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TOP STORY

James Faulkner Elementary brings learning to the great outdoors

By Molly Bolan Sentinel Staff
Oct 19, 2021

James Faulkner Elementary School teacher Maggie Forrestall talks with Otis Bridges about the creative-writing assignment she gave her third-grade class, offering advice on how to incorporate more details into the stories to paint a picture, on Monday in Stoddard.

Hannah Schroeder / Sentinel Staff

STODDARD — At the back edge of the James Faulkner Elementary School playground, where woodchips meet the tree line, there's an inconspicuous trail. On a quiet mid-morning Monday, it was easy to miss, but following the path marked by laminated paper arrows revealed an unexpected scene.

In a small clearing surrounded by pine trees, Maggie Forrestall was teaching a writing class to a group of 3rd-graders. A giant pad of paper leaned against a juniper bush as she crouched beside each student — some sitting on collapsible stools and others right on the exposed rock — to brainstorm ideas for writing true personal stories.

The outdoor learning space, which has been dubbed Rock 'n' Roll by students, is one of several at the elementary school. Farther along the marked path is the 3rd-, 4th- and 5th-graders' basecamp — a swath of woods, complete with a fire pit and blackboard, where each student can hang a hammock.

A change in scenery

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On the other side of the school, the younger kids have their own basecamp, which was created before the pandemic. Planks of wood laid across tree stumps form semicircles around a small fire pit. Behind the school, there are picnic tables, a garden and greenhouse, and a blacktop patterned with chalked X's to mark where students can eat lunch at a safe distance from one another.

Even in pre-pandemic days, Faulkner Elementary focused on getting kids outside, with activities like overnight canoe trips for 5th-graders and all-school hikes up Pitcher Mountain. But when the COVID-19 pandemic pushed educators to reconsider what safe instruction looks like, the Stoddard elementary school leaned into those outdoor experiences.

Principal Allison Peterson said that while the school began using the outside spaces more due to the public health crisis, their continued use has more to do with an evolving philosophy.

"As [the outdoor classrooms] kept developing throughout the year, I think ... everybody started realizing the benefits of being outside. It wasn't just about COVID anymore," she said. "... We were still covering the same curriculum, we just changed our location."

She added that it's not an easy move, that there's planning and pre-teaching, setting expectations for students for how they interact with each other and the environment.

"But once you put [the work] in," she said, "it feels like it's the most healthy, enriching environment for kids."

Throughout the day, students can be found out and about across the grounds. On this morning, art instructor Tristan Bridges brought students outside to collect natural materials to use for sculptures. While Forrestall's students were hard at work writing in their notebooks, a group of 4th-graders

passed through the woods nearby, location-scouting for the perfect spot to film a Kid Governor campaign video. An hour later, the younger students ate lunch outside, some sitting on blankets brought from home.

Ardelle Corliss, a 2nd-grader, said she prefers being outside while at school.

“You get to have your mask off and inside you have to have it on, and sometimes it’s helpful to be outside.”

Monday brought warm sunshine to Stoddard, and 5th-grader Mason Bodnar said those are the best days for using the outdoor classrooms. They also provide a welcome escape from the desk grind.

“It’s really awesome … when you’re in your hammock it’s good because you can do independent work there instead of doing work at a desk,” he said.

Amanda Bridges, who teaches 4th- and 5th-graders, said she’s noticed just how much the hammocks can help her learners.

The school has several students with sensory needs, she said, meaning they sometimes need movement breaks, which may include taking a walk down the hall and missing part of a lesson.

But when classes are outdoors, she said the hammocks help these students remain focused.

“They’re getting the vestibular input that they need, swinging back and forth on their hammock, but they’re not distracting anybody else,” she said. “They’re not jumping up and down, they’re not fidgeting … they’re right there, engaged and involved.”

Bridges is no stranger to taking advantage of the outdoors. She's a former rock-climbing instructor, backpacking trip leader and ropes course supervisor. This is Bridges' seventh year at Faulkner, and while her first several years were more traditional, her outdoor education experiences have come in handy since the onset of the pandemic.

Earlier in the pandemic, when it appeared the school would be able to offer in-person instruction again, teachers started to realize they would need more than one outdoor space to accommodate all their students safely.

"The troubleshooting was, I've got the big kids, so we'll go make a new one," Bridges said, of the outdoor instruction areas. Her students set to work, learning how to use tools safely to clear out the new basecamp. And there were other learning opportunities along the way.

The land is owned by the town, so teachers and students had to work with the selectboard to get permission to use it — a good civics lesson, Bridges said. The students also worked with the town to get a permit for the fire pit.

After their lunch and recess Monday, the 3rd- through 5th-graders grabbed their hammocks and headed to their basecamp for a "siesta."

Forrestall helped students hang their hammocks, adjusting the height and length of the straps. One student asked if she could use a saw to take down a tree impeding her hammock, and Forrestall suggested she try finding an alternative.

"For right now, I would like to challenge you to find a spot that does not involve sawing," Forrestall told the student.

The outdoor classrooms are also conducive for developing a range of skills, including problem-solving and teamwork.

"There are times when being outside is inconvenient, or not suited to the activity, but I will say having movement and natural transitions and having kids take responsibility for materials is learning, even if it's not officially looking that way as a part of the lesson."

And just because the weather is getting cooler doesn't mean students will soon abandon their basecamps. Last year, kids continued using the outdoor classrooms until February, Bridges said.

Principal Peterson said parents have been nothing but supportive of the outdoor initiatives. Looking ahead, it's difficult to anticipate how the outdoor spaces will change or evolve, she said, because it's really the students who are guiding those developments.

"I've taught and been a leader up and down the East Coast, from Virginia up to New Hampshire," she said. "This is my first time in a small rural school, and every time I come in, I think about how this is really how it should be."

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Molly Bolan

https://www.unionleader.com/opinion/op-eds/molly-bolan-from-siberia-to-my-mother-s-spare-bedroom/article_459ecd18-70ea-5649-b49b-9aaca15b0c9e.html

Molly Bolan: From Siberia to my mother’s spare bedroom

May 10, 2020

MOLLY BOLAN

BACK in early September, a few days before I left for Russia, I was sitting in the passenger seat of my mom’s minivan when suddenly she asked, “Molly, what if there’s some kind of global crisis and I can’t get to you?”

And I remember turning to look at her and thinking what a waking nightmare motherhood must be if she could be here, driving through idyllic rural New Hampshire, contemplating all apocalyptic scenarios that would result in our indefinite separation.

But, evidently, something can be said about a mother’s intuition.

I was fortunate to be a Fulbright English Teaching Assistant in Novosibirsk, Russia — the unofficial capital of Siberia with a population of more than 1.5 million. The Fulbright Program is a United States Cultural Exchange Program that encourages international outreach and person-to-person diplomacy. I spent my weekdays with the brilliant students of Novosibirsk State Pedagogical University and dedicated my spare time to experiencing Russia with a say-yes attitude.

I got involved with the local outing club and I stomped my way in borrowed boots through groves of birch trees and fields of tall feathered grass, landscapes not so different from what we have here in the Lakes Region. I crossed thousands of miles on the trans-Siberian railway and met people from all over the world along the way. I stood on a frozen Lake Baikal to watch the sunrise. I took shots of vodka to celebrate the New Year and watched President Putin's address to the nation. I joined a rock climbing gym, made wonderful friends, and loved the life I made for myself.

But then on a fateful Friday the 13th in March, my fellow Fulbrighters and I received an email from the Bureau of Educational and Cultural Affairs that strongly recommended we make plans to return to the U.S. as soon as possible before the coronavirus outbreak got worse. At that point, life was still business-as-usual in Novosibirsk, and I brushed the email off as an overreaction (stupid, I know). It seemed that to leave Russia, where every day was interesting and presented new personal challenges, to return to my comparatively mundane hometown would only result in lonely boredom.

More than anything though, it felt like failure. I had always imagined myself leaving Russia a much better, shinier, smarter person. In March, I felt far from that version of myself and to leave prematurely felt like a regression.

But it seemed every hour the world was falling further into chaos. If anything were to happen to my mom during this pandemic, I would never forgive myself if canceled flights and closed borders prevented me from getting to her quickly. Within a few days, I booked my ticket, packed up all my worldly possessions, cried a lot and said goodbye to the friends I could. I landed at JFK Airport the day after the State Department issued a Level 4 travel advisory.

When my mom and her brother-in-law pulled up to the terminal, my mom was hanging out the window of his car, waving and yelling and laughing. It's strange to see someone you love after a long time and not embrace them right away. I already had my paper mask in place and waited impatiently while she pulled on her disposable gloves. If I hadn't been exhausted from the 24 hours of traveling I would've cried from the simultaneous elation and heartache.

That first week home, jet lag would wake me in the blue hours of the morning, but my mom always had coffee ready. She gave me a book about Rumney Rocks that she bought months ago when I first told her I had started climbing. She told me the story of Betty and Barney Hill, and we took a driving tour to visit the sites of their abduction and release. We're binging North Woods Law, proudly yelling "We've been there!" whenever there's a shot of Lincoln Woods or Winnisquam Lake. This is how the last 45 days — each saturated with fresh air and localized adventures — have passed.

I'm writing this from my mother's sofa, listening to my mom crack up as she reads a David Sedaris book. We'll go for a walk this afternoon, and I'll work on job applications tonight.

If I were quarantined anywhere else with anyone else, I imagine I'd be in much rougher shape both physically and mentally. I'm grateful to be with someone who makes me a better, shinier person and reminds me we have plenty to look forward to. To be quarantined with my mom in idyllic rural New Hampshire has been the greatest privilege.

The views expressed in this piece are entirely my own and do not represent the views of the Fulbright Program, the U.S. Department of State, or any of its partner organizations.

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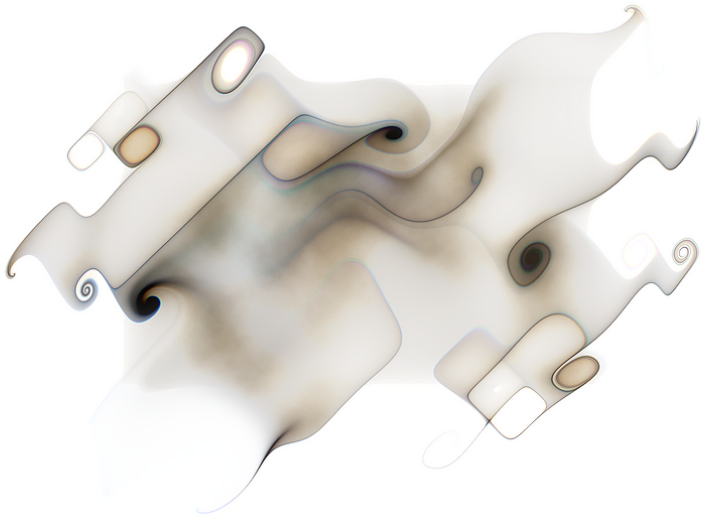
ARTpublika Magazine
Art Culture for The People

Staff Dec 4, 2020 5 min read

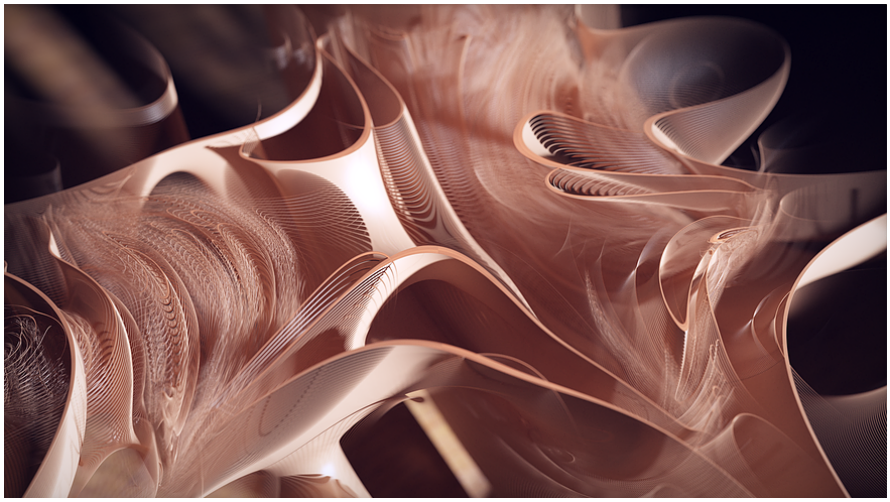
Math + Programming = Art: Iñigo Quilez wants you to know just how beautiful math can be

#byMollyBolan

It seems to be a universal character trait of high school math teachers to preface every sketch of a sine curve with, *Now I'm no artist*... as if any group of sixteen-year-olds expects a blackboard masterpiece. For most of us, the linkage between art and math rarely extends beyond shoddy sketches of unit circles and, perhaps, a doodle or two in the margins of our notebooks. But just how wide is the gap between math and art? According to engineer Iñigo Quilez, it's all but disappeared.

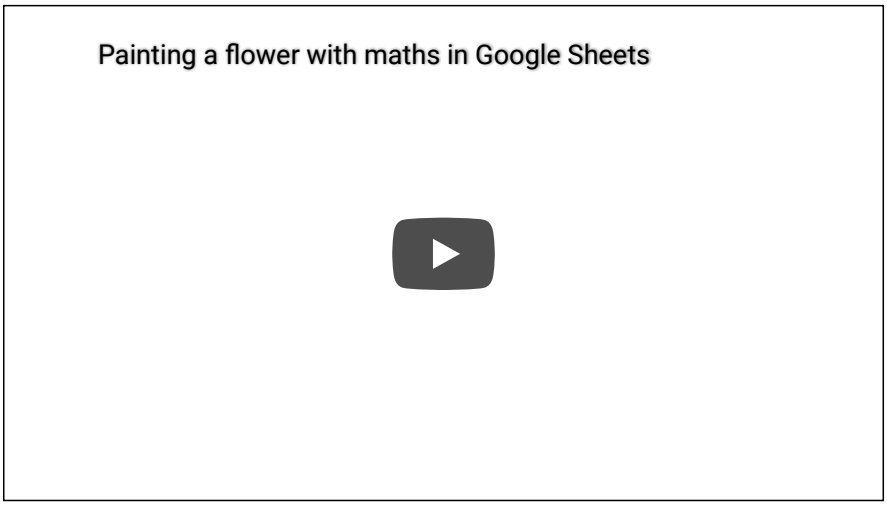


Quilez understands that math often gets a bad rap with the general public. He points out that most people will fall into one of two camps in regard to their relationship with math. The first are the folks who see math as being cold and mechanical, most likely the former high schoolers who found themselves at the kitchen table at 1 am, alone with their calculus homework, asking: *When am I ever going to need to know this?* "The second type of people," Quilez tells *ARTpublika Magazine*, "are like me; a bit of an artist and a bit programmer. They're nerds and like art."



Quilez, a freelancer currently based in San Francisco, is trying to reach both groups to prove to the former that math is not, in fact, cold and mechanical; and to recruit the latter to help carry this message forward. "Just as you use words to make poetry or words to do the reporting of the morning," he asserts, "you can use maths to do the reporting or you can use them to do something beautiful."

For most of us, it's not intuitively clear how typed equations become sweeping landscapes or cartoony portraits. Quilez's YouTube channel, with its plethora of tutorials, is probably the best place to get a better understanding. In one video, he illustrates the process at a basic level by using one of the most universally accessible tools.



"We are here to paint [a] flower with mathematics by describing every shape and color through formulas," his voiceover says as he primes a Google Sheets page to be a canvas. He goes on to enter formulas into the cells and columns, assigning colors to numerical values and using equations that are at least vaguely familiar to most people. He occasionally cuts to shots of his notebook, sketching out diagrams of the trigonometry he uses for those of us who have not held too tightly to these concepts over the years. The end result is a cutesy, pixelated flower, delivered with patient explanations and contagious enthusiasm.

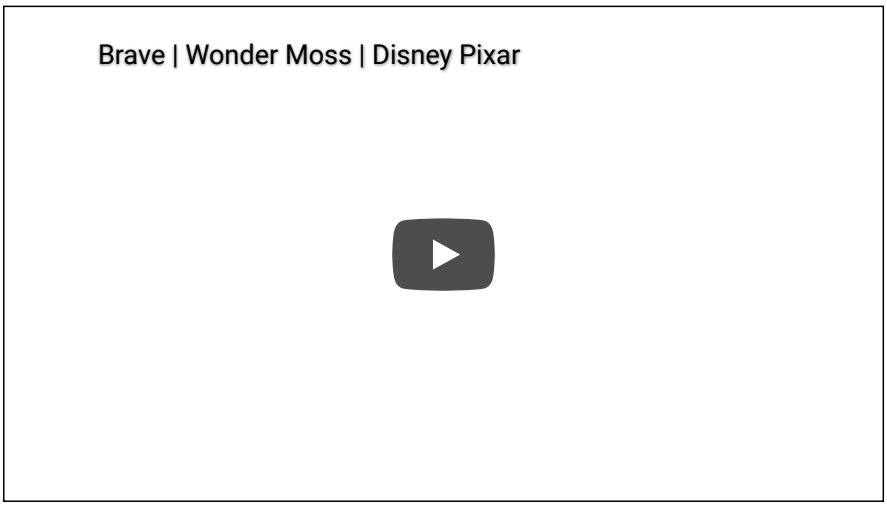
The rest of Quilez's work follows that same blueprint: consider which theorems and formulas will create the shapes he wants, enter formulas into a processing tool (Google Sheets was used in this example, but most creators will use more complicated tools called shaders), and tweak the resulting image.

Brave Trailer

Perhaps without realizing it, you've likely already encountered some of Quilez's work. Think back to 2012, when Pixar's *Brave* told the story of strong-willed Merida adventuring through the Scottish countryside and avoiding her royal duties. Those luscious landscapes through which our fire-haired heroine loved to gallop? That was all created using math.

"I would orchestrate the choreography of nature through the equations," Quilez says, explaining that he'd start with just individual trees and rocks, then populate entire forests with those elements, before going through and making adjustments to suit the parameters of each scene. Quilez convinced Pixar to use math instead of hiring an army of technical artists to create *Brave*'s scenery. But the programmer didn't learn to make art using math for the purpose of saving production companies, like Pixar, time and money.

"Intellectually I don't care if there is a use [for] it. Even if there was no use I would keep making it, I wouldn't mind," he says."It gives me total satisfaction when I find something new and think: *I'm the first human ever who has been in this particular place of intellectual activity. No one has done this cosine plus logarithm equals a fern, or an oak tree. No one has been here before*. And that's amazing, even if it doesn't impact the world or it's not a cure for cancer or anything like that."



With the release of *Brave*, Quilez had achieved a major goal: To create something beautiful using math to be seen by millions of people all over the world. The downside? Most viewers didn't realize it was math they were looking at. He asked Pixar to create a short video of him explaining how the vegetation in the film, called Wonder Moss, was made. "It didn't get that many views," Quilez says, laughing, "so I have to continue my efforts, these messaging efforts."

Over the years, those efforts have taken many shapes. Quilez co-created ShaderToy, an online platform akin to social media that allows

other developers to share their works, and his YouTube channel covers everything from the principles of math-painting to two-hour-long recorded live coding sessions. Quilez shares what he knows freely, hoping to fill the resource gap for a relatively niche computer-art field.

As a teenager, he was curious about how computers work and make images, and by his early twenties, he was using his math and programming skills to create digital graphics. His education in electrical engineering provided the fluency in math he needed to create graphics but, beyond that, it was difficult to find resources to further develop the craft. And so began his journey of self-education.

"I started realizing that, *Oh wow, this is amazing*!, and no one taught me this. No teacher told me I could use cosines and logarithms to paint a tree, or a mountain." He concludes: "I have to learn first more of this and then tell everyone about it." In his pursuit of "telling everyone about it," he found a community of like-minded creators in the demoscene, a computer-art subculture that features combinations of coding and hand-created art. The demoscene was most popular in Europe in the 90s and 2000s, and Quilez, who was born and raised in San Sebastián, Spain, found it to be a good space for the innovative works he was creating.

From abstract pieces to renderings of dreamy landscapes, Quilez's work appears to be the fruits of a digital artist's intense labors. But he hardly considers himself an artist. "I can craft pretty images sometimes — well, for some questionable definition of pretty, because probably what I do is not pretty to many people," he says, surprisingly self-deprecating for arguably the greatest pioneer in his field.

Perhaps more surprisingly, Quilez doesn't use reference images when creating his work, nor does he draw on film or literature for inspiration. Instead, he often starts with a challenge. "[I'll] have an idea — wouldn't it be nice to plant trees on the ground in a hexagonal pattern? How do I teach about hexagons to the computer?" From there, he just starts coding, getting the basic shapes down before adjusting shadows and colors, often improvising as he goes along. "I land on something that is a mix of what I could do and what my taste told me I should do," he says.

According to Quilez, there are only a few people besides himself that are using solely math and programming to create elaborate works of digital art. There aren't many universities willing to fund research, and it's hard to come by a production studio that's pushing to further develop the techniques used in *Brave*. This, he says, is all the more reason to jump right in. "For those who want to do innovation, it's very easy to invent new things, because there are so few people exploring it," he explains.

"If you are here for the innovation and not for the money — although there is money to be made — you're going to be Einstein, you're going to push the field further and invent new things. If people are looking for those kinds of rushes and getting that feeling, jumping into using maths to make pictures — there are lots of things to explore and it's easy to get that."

Note All images were provided by and are the property of Iñigo Quilez.*