

The Math Movement

The Math Movement runs programs that invite middle and high school students to solve problems, both mathematical and social. We see gaps in math test scores as a social problem caused by inequality of opportunity. But we also know that improving math performance and closing historical gaps is a solvable problem. So we aim to create educational advantages for kids who might not otherwise have them and to strengthen the support those children receive from their community.

We want to get kids excited about learning; to foster their creativity and capacity for solving problems. As described by the great physicist Richard Feynman, we see our subject less specifically in terms of math and more generally in terms of developing freedom of thought: “What we have been doing in the past is teaching just one fixed way to do arithmetic problems, instead of teaching flexibility of mind – the various possible ways of writing down a problem, the possible ways of thinking about it, and the possible ways of getting at the problem.” Our goal is therefore to teach “a new subject in a sense – an attitude of mind toward numbers and toward mathematical questions which is precisely that attitude of mind which is so successful later in technical applications of mathematics.”

Socially, we aim to create an environment where our kids can find a supportive community. We ask our kids not just to respect each other, but to care for one another. We organize our students into teams with near-peer mentors to leverage the power of example and self-improvement. And then we encourage kids to approach social problems with the same flexibility of mind that they approach mathematical problems. The community this builds provides a space for students to let go of motivation based on fear and the need for status, and to instead develop motivation based on self-expression, creativity, and the inherent enjoyment of possibility. In a country where children are growing up surrounded by violence and trauma, and often given little opportunity for self-expression or creativity, our combination of mathematical and social problem solving is a form of [healing centered engagement](#).

1 What We Want for Kids

Our learning community is built on a simple insight: You have incredible power when kids know you care about them. This insight comes from experience: Kids who come to camp angry, hurt, anxious, or upset open up and grow full of enthusiasm after spending time in a caring environment. And this insight does not just apply to kids who are hurting: Kids who are bored or unengaged will find a reason to care when they know that others care.

We communicate that we care by demonstrating to our kids that we want good things for them. It is crucial that caring for kids does not mean that we accept any behavior on their part. In fact,

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just the opposite! We set high expectations for kids’ growth, both mathematical and social, and let them know whether those expectations are being met. Then we stick with it, providing whatever support a student might need to meet our expectations. And we do all of this in community, with near-peer mentors, fellow students, and staff all striving together to bring out the best in ourselves.

Because we use the word “care” so frequently, it is useful to provide our definition of this word. In **The Math Movement**, when we say that we want good things for our kids, we mean: We want to share something beautiful with our kids so they can experience joy. We want our kids to be excited to learn, motivated by a desire for creativity and self-expression. We want our kids to develop their potential, embracing failure as the path to growth. We want our kids to be part of a community, so they can serve others, experience the healing power of relationships, and better know themselves. And we want our kids to be safe so they can have all of these experiences.

1.1 We Want Kids to Experience Joy and Self-Expression

Our most basic motivation is wanting to share something beautiful with our kids. Whether we are sharing an idea about infinity, the nature of gravity, a perfect melody, expressive words of poetry, or how these ideas interact, we want our kids to experience the pleasure of finding things out. But our motivation extends more concretely to the world we live in: We also want our kids to develop their potential (Appendix A elaborates.). We don’t think this development is something we can do for our kids or give to them. We do, however, think we can encourage this growth by getting kids excited about learning.

We think the best way to get kids excited about learning is to share with them the joy of experiencing beauty and the excitement of creativity. These types of experiences help to foster a desire for creativity, growth, and possibility. The same way that creativity, freedom, and positivity can be the foundations of athletic greatness (Polsky (2018)), we want this type of motivation to excite our kids to learn.

We see this motivation as enabling kids to be themselves, and as the polar opposite of kids living their lives for someone else. We want our kids to know that whatever terms someone else might set for them, they have nothing to prove. This insight, whether we call it “embracing our humanity” (Baldwin (2012)) or “holding a deep belief in our own dignity” (King (2013)), can be just as valuable for the high schooler who thinks their entire self-worth is determined by the college they attend (Markovits (2019)) as it can be for the person trying to prove their status through material possessions (D’Avella (2015)) or putting others down (King (1968)).

The gap in these motivations is evoked by the question: “Do you know why you’ve got feelings in your heart?” We think sharing honest expressions of ourselves and our emotions is one of the most meaningful ways to spend our time. We do not treat the feelings in our hearts as some commodity to be traded, as a nuisance to be ignored, or as something to be manipulated to fit others’ expectations. We want to lift up self expression, individuality, and moments of genuine human connection. These moments of beauty are what give meaning to life, and it is ironically through sharing ourselves and relationships with others that we can come to [know ourselves](#). We

see our emphasis on kids being themselves as a counterforce against something we often see in our society: “that which has no value being emphasized as being meaningful, and that which has genuine meaning being given low regard” (Moyers (2009)).

1.2 We Want Kids to Embrace Failure as the Path to Growth

Motivated by a desire to create and out of excitement for what is possible, we want our kids to lead active and examined lives. We want our kids to develop their potential, inspired to [dare greatly](#) and to fill each [minute with sixty seconds’ worth of distance run](#). But this means they will not always be comfortable. Growth and learning are often the result of struggle, and can be painful (Kennedy (1968)).

We want our kids to embrace the struggle for growth, knowing that the benefits outweigh the pain. This is why we constantly encourage our kids, making it a point of emphasis to praise their efforts as much as their achievements. We remind our kids that realizing their genius will entail failures, false starts, and stumbles. Just as pain serves a useful purpose in letting us know what to avoid (Lama and Cutler (1998)), we see failure as a way of adding to our knowledge (Shah and Antonow (2016)), focusing our attention on true solutions and what really matters (Duhigg (2019)). Under the belief that the secret to success is learning from failure, we give full effort and embrace our failures as opportunities for growth (Dweck (2007), Tough (2011)).

This philosophy leads us to present our kids with problems, both mathematical and social, and then to encourage them to solve those problems. Math is such a great tool for this process because it is all about problem solving, giving kids the opportunity “to pose their own problems, to make their own conjectures and discoveries, to be wrong, . . . to have a breakthrough idea, to be frustrated as an artist, to be awed and overwhelmed by an almost painful beauty, to be *alive*, damn it” (Lockhart (2009), pp 29 and 37). Incredibly, it turns out that supporting each other in this process of mathematical discovery is an extremely effective way to build community. We leverage this power, providing structure and techniques our high schoolers can use to support our middle schoolers.

1.3 We Want Kids to Be Part of a Community

In **The Math Movement** we see ourselves as extensions of one another. This leads to a goal of creating a community in which there is a balance between the individual and the communal. We aim to create a community where we support each other but hold on to our individuality as much as possible, where there is beauty from each of us contributing our individuality to life.

Seeing ourselves as extensions of one another helps us to see service to the community as our “highest life achievement” (Einstein (2011)). But this view also helps us to see how we benefit from community. We consider genuine connections with one another as one of the “highest goods” in life, and even as a candidate for the [summum bonum](#): These connections are a central source of joy and meaning in our lives (Hari (2018)). Paradoxically, connections with others also give us

the ability to express our individuality and to know ourselves, since “A person is a person through other persons” (Tutu (1999), p 31).

1.4 We Want Kids to Be Safe

None of what is described above is possible without personal security. Unfortunately, there are kids growing up in America right now being exposed to tremendous amounts of trauma and violence. We can characterize this experience in any number of ways, but the point is that if we care about kids, we want this to stop. As Geoffrey Canada has said:

If you grow up in a community where... the sounds of gunshots are a common thing, where you spend your time and energy not thinking about algebra or geometry, but about how not to get beat up, or not to get shot, or not to get raped, when you grow up like that, you don't have the same opportunity as other children growing up (Simon (2009)).

The first goal of our organization is to create a place where kids are safe. We communicate to our kids, in many ways, that their safety is our number one concern. We see ourselves as part of a common effort, reinforcing the community initiatives already under way to keep kids safe. Beyond physical safety, by creating a place with responsive relationships, where kids have agency, we utilize the power in community (Tough (2016), Harris (2019), NSCDC (2015)) to create a place where kids can grow and experience collective healing (Ginwright (2018)).

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A Appendix: Defining “Full Potential” and “Success”

The Math Movement is built around a long-term commitment to our students, through a combination of hard work, patience, and persistence. Thus, while it is possible that we can affect students’ life trajectories in just one summer, we only have an expectation of such success when students come back to The Math Movement and participate in our programs over several years. In the cases when students return to The Math Movement for more than one summer, we fully expect to help those students develop to their potential.

What do we mean when we discuss students developing to their fullest capacity? More precisely, what do we see as the aim of our programs or of education more generally? We answer this question with [Albert Einstein’s view](#), which was that “The aim [of education] must be the training of independently acting and thinking individuals who, however, see in the service to the community their highest life achievement” (Einstein (2011)). This perspective gives us two ways of defining success for The Math Movement:

1) The training of independently acting and thinking individuals.

We consider programs run by **The Math Movement** a success when:

- a. All students are comfortable being themselves and have arrived, after reflection, at their own definition of success.
- b. All students have developed freedom of thought, holding an attitude of mind that enables them to consider many possible ways of thinking about any given problem.
- c. All students are proficient in mathematics.
- d. All students graduate from high school with a plan for their career.

Examples of career plans include attending college, attending community college, attending an apprenticeship or technical training program, or seeking employment.

- e. All students develop habits for and the goal of constant self-improvement.
- f. All students become passionate about learning.
- g. Some students become passionate about mathematics.

Becoming passionate about mathematics can mean anything from seeking further education or a career in a field based heavily in mathematics, all the way to simply continuing one's education in mathematics in one's spare time.

2) Seeing one's highest life achievement in the service to the community.

We consider programs run by **The Math Movement** a success when:

- a. All students develop a social flexibility of mind, a curiosity for understanding what drives others' behavior that leads to empathy. We will recognize this empathy when we see kids caring about other kids in camp and eventually all others.
- b. All students are a force for positive change in their families, schools, neighborhoods, and communities.
- c. Some students become leaders for positive change in their families, schools, neighborhoods, and communities.
- d. All students focus on self-improvement in ways that improve their abilities to support others.
- e. Some students choose careers that allow them to support others.
- f. All students reflect on how we should interact with one another and are informed about public policy issues facing their community, country, and world.
- g. Some students become passionate about governance and get involved in some public policy issues facing their community, country, or world.