COUNT≠D OUT

Facilitation Guide

Table of Contents

↘

Letter from the Filmmaker

Two of my previous films are rooted in stories about school, and this one started out that way. I began with a curiosity about how math is taught in the classroom. Why do so many students fear it? Why does math proficiency in America lag so far behind other countries? Why do so many of us consider ourselves to be "not math people," even in a time when math is central to our technological, data-driven society?

As production began on Counted Out, however, I learned that a film about the way math is taught—and how we learn it—ends up being a film about so much more than classrooms. It's about who is encouraged and supported on the journey to math literacy. It's about who drops out of the math pipeline, and why. It's about why some of us learn early to distance ourselves from math fields, unwittingly closing off doors of opportunity to hundreds of exciting careers in science, engineering, technology, medicine, and media. It's about how math forms the scaffolding that supports our institutions. It's about math's critical role in (literally and figuratively) holding up our infrastructure and cities. It's about how math is the architecture holding up almost everything in modern life, including our electoral process, our news ecosystem, our dating sites, our social media feeds, our housing market, and our prisons.

Ultimately it's a film that poses a question fundamental to democracy: if we can't understand a system that governs us, how much power do we actually have?

In my quest to understand math's critical role in our lives, I uncovered a movement of scholars, activists, and educators who also see math as more than an academic subject. For these experts, math is a tool for understanding and harnessing the beauty, wonder, and possibility of the world we live in. And our lack of access to that tool is, in their view, the critical civil rights issue of our time.

In making the film, I was honored to meet the civil rights hero Bob Moses, one of the greatest movement builders in the ongoing fight to make society more equitable. The film includes some of the last interviews of his life as he invites us inside the work of his groundbreaking Algebra Project. Moses advocated for shifting the power dynamics of learning, just as he'd done during his voter-registration work in the '60s. The results of his work have been transformative, and our film is dedicated to him.

In making Counted Out, I learned that we have a math crisis in America, but that it's a crisis whose solution is at our fingertips. As we capture the knowledge, organizing, and wherewithal of those who are advocating for widespread math literacy, we can unleash something else: the power of all of us to shape the world we're living in.

Vicki Abeles

Vicki Abeles | Director, Impact Producer, and Change Agent
Counted Out | *Beyond Measure* | *Race to Nowhere* |
NYT Bestseller *Beyond Measure*
vicki@reellinkfilms.com

Tools for Facilitators

We encourage facilitators hosting screenings and post-screening discussions with *Counted Out* to tap into the following resources as they prepare for, and guide, their gatherings.

→ The **film synopsis** may be used to prepare promotional materials as you invite audiences to your event; to introduce the film at your screening; and to share details about the film with prospective post-film panelists or moderators.

You can also find this information on our website: countedoutfilm.com

---

→ The **introduction to the big picture** is intended to help you prepare audiences to grapple with the major themes of the film, and to understand mathematical literacy as a critical ingredient in a participatory democracy–and not just a classroom subject. As you begin your event, you may want to use this section of the guide to think about the complex societal and the deeply personal issues explored in the film, and to frame your own understanding of the film as a tool for further community exploration, dialogue and action.

→ The **tips for leading a productive discussion** can be used to prepare yourself to navigate sensitive and respectful dialogue in your post-film conversations. Many of the themes of Counted Out revolve around issues of identity, race, gender, socioeconomic status, educational status and personal empowerment, and dialogue about these issues can be emotional and powerful.

Synopsis

In our current information economy, math is everywhere. The people we date, the news we see, the influence of our votes, the candidates who win elections, the education we have access to, the jobs we get—all of it is underwritten by an invisible layer of math that few of us understand, or even notice.

But whether we know it or not, our numeric literacy—whether we can speak the language of math—is a critical determinant of social and economic power.

Through a mosaic of personal stories, expert interviews, and scenes of math transformation in action, Counted Out shows what's at risk if we keep the status quo. Do we want an America in which most of us don't consider ourselves "math people"? Where math proficiency goes down as students grow up? Or do we want a country where everyone can understand the math that undergirds our society—and can help shape it?

Introduction to the Big Picture

For the facilitator:

You've likely brought Counted Out to your community because you're intrigued by the film's primary thesis: that we can investigate and understand the biggest crises of our time—including political polarization, racial and economic inequity, a global pandemic, and climate change—through the unexpected lens of math.

As you prepare to introduce or frame the film for your audience, note that while the film is forward-looking and solutions-oriented, it also explores some heavy themes, including the way widespread mathematical illiteracy intersects with a range of social problems like incarceration, immigration, poverty, and gender-, race- and class-based discrimination.

Certain of these themes could be upsetting to some audiences, and it's likely that some storylines could trigger negative memories or experiences around math instruction.. Perhaps audience members will see the ways in which their own math performance in school has functioned as a social and economic barrier in their lives. Or perhaps they have felt, or been told, that they are "not a math person," or that "math is not for me." This is a widespread feeling!

Ultimately, though, while the film does interrogate the way math is taught in schools, it also offers a paradigm-shifting set of questions that are intended to lift audiences out of the specifics of their own experiences to ponder the health and potential of our society at large.

These big-picture questions include:

- What if we thought of math not only as a series of classroom subjects, but as a complex, dynamic, awe-inspiring language for understanding and decoding the world around us?
- What if we saw mathematical literacy as every human's birthright: an inborn capacity every human has access to?
- What if every citizen understood enough math to be able to "look under the hood" to see how math shapes our institutions, technologies, political systems and personal choices?
- What if the concept of being "a math person," could be erased? (Think about it: No one says, "I'm not a reading person.")

To prepare your audience to engage with the film beyond the narrow lens of math in school, you may want to find a few minutes prior to starting the film to engage the audience with questions that will prime them to go into the screening thinking about what math is in broader, more complex ways.

For example, ask for a show of hands as you prompt:

- Who in this room was once told that they are not a "math person"?
- Who in this room still thinks they are not a "math person"?
- Who in this room gets nervous when they think about filing taxes? What about deciding whether or not to have a medical procedure? Making a household budget?

Voice aloud the percentage of hands raised in the room (i.e., "Wow, that's 70% of you!) and let the number sink in. Then tell your audience that the film they are about to see might change their mind or inspire new connections about these experiences. Explain your hope that audiences will share their reflections on any shifts they experience after the lights come up and the discussion begins.

Tips for Leading a Productive Discussion

As you plan for your post-film discussion, we encourage facilitators to ground the dialogue in some standards of behavior for all who participate.

Establishing such ground rules is especially helpful when discussing sensitive topics like gender- or race-based discrimination, or when facilitating dialogue across lines of difference, for example among groups with differing political, ideological, educational, religious or socio-economic backgrounds and experiences.

To support a respectful, solutions-oriented dialogue, facilitators may wish to suggest a set of ground rules. These might include:

Establishing a discussion leader or moderator

This person could help prompt dialogue, ask questions and guide the flow of discussion. If you'll structure your event around a presenter or panel, you can introduce the role of these participants as well.

Encouraging a spirit of inquiry and good intent.

Individuals in your audience may hold or express opinions or beliefs that are not held by everyone in the group, but participants can agree to assume that individuals enter the conversation with a desire for understanding and a motivation to learn, even if they disagree on particulars.

Listening actively.

Facilitators can encourage participants to take turns speaking by raising hands or waiting to be called on. In smaller groups, some facilitators may wish to offer even more structure, such as using a passed prop (a stone or scarf) to signal each person's turn to speak, identifying a note-taker to record the group's discussion points (and show that everyone who contributes is being heard), or setting a timer to ensure that everyone has time to speak.

Setting guidelines for anecdotes or personal sharing.

In some group discussions and settings, sharing personal stories may be helpful and constructive; in others, the group may wish to limit personal sharing and focus on collective action or big-picture strategizing. If personal sharing is conducive to your event or goals, you may wish to establish guidelines for privacy, confidentiality, and anonymity.

Beyond these suggestions, facilitators may wish to explore ground rules used by established organizations, such as: Conversation Cafe, National Issue Forums, and the American Library Association.

Additional resources for facilitators leading discussion on sensitive topics in higher-education settings include "Guidelines for Discussing Difficult or High-Stakes Topics," from University of Michigan's Center for Learning on Research and Teaching.

For educators in classroom settings, you may wish to review the "10-Point Model for Teaching Controversial Issues" from the Morningside Center for Teaching Social Responsibility.

Discussion Prompts

As a facilitator, review the questions below before engaging in a group discussion about the film. Some questions have overlapping themes; choose the ones that fit your audience the best.

You can also use the space below the list of prompts to brainstorm additional questions that might be of special interest to your audience.

1. Think about the reasons you came to this film screening.

- What brought you here?
- What about the idea of math as a path to power and agency was intriguing to you?
- Was it a personal motivation that led you here? A professional one? An interest in social equity?

2. Think back to two hours ago. How would you have defined what math is before coming to this event?

- Has your concept of what math is changed after watching the film?
- Did that concept get broader?

3. Experts in the film define math as the "music of reason," the "language God has written in the universe," and the way we "capture the deep structure of something [we] already do."

- Which definition of math from the film most sticks with you?
- Having seen the film, how would you now define math?
- Reflecting on your day today, name one way you "did math" today that you wouldn't have qualified as "doing math" before you watched the film?
- Now reflect on your life more broadly? What are the ways in which you have always "done math"? What kind of mathematical thinking do you do every day?

4. At the beginning of the event, we asked whether you thought of yourself as a "math person."

- What do you think now?
- What do you think would be different in our society if we didn't believe in the concept of "math people"?
- Do you think you could rewrite your math identity at this point in your life?
- If so, what would it take? What would need to change for you to feel like a math person?

5. In the film, Ben Blum-Smith says, "Math is literally central to what democracy will or will not become because it's lodged itself at the heart of modern life." And Julia Angwin says "We have a math crisis in America, and I think it's a civic crisis."

- What do these thinkers mean when they describe math as central to democracy and civic life?
- How does this role of math in civic life differ from math's role in your grandparents' era?
- Think back to your own schooling. Do you think the ways in which you experienced or were taught math in the classroom impact your current participation in public life?

6. Think about Rebecca's childhood experiences of math, and the experiences of her children now.

- How does Rebecca's experience resonate with your own?
- Did you experience a filtering or gatekeeping process around your own math education? If yes, in what ways?
- Do (or did) you perceive a gap between how boys and girls perform(ed) mathematically in school?
- What changed for Rebecca in her own educational trajectory around math? What were the influences that shifted her from feeling like a math failure to re-identifying as a mathematical thinker?

7. Talithia Williams says, "We're not inviting people to sit at the mathematical table."

- Do you think your own personal experience of math has been shaped by your gender, your race, your immigration status or your socioeconomic status? If so, how?
- Have you felt you had a place at the "mathematical table" in the past?
- If not, what kept you from sitting at the table?
- How do you feel about whether you belong at that table now?

8. Think about the example of the "Brazilian Paradox," in which children were able to do complex arithmetic calculations at the market, with high accuracy, though they couldn't represent those calculations in symbols.

- What does this paradox tell you?
- What's the distinction between a child's inborn "number sense" and "love of pattern" and the way mathematics is conventionally taught in school?

9. Many of us are taught to believe "math" is just computation or arithmetic: making numeric calculations, solving equations, etc.

- Under that definition, what daily activities would you describe as "math"? (Think about estimating costs at the grocery store, calculating a discount on a 10-percent-off sale item, calculating a tip at a restaurant, balancing a checkbook, etc.)
- Do these kinds of tasks overwhelm you or produce anxiety? Why?

10. Now imagine that you understand math more broadly: as a way of describing complex patterns, assessing relative risk, or identifying the deep structure of how things work.

- Under this new definition, what daily activities count as math? (Think about deciding whether or not you need to refinance your mortgage, or how likely you are to experience side effects from a medicine,, or which route you should take to work during rush hour.)
- What daily activities feel like math now if you use this definition of math?

11. In the film, we hear that decision-making and reasoning are mathematical activities we all do every day.

- Have you ever thought about decision-making as a mathematical process?
- What's a decision you made recently that you can now see as a form of mathematical thinking? (Hint: think about medical decisions, purchasing decisions, trip-planning decisions, decisions about childcare or eldercare, personal choices about exercise and nutrition, or plans you've made around employment or retirement.)

12. Sensemaking happens when we understand a situation by connecting it to other knowledge we have about the world. Fundamentally, it's the process by which we make meaning out of the abundance of data, information, stimuli and experiences we encounter every day.

- What sensemaking have you done recently? (Think: researching political candidates in order to make an informed vote; learning about a medical procedure to understand if it's right for you; redesigning a room to make it more comfortable, effective or efficient.)
- When you engaged in this sensemaking, did you think of it as drawing on your inborn mathematical abilities? Do you now?

13. If you could design an ad campaign for math that rebranded math as a complex, rich, delightful and awe-inducing way of understanding the world, what kind of campaign would you design?

- What would your campaign look like?
- Who would be the spokesperson?
- Who would be your target market?

14. Imagine you're the brand ambassador for mathematical thinking.

- How would you entice people to engage with math more?
- How would you incentivize them to "try math"?
- How would you counteract the fear and anxiety so many hold about your "product"?

Taking Action with Counted Out

Counted Out's impact and education campaign seeks to expand the work and message of the film itself, including by:

- → Helping to tell a new story about what math is, what math can do, and who can do it
- → Debunking the myth of the "math person"
- → Working with educators, parents, students and policymakers to create a society in which no one is shut out of math education or math-rooted career opportunities because of their race, gender or socioeconomic status
- → Expanding the narrow, old-fashioned definition of math as a rote set of computational skills learned in the classroom
- → Revealing the ways in which mathematical literacy is a tool for discovery, communication, empowerment and democratic participation.
- → Advocating for the importance of every adult re-engaging with math as a tool for decision-making, risk analysis and sense-making.

If these messages inspire you, here's how you can help support our mission now:

- No matter who you are, you can host a **community screening** of Counted Out. Plan the event at the site where your network already gathers: your school, workplace, mosque, temple, church, community center, library, parent group or local cinema. Visit countedoutfilm.com/host-a-screening to learn more about getting started.

- If you belong to a workplace, integrate your film into relevant **professional development opportunities** by programming it through your employee resource group, planning an event at the next meeting of your professional association or annual conference, or encouraging your human resources department to use it in recruitment, hiring, onboarding and training sessions and workshops.

- In a book club? Start a **"math club"** with the same members, or branch off to form a new group. Start with a screening of the film, and then plan to read some of our mathy favorites: *Mathematician's Lament, Making Democracy Count, Dear Citizen Math and The Calculus of Happiness.*

- If you are a teacher, ask your administration to use the film in an upcoming **educator in-service day**, and then facilitate a diverse discussion with administrators, curriculum developers, and your superintendent.

- If you are a parent or student, host a screening of the film and then **program a Family Math Night** at your [child's] school to convene your educational community around a fun, interactive, family-oriented experience of math. Resources, ideas and event kits can be found at familymathnight.com, Math for Love's Family Math Night, or MIND Research Institute's MathMIND's Family Night. FamilyMath offers several activities and resources as part of their Family Math Toolbox, and you can find interactive puzzles and games at the Julia Robinson Math Festival website.

- Follow along as we launch a series of initiatives and actions intended to shift public perception of math and transform math in our everyday lives. You can subscribe to the ***Counted Out*** **newsletter** to stay informed of our evolving impact campaign or contact us at countedoutfilm.com/contact.

- Share your Math Story using our **social media toolkit** - and encourage others to share how math has impacted their life!