	<p>Kaitlin Lloyd-Leva has been our main contact for field trip collaborations, coordinating our groups and providing logistical support at the Texas State History Museum. As a long standing board member at the Austin Museum Partnership she is also able to discuss the museum community in Austin generally. MathHappens participates in Museum Day at multiple locations every year.</p>
<p>Sergio Belmonte Palmero Vicepresident Associació MMACA - Museu de Matemàtiques de Catalunya +35 669 58 85 87   <a href="mailto:sergio.belmonte@mmaca.cat">sergio.belmonte@mmaca.cat</a> <a href="http://www.mmaca.cat">www.mmaca.cat</a></p>	<p>Sergio is a dynamic presenter of math concepts. The museum MMACA in Catalunya is dedicated to hands on mathematical exhibits, displays and activities. They have a permanent gallery, traveling exhibits, school programs and a wealth of ideas and materials. I highly recommend a visit to their website for starters.</p>
<p><i>Educators</i></p>	

<p>Jennifer Austin, Ph.D. Associate Professor of Instruction Outreach Coordinator Department of Mathematics The University of Texas at Austin jmann@math.utexas.edu <a href="https://web.ma.utexas.edu/users/jmann/">https://web.ma.utexas.edu/users/jmann/</a></p>	<p>Jennifer serves as the Undergraduate Mathematics Faculty Advisor, chairs the Mathematics Undergraduate Studies Committee, coordinates outreach for the mathematics department, serves on the College of Natural Sciences Outreach Task Force, and organizes the Mathematics Teachers Circle of Austin. She and her students have collaborated with MathHappens on various outreach events.</p>
<p>Mardi Nott Mathematics Educator djidonatitingou@gmail.com 512.522.4236</p>	<p>Mardi is a lead mathematics teacher (Calculus, Algebra II, Trigonometry) at Austin High School, has led field trips with MathHappens to the Ransom Center Archive (Lewis Carroll collection), Texas State History Museum (La Belle), and several trips to the Austin Nature and Science Center (Golden Ratio, Voronoi Regions, Fibonacci Numbers). She has presented at conferences on the ways math field trips benefit students and teachers. She also has done professional development sessions for teachers on hands on models.</p>
<p><i>Creative Makers of Mathematical models and activities.</i></p>	
<p>Godwyn Morris Director, SkillMill NYC Makerspace, Mathematics Activities <a href="https://www.skillmillnyc.com/">https://www.skillmillnyc.com/</a></p>	<p>The SkillMill and Mathhappens have collaborated on presentations at the Museum of Mathematics MOVES conference, and most recently in January on a very successful family night program for the Museum of Math in New York. They run camps for kids, make prototypes and custom projects and provide other mathematical programming at the Museum of Math and in other venues.</p>
<p>Mark Kaercher Shaker High School Mathematics Department NYS Master Teacher Emeritus Twitter: <a href="https://twitter.com/shskaercher">@shskaercher</a> Web: <a href="https://sites.google.com/nccsk12.org/mrkaercher">https://sites.google.com/nccsk12.org/mrkaercher</a></p>	<p>Mark is a high school mathematics teacher and maker with an interest in math games, activities and modeling. He has a website with an extensive catalog of completed projects, instructables and other resources. He is partnering with MathHappens to provide kits of “panda tiles” for his community in New York.</p>

<p>Julia Robinson Mathematics Festival (JRMF)  <a href="https://jrmf.org/">https://jrmf.org/</a>  <b>Webinars:</b>  <a href="https://www.jrmfactivities.org/webinars">https://www.jrmfactivities.org/webinars</a>          Julia Robinson Mathematics Festival supports locally organized events that inspire K-12 students to explore the richness and beauty of mathematics through collaborative, creative problem-solving.</p>	<p>MathHappens Foundation has sponsored some of the free webinars JRMF have provided in recent weeks. Resources on their website include many activities, and attending the webinars is a great way to learn how to facilitate a math activity over zoom. They do it very well.          If you have a space, and circumstances allow, hosting a math festival is a great way to bring their collaborative approach to your community.</p>
<p><b>Public Math</b>          email: <a href="mailto:contact@public-math.org">contact@public-math.org</a>          web: <a href="http://public-math.org">public-math.org</a></p>	<p>Public Math creates mathematical opportunities in the spaces that diverse children and families inhabit and interact with in their daily lives. Recent projects include <a href="#">Public Math postcards</a>, an inexpensive large-scale means of distributing interactive math play in a time of quarantine. They have also designed a <a href="#">math vending machine</a> for festivals, schools, and museums.</p>