

# Institute for Applied Tinkering 2020/21 Annual Report



*The Institute for Applied Tinkering's mission is to develop, practice, and share educational methods that challenge and support all children to engage deeply in their learning via real interests and real tools.*

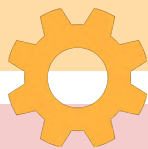
At the Institute for Applied Tinkering (IAT), our impact comes from working directly with kids and educators to develop, practice, and demonstrate the efficacy of an alternative path in education, primarily through our Brightworks and Tinkering School programs.

The Institute for Applied Tinkering is now 15 years old. To date:

**264 students** have attended BWX since 2011, growing from 23 → 112 students, with 17 graduates from the high school so far



**>5,000 children** have participated in tinkering programs during the summer, after school, and online



**100s of educators** have developed their craft with the IAT and gone on to impact the lives of many more children, including 45 BWX collaborators, 103 Tinkering School Staff, and hundreds of independent teachers in the Curious Educators Program



## The Arc of a Vision

*Letter from the Founder*

In 2005, my wife and I invited eight young campers into our home to try something that we called Tinkering School – because tinkering is a playful and positive problem-solving mindset. We envisioned it from the start as a place where the project was the focus, and the reward for good work was progress and camaraderie. Never comfortable with the notion of “teacher,” I called myself a collaborator because I wanted to work with the children, to be as committed as them to the unknown outcome. We built big, complicated, often ridiculous projects. The goal in those first years was to have every tinkerer leave elated, exhausted, and amazed at what they could accomplish.

In 2011 we opened the doors of an empty warehouse and invited 19 students into Brightworks, a program that would end up changing the lives of everyone involved. Inspired by the work of the children at Tinkering School, we imagined a place where learning would be intrinsically motivated and come from a desire to understand and engage with the world. Once again, we collaborated with the students, learning alongside them as we took on topics and projects outside our areas of expertise.

The pandemic pushed us out into the world in new ways, with young kids turning the 3rd most-visited city park in the country into their classroom, and tinkerers moving their creative pursuits outside and online. In fog, rain, and glorious sunshine, kids found new questions in the ways birds soared and turtles basked, made epic forts, and discovered math in the symmetries of plants. Experienced collaborators called this the hardest and also proudest year of their careers. It takes special people and families to pioneer a new form of school when the world is in so much turmoil. But, we are taking the best of what we learned forward in our programs this year and out into the broader education community.



Brightworks and Tinkering School were shining examples of what makes child-centric learning transformative, in spite of the pandemic. Faced with so many challenges, it would have been easy to just do the bare minimum and wait for better days, but instead, across every program we saw innovation. From the engaging tinkering kits we sent home with every student, to the development of entirely new kinds of distance learning like the Mars Project – which connected summer camp kids to robots in a scale model of a lava tube – our staff created ways to keep students engaged and motivated.

Our work in these programs stands out against the backdrop of incremental change in education as an example of what can be done. Our explorations have had an incredible impact on the lives of children around the world, who have been inspired to ask questions, build new skills, and believe more in their own abilities. We have inspired educators through our Curious Educators Program to make bold moves in their own practice, changing the way children experience learning. Together we are re-imagining education and testing those ideas, we are acting as an engine of creativity.

Our programs continue to evolve and innovate, reminding the world that learning is a collaboration, that childhood should be amazing, and that everything is interesting.

– Gever, IAT Founder

## Advancing the IAT's Mission

*Letter from the Board Chair*

For over fifteen years our motto has been “Everything is Interesting.” The idea is, why not make curiosity the starting point for everything? And specifically, how can we give kids the freedom to be curious, pursue their own ideas, and connect with their own natural creative power?

Our mission is to “develop, practice, and share” ways of creating environments, programs, techniques, and materials that deliver this freedom to children. Our strategy has three main pillars. First, we run our own K-12 school, after school programs, day camps, overnight camps, and online camps. This gives us an enormous diversity of contexts where we can invent, experiment, and refine new educational methods and techniques with real kids in the real world.

Second, we work to make our programs useful and inspirational for other educators who are striving to create more child-centric learning in their own organizations. We provide a variety of free resources, and our Curious Educators programs offer workshops, webinars, and consulting services for educators around the world.

Third, we work with partners to expand our reach and impact. Our work with organizations such as the Boys and Girls Clubs, Mark Day School, and Buckeye Friends have allowed us to impact kids we could not have reached on our own. And our partnership with Tinkering Labs has helped many tens of thousands of children experience the creative joy of invention in their own classrooms and homes.



Thanks to the creativity and commitment of our team, we're now emerging (I hope!) from a profoundly calamitous and destructive period for educational institutions stronger and better than ever. Every element of our "Develop, Practice, and Share" strategy is underway, and we're poised to greatly expand our reach and impact. I want to offer my deep gratitude to all of you who have made it possible, and a hearty welcome to all the newcomers who are joining us in our mission to transform education in the 21st century.

– Matt Brocchini, IAT Board Chair



## 2020/21 Program Highlights

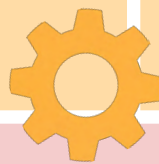


**85** Brightworks K-12 School students

- 3 class of '21 graduates
- 37% received tuition assistance

**732** kids joined Tinkering School online (a pandemic pivot)

- 419 tinkerers in Electric Motors Catalyst Camp
- 225 makers in Digital Code to Cardboard
- 88 adventurers in the Mars Adventure pilot
- 1,288 views of the YouTube pilot *Tinkering With Gever*



**407** kids joined Tinkering School in person in 2021

- 173 kids in Afterschool
- 162 Summer Day Campers - SF
- 72 Summer Day Campers - Marin
- 64 summer camp attendees joined through a partnership with the San Francisco Unified School District
- 68% of participants were were first-time tinkerers
- 0 overnight campers (cancelled due to Covid)

**607** educators and parents developed new skills with the Curious Educator programs

- 75 educators joined 7 sessions of the Evolving Maker Education webinar series with Aaron and Gever
- 19 educators participated in the Curious Educators' Summer Institute - Effingham II
- 513 parents and educators supported in online workshops at the beginning of the pandemic

## New shapes for Brightworks during Covid



Times of great upheaval demand a re-evaluation of what is truly important. At the beginning of the school year our whole community signed a pledge to protect those around us – especially those who are most vulnerable – by doing our part to limit the spread of Covid-19. It is through our enormous communal effort, and the success of our risk mitigation measures, that we made it through last year with ZERO Covid cases amongst our students and staff!

After mitigating the health risks of learning together during the pandemic, our biggest priority was student engagement and connection. Faced with the constraints of an ever evolving public health crisis and the needs of our community, there was no one solution, so we made three schools! Truly embracing the ethic that the world is our classroom, Brightworks students met daily in Golden Gate Park, in our building at 9th Avenue, and over Zoom.

In Golden Gate Park, our elementary students and collaborators found that the world is filled with teachable moments. They turned fishing coins out of a fountain into a lesson in mathematics, recorded their favorite moments in the park in drawings and words and bound them into a book, and navigated the challenges of teamwork as they built forts and dams. Every day, collaborators returned students to their families exhausted, dirty, and brimming with excitement about their adventures in learning.



At 9th Avenue, our middle school met daily in the building. Through projects, discussions, and provocations, our students engaged deeply with the moment we were living through. In one compelling group effort, our middle school bands designed a fundraising campaign for issues that they were passionate about. The read-a-thon raised \$8,544 from 162 donations. All proceeds were gifted to two local organizations: Tiny House Empowerment Village, which provides emergency shelter and support for transitional-aged youth; and MH First Oakland, a project of the Anti Police-Terror Project, which operates a hotline for non-police response to mental health crises.

When the pandemic first shut down schools, Brightworks made an overnight transition to distance learning. Without skipping a beat, our intrepid collaborators tried new platforms, sought feedback from students and families, and iterated to create a program that honored the needs of our community. For the Zoom start to the 2020 school year, our high school students used the design thinking process to build out an online event that met the need of connecting our community in celebration over digital platforms. Over Zoom, we found that it has never been more important to honor our students' interests. As elementary, middle and eventually high school returned to in person learning we continued to offer a customized distance learning option based on student interests and families' needs.

In a year of turmoil that stretched everyone's capacity, just surviving is a major accomplishment. Brightworks did more than just survive, we pioneered new learning environments and created safe and nurturing spaces for our students to explore and grow.

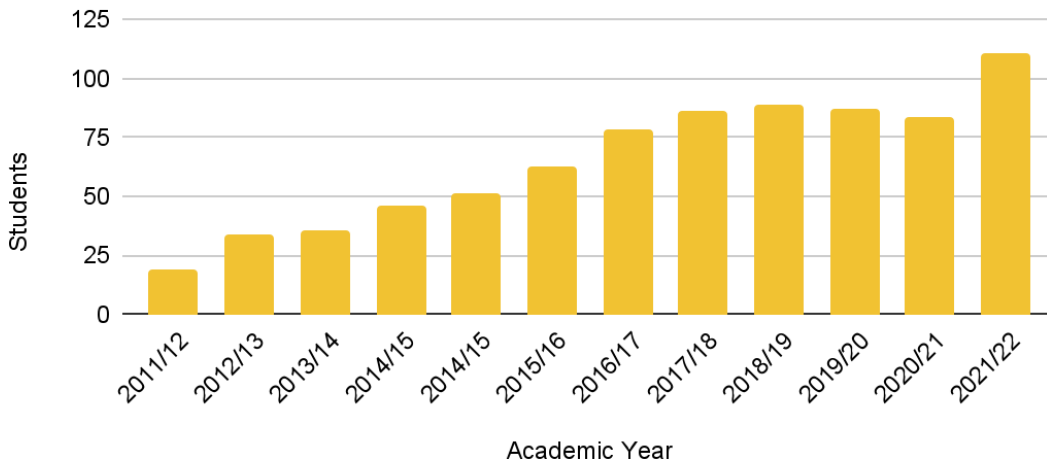


## Growing the school and diversity

49 new students joined Brightworks for the current 2021-22 school year, with many joining our expanded lower elementary school program. This has grown the school to its largest size yet, at 112 students.

This past year represented the largest-ever applicant pool at Brightworks. We invested in more effectively sharing our story, and the Admissions and Community leads partnered to better connect with many new families who were rethinking what their kids were doing in school. The pandemic and distance learning gave parents a closer look inside their children's classrooms. They were sympathetic to the challenges of Zoom learning and dedicated to their public school teachers, but they also expressed a need for a different environment that would cultivate curiosity, skills, and passions in their children. These families were inspired by how Brightworks safely kept school open and created a positive learning environment and close social connections, in spite of Covid-19.

### Brightworks Enrollment



*Justine Macauley, Director of Admissions, has been working with Anthony Consilio (see below) to reinvent how families connect with Brightworks*

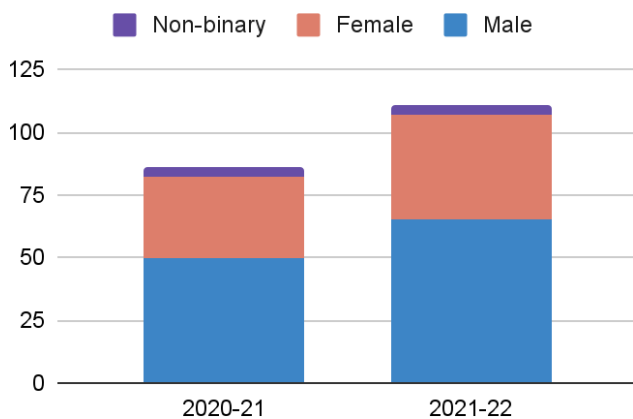
Brightworks didn't hold any in-person admissions events last year, but instead shifted to age-specific presentations over Zoom that let us go deeper into the details of what the school looks like for elementary, middle, and high school learners. This helped applicants better understand and evaluate their fit with our approach to project-based learning. We also began accepting applications through the common private and independent school application system, Ravenna, which has set us up well to continue to grow the diversity of our student body.

Growth in applications has helped us make progress in diversifying our community. While a diverse community is not only our goal, it is a critical part of our mission to support all children.

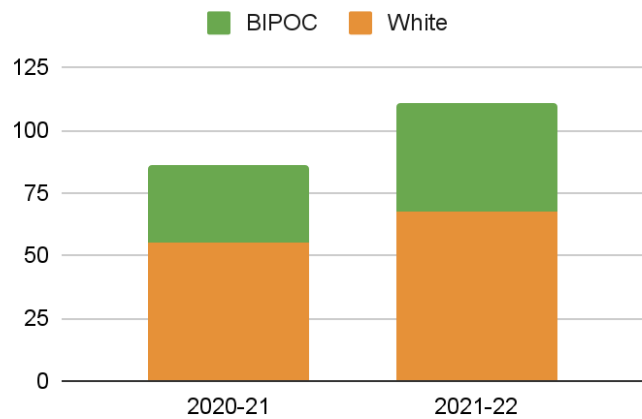
- Increased our BIPOC student body from 35% to 39%
- Grew the number of female students, though the percentage stayed flat and our student population still skews male, echoing broader trends in non-traditional education
- Grew to 16% of students coming from outside San Francisco
- Granted tuition assistance to 37% of Brightworks students (compared with the national private school average of 20-30%)

We are still far from where we want to be in terms of diversity and equitable access to (and voice in shaping) our programs, and we are committed to transparency while we work hard to get there.

### Holding ground on gender balance



### Focusing on diversity



## Developing the Brightworks Team

The pandemic has put exceptional strain on educators everywhere, and we couldn't be more grateful to all the ways our collaborators and staff have gone – and continue to go – above and beyond. They've collectively racked up hundreds of miles walked during school and countless off-hours texts and Facetime calls with students and families. All while continuing to co-invent the curriculum around each arc with their students. At the end of last year, we reinvigorated our continuous improvement and feedback cycles and have been making organizational and support improvements to continue to help our collaborators do the best work of their teaching careers.

As part of these ongoing efforts to take care of our exceptional team and ensure inclusive practices, we also conducted a benchmarked compensation review. This resulted in the introduction of a transparent compensation ladder and changes to be more fair and competitive in the local market. The clarity on ranges and what to expect over time – and the current-year compensation changes themselves – were very well received by staff.

We are also investing in the growth of our leadership team. Mackenzie Price, our Head of School, has joined a new community of rising independent school heads, where she continues to both learn and share that spark. Further, we now have Assistant Directors of Program at each school level to ensure a cohesive experience: Melissa Nocero leads the lower elementary school and Phillip Fillastre leads the middle and high school.



*Mackenzie Price,  
Head of School*



*Melissa Nocero, Asst. Director  
of Program – lower school*



*Phillip Fillastre, Asst. Director  
of Program – middle and  
high School*



*Anthony Consilio, Director  
of Community, Slowness,  
and Care*

And then there's our Director of Community, Mr. Anthony Consilio, who's "here, he's there, he's...". Well, he seems to be everywhere. A founding member of the Brightworks team, 2020/21 was Anthony's second year in his current role. It was also the second year of Covid-induced strains on our community and on the world, and Anthony's hundreds (thousands?) of conversations with families, students, and staff during these challenging times were critical to bringing a slowness, a care, and a sense of connectedness to our community, and reinforced why having this role is so important.

For the 2021-22 school year, we hired 3 new, experienced, full-time collaborators at Brightworks (including one back-fill) and added a dedicated math specialist. These collaborators both support the growth of the



school and allow more domain specialization in our middle and high school-aged bands. We're so excited to welcome them all!



## Tinkering School Evolution

Can you transfer the amazing, hands-on experience of Tinkering School programs to an online environment? That's the question we asked and answered over the course of a few short weeks in spring of 2020, when the extent of the Covid-19 pandemic made clear that in-person tinkering was not going to be an option. The answer, by the way, is YES!



Tinkering School expanded with new remote-friendly programs during the pandemic, to give kids and their parents more ways to build and explore at home. For *Catalyst Tinkering* and *Digital Tinkering: Code to Cardboard*, we shipped kits to campers and facilitated building together over Zoom. Gever also went live on YouTube, with a multi-episode pilot season of *Tinkering with Gever, (the Show)*.

To continue to advance Tinkering School's varied programming, we've adopted a new organizational model. In place of a single director, it is now being run by a council of talented representatives (overseen by IAT Executive Director Aaron Eden). We have tremendous gratitude to our former director, Brendon Bell, for helping us recognize the need for and transition to more minds and hands to carry on all the aspects of this work.



## Mission to Mars

*"The reason to take on impossibly complex projects... is simply that there is no better, or more engaging way to learn than to do good hard work together."*

– Gever

In February of 2020, Gever and a small group of 16-19 year-old tinkerers set out to envision a program for kids to collaborate online in an entirely new way. In four months, this self-directed team built a giant model of a Martian lava-tube and designed and built 22 Burlynaut rover robots by hand.

The team then brought together kids from around the world – via their laptops. Meeting on Mars, the kids learned to maneuver their physical robots from another planet and worked together to solve challenges.

Mars Missions have continued with 4 week-long summer camp sessions and multiple afterschool programs, all guided by the original team.



This project demonstrates the IAT's core belief in agency, mutual respect, and engagement as the true measure of intrinsic learning. In addition to using CAD to design the robots, working through multiple iterations of wiring schematics, engine testing, developing code, writing narratives, and engaging actors, the team had the great pleasure of getting to work with people as diverse as the leader of the Curiosity Rover Drive Team at JPL, a planetologist who developed the best simulated Mars regolith, and a set and prop designer who worked on the first Star Wars movie (his wisdom led the team to "put a ladder on the side of it, and people will really understand how big the machines are").



*Ana Zeiger, Jack Meadow, Katherine Byunn-Rieder, Madelyn Hardee. Onion (Gwendolyn) McDowell, Owen Zoyt, PK (Lauren) Byunn-Rieder, and Sylvia Hoyt worked together to envision and build the Mars Mission.*

Tinkering School is excited to launch Mars Week in January 2022. Mars Week connects classrooms with an authentic simulation of rover operations on another planet. With tailored experiences for grades 6-12, students will learn key aspects of robotics, mission planning, geology, astronomy, and collaboration.

## Partnering with the SF School District to Reach New Tinkerers

This year we welcomed 173 new tinkerers to our summer camp community. 64 of those students joined us through a partnership with the San Francisco Unified School District's (SFUSD) Summer Together Program. This program offers no-cost summer camps to children living in San Francisco.

Project provocations this summer ranged from Carnival Rides to Pirates! to Giant Board Games. When not building, campers enjoyed games of LARP (Live Action Role Play), capture the flag, and various card games at Mountain Lake Park. We are constantly amazed by what tinkerers do at Tinkering School. Not just their

engineering and construction skills, though those are certainly impressive; what keeps us truly in awe is each tinkerer's growth as individuals and as collaborators. This sort of learning and development is only possible when we radically trust kids and collaborate with mutual respect.

Parents were amazed too, based on comments received in our post-camp survey:

*"I was really impressed by the camp counselors, who did an excellent job connecting with the children while giving them the independence to feel really confident with the tools."*

*"It was a great way for my son to connect with others around his age, think creatively and problem-solve, and get a lot of good fine motor skill practice (something my kiddo continues to benefit from)."*

We are excited to welcome back a number of Summer Together Program participants in our after school program and look forward to continuing our relationship with SFUSD as we introduce walking school buses to make our afterschool programs more accessible to students at the schools in the neighborhood around the IAT.

## Inspiring Curious Educators

Earlier this year, Gever joined with IAT Executive Director Aaron Eden (also an internationally recognized transformer of education) to offer monthly Evolving Maker Education workshops online. 10 educators joined each of the 7 workshops, exploring core elements of the Brightworks and Tinkering School approach to education, including: Emergent Projects and Curriculum; Language as a Critical Tool; and, Narrative Frameworks for Learning. Several attendees continued on to the Brightworks Summer Institute in Effingham, IL this summer.

## Expanding the Organization's Capabilities

This past year, we hired both Operations and Business managers as part of our continued efforts to mature the organization and enable leadership and collaborators to remain focused on students and programs. Please welcome Shayne and Freya.

Our Diversity, Equity, and Inclusion (DEI) efforts have been multi-layered, with a focus on building increased capacity at all levels of our organization. These include: evolving hiring practices; work with and

support for our BIPOC students and families; support and training for our white educators and families; and the building of partnerships with organizations around the city to make sure as many students as possible know about and can attend Brightworks. Highlights from this year included monthly staff trainings with dedicated DEI leaders, an increase in BIPOC families in the school, our collaborator staff rising from 11% BIPOC to 37% BIPOC, and the beginnings of relationships with organizations that we can partner with to make sure all the work we do continues and continues meaningfully. Our goal is to keep these efforts as a core part of who we are and what we do, continuing to evolve and resource our efforts.



*Operations Manager*

## 2020-2021 Financials

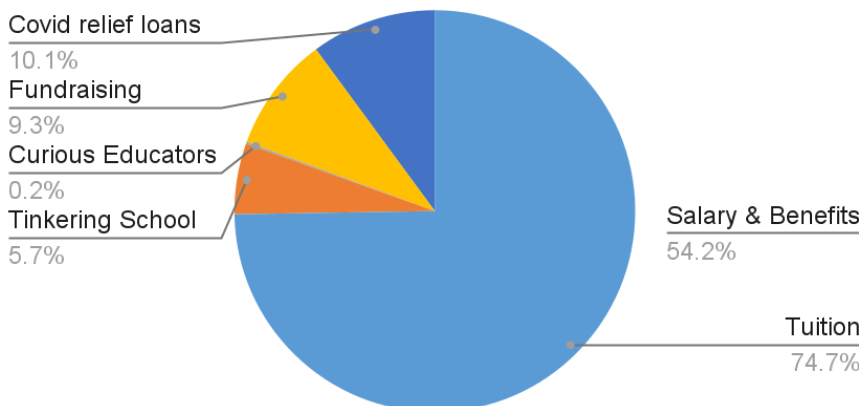
Over the past two years, we've taken tremendous steps to build a strong and sustainable financial foundation for the next decade of impact at the IAT. Changes include cost center accounting for each of our programs, more accurate forecasting models, and updated bookkeeping practices that allow budget managers to access real-time budget information for better cost controlling.



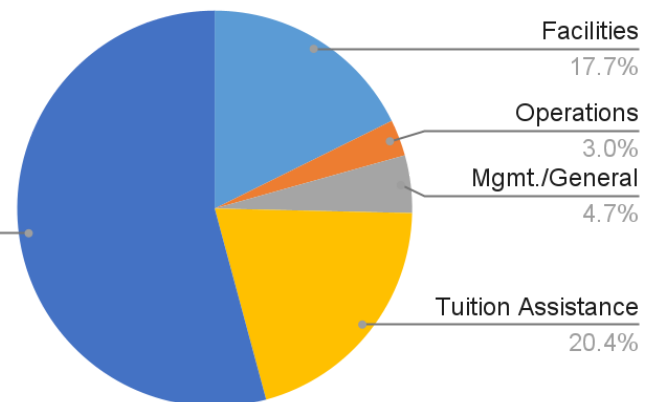
*Shayne Regalado, Business Manager*

We continued to grow operating reserves, building towards a sustainable future. The school generated a cash surplus, due primarily to higher-than-budgeted enrollment and stellar fundraising efforts during the year. Two government Covid-relief loan programs (some of which will likely be forgiven) have helped us offset extraordinary expenses due to the pandemic. The remaining surplus will help us continue on with our mission and with the expected expenses of establishing a new, long-term physical home for the IAT.

### Funding Sources



### Use of Funds



Our fundraising efforts to date have been focused primarily around Brightworks, though we're incredibly grateful for the steady annual contributions of \$15,000-\$50,000 annually through Tinkering School over the last 5 years.

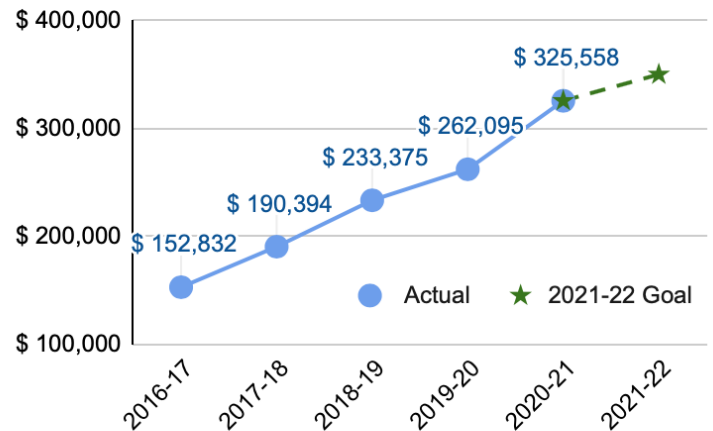
## 2020-21 Brightworks Annual Fund

Our last Brightworks Annual Fund, Meeting the Moment, was a wonderful success with 96% of families participating to raise \$326,376. This was well over our goal of \$268,000. This strong support from all corners of our community helped Brightworks truly thrive in this unusual year, providing much needed funds for collaborator support, financial assistance and helping the school with some exceptional activities and growth opportunities, including:

- Set up our buildings and create the infrastructure to open our campus for in-person learning as soon as the city allowed it.
- Cover park service fees to allow many of our bands to continue their education in the incredible settings of Mountain Lake Park and Golden Gate Park.
- Hire a Business Manager, Shayne Regalado, and Operations Manager, Freya Suarez, to oversee our greatly expanded operational and financial needs, freeing up our other administrators to do what they do best — working with our collaborators and young learners!

We continued our trend of 100% participation in the Annual Fund by our board of directors and saw 96% of our families and 90% of our staff contribute as well. We don't name individual donors, but are filled with the deepest gratitude to our community, not only for all that you do to keep us strong and how you support each other, but for your generosity in making personally meaningful contributions for your family to the school.

Brightworks Annual Fund



## Evolving Together

*Letter from the Executive Director*

You have just finished reading the first-ever annual report for the Institute for Applied Tinkering. It tells the story of a remarkable period in our shared journey; a period when our community of intrepid explorers responded to great challenge with the power of shared vision and collective endeavor, and showed that even during such times there is still joy, and growth, and the careful tending of the seeds of our future selves, as individuals and as a community.

This report is also an important milestone in and of itself; it's a bit of a sign of growing up as an organization. We don't want to ever lose our youthful curiosity and sense of adventure, but we are maturing as an organization, and in ways that we hope will protect and support our ability to endeavor in this important work together long into the future.

One of the ways we are maturing as an organization is by being more intentional in understanding the impact we have, what enables us to have that impact, and how we resource and structure ourselves to be able to continue to have that impact well into the emerging future. We've tried our best to lay that out in the pages above.

We are committed to continuing this work of building the stable foundation from which we can jump, and play, and explore our world together, and I thank you so deeply for your companionship on this journey.

– Aaron, IAT Executive Director

## Get Involved

If you're as fired up as we are about the mission to challenge and support all children to engage deeply in their learning via real interests and real tools., and the work to do it, we welcome you to join us! There are many ways you can get involved:

- Donate to the Institute for Applied Tinkering or a specific program by check or Paypal
- Shop online for good with the IAT as your beneficiary on [Amazon Smile](#)
- Join FamilyWork or The Annual Fund Committee
- Come work with the [Tinkering School Team](#)
- [Buy Mars gear](#) or Tinkering School camps for the space explorers in your life
- Send [Tinkering Labs kits](#) to all your favorite kids – a percent of all proceeds go to the IAT
- Volunteer in any capacity that fits your time and strengths – whether it's painting the building, writing grants, fundraising, building play structures, or lending a hand, you can reach out to anyone on staff to discuss

Stay in touch:  [info@appliedtinkering.org](mailto:info@appliedtinkering.org)  [@sf\\_brightworks](https://www.instagram.com/sf_brightworks)  [@sfbrightworks](https://twitter.com/sfbrightworks)  [brightworkssf](https://www.facebook.com/brightworkssf)

Institute for Applied Tinkering (IAT) is a 501(c)(3) nonprofit organization  
360 9th Avenue, San Francisco, CA 94118

# People of the Institute for Applied Tinkering

## IAT

### Staff

Gever Tulley, Founder  
 Aaron Eden, Executive Director  
 Libby Catzalco, HR and Curious Educator Coordinator  
 Shayne Regalado, Business Manager  
 Freya Suarez, Operations Manager  
 Alicia Hathorne, Bookkeeper

### Board

Kate Schox  
 Kathryn Grantham, Treasurer  
 Maryam Mohit  
 Michael Gough  
 Matt Brocchini, Chair, Secretary  
 Monique Brinson  
 Olivia Teich  
 Patrik Lundh

## BRIGHTWORKS

### Leadership Team

Mackenzie Price, Head of School  
 Anthony Consilio, Director of Community  
 Justine Macauley, Director of Admissions & Transitions  
 Phillip Filastre, Middle School Collaborator & Assistant Director of Program – Middle & Upper School  
 Melissa Nocero, Early Years Collaborator & Assistant Director of Program – Lower School

### Collaborators

Michele Agid Brock, Diamond Band (~K-1st)  
 Emily Furnival, Lapis Lazuli Band (~2nd-3rd)  
 Shirvan Mahto, Quartz Band (~3rd-4th)  
 Rich Perenyi, Citrine Band (~4th-5th)  
 Sam Phillips, Amethyst Band (~5th-6th)  
 Daphne Morgen, Pearl Band (~7th-8th)  
 Phillip Fillastre, Opal Band (~7th-8th)  
 Michlene Cotter, Obsidian Band (~9th-12th)  
 Aili Osteraas-Constable, Obsidian Band (~9th-12th)  
 Swecha Thulasi, Math/Physics Collaborator  
 Evan Barnes, Shop Collaborator  
 Nathan Savoy, Lower School Support  
 Ruby Harrison-Clay, Lower School Support, Aftercare  
 Daniel Bigler, Lower School Support and Aftercare  
 Grace Leary, Aftercare

## TINKERING SCHOOL

### Leadership Team

Ana Zeigler, Tinkering School Collaborator  
 PK Byunn-Reider, Program Manager  
 Jack Meadow\*, Program Manager  
 Karen "KDM" Dwyer-Meadow, Tinkering School Wrangler of Details

### Collaborators

Audrey Gallagher^  
 Cassandra Plevyak\*^  
 Cory Greenwald\*^  
 Daniel Bigler\*  
 John Mellet\*^  
 Kai Hesla-Seymour^  
 Katherine Byunn-Rieder  
 Kevin Weissinger  
 Lilia Parker^  
 Madelyn Hardee^  
 Nathan Savoy\*  
 Owen Hoyt^  
 Sam Phillips\*  
 Sutchat Mosley-Wise\*^  
 Sylvia Hoyt  
 Yasmin Andrews

\* **Brightworks** students, alumni, staff  
 ^ summer staff

